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New Estimates of Hardwood Lumber Exports to Europe and Asia

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Abstract

Explains how estimates of hardwood lumber exports earlier than May 1989 came to be in error, discusses the procedures used to develop a new set of hardwood-lumber export estimates, and presents a detailed set of new hardwood-lumber export estimates for European and Asian markets.

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Introduction

During the 1980's, hardwood lumber exports to European and Asian markets increased dramatically. Unfortunately, volume statistics reported by the U.S. Department of Commerce, Bureau of the Census (1989) greatly overstated this growth for several key species such as red oak, hard maple, ash, and walnut (Luppold and Hansen 1989). Problems that resulted in overestimation of export volumes were corrected by U.S. Department of Commerce (USDC), in cooperation with the authors, beginning with the May 1989 data. However, lack of funding did not allow USDC to revise previous data. This paper presents new estimates of hardwood lumber exports to Europe and Asia from 1981 through 1989 and explains the procedures used to develop these estimates. An evaluation of these estimates compared with USDC estimates and Asian import data also is in preparation by Luppold and Thomas.

This paper consists of four parts. The first two parts examine how the hardwood-lumber export volumes were overestimated and how alternative estimates of export volumes were developed from ship manifest data. The third section introduces the fourth, an appendix consisting of Tables 3 through 20: this section compares error-adjusted 1989 Census data against data developed from ship manifests. The appendix also provides a detailed set of new estimates of hardwood lumber exports, by species, for all major European and Asian markets.

Causes of Error in USDC Estimates

To understand how the hardwood-lumber export volumes were overestimated, we examined the computer program that screens export declarations and compiles export statistics. If this program found that the ratio of declared value to declared volume (imputed price) was higher or lower than predetermined limit prices, a new volume was developed by dividing the declared value by a default price. Different limit and default prices were used for each product reported in the export statistics. However, before the identification of this problem, most of the limit and default prices were set at pre-1980 levels.

Overestimation of export volumes resulted from a combination of incomplete or incorrect export declarations and outdated price ranges and default prices. Because of legal considerations, the price ranges and default prices contained in the USDC computer programs cannot be revealed. However, the impact of the problem can be illustrated by comparing prices developed from USDC export statistics for important markets and species against domestic prices. In Table 1, the price of exported material is compared with the price of domestic medium-value (1C) and high-value (FAS) kiln-dried hardwood lumber. Based on industry sources, the average price for European and Japanese exports should be close to the price of FAS lumber. Exports to Taiwan and Canada, on average, should be close to 1C lumber prices. Except in the case of white

Table 1.—Comparison of lumber prices developed from export statistics with market prices of domestic medium value (1C) and high value (FAS) kiln-dried hardwood lumber, 1988[a]

Country	Red oak	White oak	Ash	Hard maple
	Dollars per Mbf			
Foreign:				
Canada	491	946	341	225
Japan	506	999	441	222
Taiwan	601	843	420	251
United Kingdom	518	976	392	232
Belgium	553	1,032	459	250
Domestic:				
1C (KD)[b]	907	837	941	580
FAS (KD)[b]	1,594	1,364	1,439	875

[a]Setzer, W. F. 1988. Weekly Hardwood Review.

[b]June 1988 mid-price multiplied by 1.07 to adjust gross tally price to net tally price.

oak, all prices developed from export statistics appeared too low. Of most interest is that the price of red oak going to Taiwan was higher than the price of red oak shipped to Japan, the United Kingdom, and Belgium.

Even though the errors caused by the dated price parameters have created problems, the impact of improper documentation cannot be understated. Several checks by Bureau of Census personnel on red oak lumber and log exports in 1988 and 1989 consistently revealed a 50-percent error rate resulting in incorrect specification of products or species, or both (Table 2). For instance, a detailed follow-up of red oak log exports in May 1989 revealed only 51 percent of the dollar volume as red oak lumber. Included as red oak logs were (in order of importance) red oak, white oak, edge-glued, cypress, and hard maple lumber, and white oak logs. A check on red oak log export documentation for June and July 1989 and red oak lumber shipments to Germany in April 1988 was equally appalling. After careful examination of available evidence, we concluded that even-value estimates appeared to be accurate only in broad aggregates such as all hardwood products.

Since May 1989, new price ranges and default prices have been installed for hardwood lumber export computations. The changes apparently have remedied the problem of incorrect information on hardwood lumber exports.

Because of the problems discussed above, errors in hardwood lumber exports have occurred to a minor extent since 1978. However, the degree of error significantly increased in the 1980's as new firms began to export and hardwood product prices began to increase sharply. Fortunately, as official statistics became less reliable, alternative data became available from the Journal of Commerce's "Port Import Export Reporting Service" (PIERS).[1] This database is developed from ocean freight manifests of ships leaving U.S. ports. Although ship manifest data are available for shipments originating from the east coast since 1979, 1981 was the first full year that data for both east and west coast shipments were available.

Data Development

All revised estimate data in this paper were based on analyses of data purchased from PIERS. This service provides detailed information on product shipments from individual ship manifests. In order to avoid possible undercounting due to misclassification, export information on all forest products and furniture was acquired.

The first step in developing new estimates of hardwood product exports was toclassify all observations into the specific 10-digit codes used by USDC. Although most of the observations fell into one of these classification codes, a number of observations failed to be classified. The failed observations for 1986 and 1988 were analyzed to determine if any systematic patterns could be used for classification. It was felt that a review of these years would provide information to classify automatically any observations that failed the initial screening. Many of the classification problems were remedied by including common misspellings and abbreviations into the initial classification program. However, the largest number of observations failed to be classified because they were termed "lumber" without reference to species.

Table 2.—Comparison of 1989 lumber exports developed from PIERS data with data Census-adjusted for errors from January through April 1989 (estimates included dimension products)

Country	New estimates	Error-adjusted Census estimates
	Mbf	
Japan	135.0	126.7
Taiwan	83.4	79.8
United Kingdom	34.2	43.1
Belgium	39.8	40.0
Italy	39.0	38.9
West Germany	27.3	33.0
Spain	29.2	27.2
Netherlands	17.8	16.7
France	16.1	13.7
Korea	12.3	12.7
Major European	203.4	212.6
Major Asian	230.7	219.2

The unclassified observations labeled as "lumber" were handled in a number of ways. If a shipper was associated with only hardwood lumber in the unfailed data, or if the shipper was listed as a hardwood producer in a state that primarily produced hardwood, the term "lumber" would be interpreted as hardwood lumber. However, if the shipper was a known softwood producer, or if the shipper exported from the west coast and could not be identified as a hardwood lumber producer or shipper, the term "lumber" would be interpreted as softwood lumber. This process classified most of the observations; the remainder were classified on an individual basis.

The next step in developing the export volumes was to transform all data into thousand board feet (Mbf). Information included on the manifest usually had two pieces of information: weight of the shipment and units. The unit measurement was in Mbf for a varying number of shipments depending on year, species, product, or country of destination. Other units of measurement reported in the data were expressed in bundles, pieces, packages, containers, square feet, and cubic meters. In order to transform the data, coefficients relating weight to board feet were developed for logs and lumber for each species.

[1]The use of trade, firm, or corporation names in this publication is for the information and convenience of the reader. Such use does not constitute an official endorsement or approval by the U.S. Department of Agriculture or the Forest Service of any product or service to the exclusion of others that may be suitable.

Initially, it was felt that a coefficient to transform weight into Mbf (net tally) kiln dried (7 percent) lumber by species, would be available in the literature; however, no appropriate coefficient was found.

Because of the difficulty in obtaining pre-published weight and quantity transformations, coefficients developed from the subset of observations with both weight and thousand board feet listed were used. At least 15 records for a given species, country, and year were required to make an inference for all other observations for a given species, country, and year. The cut-off value, 15, was set in order to make inferences on smaller markets or during years of smaller shipments, but to preclude an inference on too small a number of observations. Observations used to develop inferred values were examined individually to ensure that spurious observations were not used to calculate weight and quantity coefficients. The resulting weight and quantity coefficients also were examined and compared against one another.

If an inferred value could not be developed, the average inferred values from all years for a particular species and destination were used. If no inferred values existed for a particular species, year, and country, default prices based on an average of observed weight and quantity values for a particular species for all European and Asian observations were used depending on region of destination.

Hardwood Lumber Exports

New estimates of hardwood lumber exports for 1981 through 1989 are shown for European (Tables 3-11) and Asian (Tables 12–20) markets. Since not all exports leaving the United States go through U.S. ocean ports, an inland exit multiplier was developed from export value data reported by the USDC. Specifically, this multiplier was developed by dividing total value of shipments for a specific country in a specific year by the value of shipments leaving ocean ports. These multipliers are reported in the "inland multiplier" line of each appendix table. The estimate of total exports including the non-ocean exit points for each country and year is provided in the last line of each appendix table. Estimates of export volumes by species are for ocean exit points only.

A comparison of the 1989 export estimates developed from ship manifest data versus 1989 error-adjusted USDC estimates for important European and Asian markets is shown in Table 2. Overall, estimates developed from shipping manifests indicate greater amounts going to Asian markets and lesser amounts going to Europe. Although there are differences between these two estimates, the differences still are surprisingly close. For a more detailed discussion on how the new estimates compare with hardwood lumber import information developed by Japan and Taiwan, consult Luppold and Thomas (In preparation).

References

Barrett, George, ed.1988. **Weekly hardwood review.** 3(40): 1-22.

Journal of Commerce. 1989-90. **Port import export reporting service database.** New York, NY: The Journal of Commerce.

Luppold, William; Hansen, Bruce G. 1989. **U.S. export discrepancies explained.** National Hardwood Magazine. 63(12): 99-103.

Luppold, William G.; Thomas, R. Edward. (In preparation). A revised examination of hardwood product exports to the Pacific Rim.

Setzer, W. F. 1988. **Hardwood market report: lumber news letter.** Hardwood Market Report. 3(40).

U.S. Department of Commerce, Bureau of the Census. 1989. **Schedule B: statistical classification of domestic and foreign commodities exported and imported from the United States database.** Washington, DC: U.S. Department of Commerce, Bureau of the Census.

Appendix

Table 3.—Hardwood lumber export estimates for 1981, Europe

Species	United Kingdom	West Germany	Belgium and Luxembourg	Netherlands	Other Countries, Northern Europe	Italy	France	Spain	Other Countries, Southern Europe	Denmark	Finland	Sweden	Norway	Iceland	Central Europe	Total Europe
	Mbf															
Red oak	931	3,695	7,719	5,939	114	1,098	4,096	127	34	70	12	468	125	7	223	24,658
White oak	617	9,150	4,136	5,103	140	3,650	1,500	1,704	120	35	65	259	347	0	45	26,873
Beech	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hard maple	7	5	93	85	0	381	26	25	0	0	0	0	0	0	0	621
Soft maple	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Alder	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	18
Cherry	28	135	973	11	5	6	1,400	0	0	0	0	0	0	0	0	2,559
Yellow-poplar	63	31	18	36	0	188	1	0	0	0	0	58	0	0	0	394
Birch	0	5	0	2	0	0	3	0	0	0	0	0	0	0	0	10
Ash	22	147	167	465	0	350	0	0	0	1	201	83	0	0	0	1,437
Hickory	366	261	0	103	0	0	7	0	0	0	0	188	8	0	0	934
Walnut	54	78	0	151	0	25	7	29	0	0	22	180	2	0	0	549
Basswood	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Elm	1	0	0	0	0	45	81	0	0	0	0	0	0	0	0	127
Cottonwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sassafras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aspen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sap gum	0	0	0	0	0	823	0	28	0	0	0	0	0	0	0	850
Sycamore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paulownia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persimmon	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Hackberry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tupelo	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Tropical	56	2	25	2	13	39	84	0	6	41	5	0	69	0	0	340
Not defined by species	978	6,392	7,203	7,139	230	4,483	4,129	507	0	52	69	411	271	219	206	32,289
Total ocean ports[a]	3,134	19,902	20,335	19,038	502	11,106	11,336	2,420	160	198	373	1,648	822	227	473	91,673
Inland multiplier	1.63	1.05	1.11	1.20	1.14	1.14	1.16	1.09	1.00	1.05	1.00	1.14	1.01	1.00	1.00	1.14
Total all ports[a]	5,108	20,897	22,572	22,845	571	12,661	13,150	2,638	160	208	373	1,879	830	227	473	104,591

[a]Totals reflect rounding to nearest thousand board foot.

Table 4.—Hardwood lumber export estimates for 1982, Europe

Species	United Kingdom	West Germany	Belgium and Luxembourg	Netherlands	Other Countries, Northern Europe	Italy	France	Spain	Other Countries, Southern Europe	Denmark	Finland	Sweden	Norway	Iceland	Central Europe	Total Europe
	Mbf															
Red oak	1,184	2,944	9,932	4,688	187	651	1,841	357	22	57	140	206	482	28	121	22,842
White oak	676	8,216	3,261	3,246	277	4,433	903	3,143	120	0	76	107	690	0	84	25,231
Beech	6	0	0	0	0	2	0	0	0	0	0	0	0	0	0	8
Hard maple	17	0	214	38	0	979	87	32	0	0	0	31	0	0	0	1,397
Soft maple	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Alder	0	0	340	2	0	225	21	0	0	0	0	0	0	0	0	588
Cherry	65	192	606	106	0	116	936	0	0	0	0	0	0	0	0	2,021
Yellow-poplar	98	30	32	28	0	452	0	15	0	0	0	0	0	0	0	655
Birch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ash	42	285	403	219	0	570	0	26	29	0	22	18	76	0	14	1,704
Hickory	669	263	16	76	9	0	17	0	0	17	0	91	42	0	0	1,199
Walnut	57	58	0	52	0	34	10	24	0	0	14	55	0	0	0	303
Basswood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	150	21	0	0	0	0	0	0	0	0	171
Cottonwood	30	0	0	19	0	0	0	0	0	0	0	0	0	0	0	49
Sassafras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aspen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sap gum	40	0	0	0	0	757	0	0	0	0	0	0	0	0	0	797
Sycamore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paulownia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackberry	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	11
Tupelo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tropical	47	0	22	2	4	22	42	2	0	18	38	18	34	0	0	249
Not defined by species	1,659	5,557	5,483	5,346	303	5,393	3,503	1,467	70	145	350	423	743	195	49	30,687
Total ocean ports[a]	4,600	17,545	20,309	13,822	780	13,792	7,381	5,066	241	237	640	949	2,067	224	270	87,921
Inland multiplier	1.48	1.05	1.12	1.35	1.11	1.05	1.14	1.02	1.03	1.07	1.08	1.07	1.01	1.00	1.00	1.14
Total all ports[a]	6,808	18,422	22,746	18,660	862	14,482	8,414	5,167	247	253	691	1,016	2,087	224	270	100,349

[a]Totals reflect rounding to nearest thousand board foot.

Table 5.—Hardwood lumber export estimates for 1983, Europe

Species	United Kingdom	West Germany	Belgium and Luxembourg	Netherlands	Other Countries, Northern Europe	Italy	France	Spain	Other Countries, Southern Europe	Denmark	Finland	Sweden	Norway	Iceland	Central Europe	Total Europe
	Mbf															
Red oak	2,536	4,825	7,945	4,025	542	1,150	885	276	0	190	726	286	916	41	0	24,343
White oak	1,765	15,687	5,903	7,052	242	5,537	914	4,459	117	300	286	243	574	50	0	43,129
Beech	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hard maple	29	23	58	0	0	138	31	31	0	0	0	0	0	1	0	311
Soft maple	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alder	0	0	65	0	0	1,031	55	0	0	0	0	0	0	0	0	1,151
Cherry	45	256	525	85	7	63	782	25	0	0	0	20	0	0	0	1,809
Yellow-poplar	225	57	33	48	7	1,336	0	18	0	0	0	0	0	0	0	1,723
Birch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ash	357	604	554	418	33	482	0	0	14	81	92	38	61	0	0	2,733
Hickory	596	153	33	132	0	0	21	7	0	13	9	170	70	0	0	1,205
Walnut	54	342	0	60	6	35	20	19	22	11	16	20	0	0	0	604
Basswood	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	9
Elm	24	0	17	12	0	27	0	0	0	0	0	0	0	0	0	81
Cottonwood	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79
Sassafras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aspen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sap gum	47	0	0	0	0	494	0	17	0	0	0	0	0	0	0	558
Sycamore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paulownia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackberry	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	24
Tupelo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tropical	90	2	20	0	0	28	83	0	0	17	9	56	105	0	0	409
Not defined by species	1,702	3,039	5,927	3,567	148	2,851	3,718	943	11	61	84	279	95	127	0	22,552
Total ocean ports[a]	7,547	24,987	21,081	15,407	985	13,196	6,510	5,796	164	674	1,222	1,111	1,821	218	0	100,720
Inland multiplier	1.54	1.10	1.20	1.40	1.08	1.05	1.19	1.02	1.15	1.06	1.18	1.05	1.02	1.00	.00	1.19
Total all ports[a]	11,623	27,486	25,298	21,570	1,066	13,856	7,747	5,912	188	714	1,442	1,167	1,857	218	0	120,143

[a]Totals reflect rounding to nearest thousand board foot.

Table 6.—Hardwood lumber export estimates for 1984, Europe

Species	United Kingdom	West Germany	Belgium and Luxembourg	Netherlands	Other Countries, Northern Europe	Italy	France	Spain	Other Countries, Southern Europe	Denmark	Finland	Sweden	Norway	Iceland	Central Europe	Total Europe
	Mbf															
Red oak	2,060	3,209	5,922	2,753	630	363	1,274	315	21	160	118	178	1,006	17	0	18,025
White oak	1,969	13,031	6,705	4,144	310	9,200	774	3,330	65	420	626	574	728	25	0	41,901
Beech	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	25
Hard maple	154	16	0	0	0	105	0	138	0	0	0	0	0	0	0	414
Soft maple	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Alder	0	0	48	0	0	101	47	0	0	0	0	0	0	0	0	197
Cherry	150	439	60	45	0	96	105	0	0	0	0	0	0	0	0	903
Yellow-poplar	124	65	0	33	0	1,043	0	2	0	0	0	0	0	0	0	1,267
Birch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ash	292	545	132	200	70	503	13	6	0	0	113	8	33	0	0	1,916
Hickory	681	194	111	121	0	0	0	0	0	7	10	148	49	0	0	1,321
Walnut	104	252	13	11	0	2	14	51	0	13	12	15	0	0	0	487
Basswood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elm	13	0	0	0	0	61	0	0	0	0	0	0	0	0	0	74
Cottonwood	50	21	0	0	0	0	0	0	0	0	0	0	0	0	0	71
Sassafras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aspen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sap gum	38	0	0	0	0	1,266	0	0	0	0	0	0	0	0	0	1,304
Sycamore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paulownia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackberry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tupelo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tropical	121	11	30	0	0	419	99	0	0	3	8	184	33	0	0	910
Not defined by species	2,535	1,530	2,003	999	142	3,363	1,743	483	60	92	47	73	48	70	0	13,187
Total ocean ports[a]	8,292	19,312	15,025	8,305	1,151	16,548	4,069	4,326	146	694	934	1,190	1,898	111	0	82,002
Inland multiplier	1.50	1.08	1.27	1.68	1.01	1.03	1.26	1.02	1.34	1.10	1.08	1.07	1.00	1.00	.00	1.21
Total all ports[a]	12,439	20,857	19,082	13,953	1,162	17,045	5,127	4,412	196	763	1,009	1,273	1,898	111	0	99,327

[a]Totals reflect rounding due to nearest thousand board foot.

Table 7.—Hardwood lumber export estimates for 1985, Europe

Species	United Kingdom	West Germany	Belgium and Luxembourg	Netherlands	Other Countries, Northern Europe	Italy	France	Spain	Other Countries, Southern Europe	Denmark	Finland	Sweden	Norway	Iceland	Central Europe	Total Europe
	Mbf															
Red oak	2,070	1,125	6,352	1,578	639	1,371	1,815	372	13	192	246	24	1,560	7	0	17,364
White oak	1,408	9,641	5,106	3,599	197	5,113	245	3,833	116	766	229	606	392	29	12	31,292
Beech	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hard maple	75	46	47	0	0	104	0	0	0	0	0	0	0	0	0	271
Soft maple	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alder	51	0	19	608	0	8	319	0	0	0	0	0	0	0	0	1,005
Cherry	135	150	44	63	30	50	0	7	0	0	0	0	0	0	0	479
Yellow-poplar	338	0	31	32	0	1,468	0	0	0	0	0	0	0	0	0	1,871
Birch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ash	583	390	142	197	28	191	6	69	18	0	28	20	0	0	0	1,671
Hickory	638	253	134	195	0	0	17	0	0	5	5	230	53	0	0	1,530
Walnut	109	96	0	18	12	0	0	15	0	0	23	10	0	0	0	283
Basswood	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	9
Elm	0	0	0	0	0	342	0	0	0	0	0	0	0	0	0	342
Cottonwood	19	88	0	0	0	0	0	0	0	0	0	0	0	0	0	107
Sassafras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aspen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sap gum	11	8	0	0	0	837	0	0	0	0	0	0	0	0	0	856
Sycamore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paulownia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackberry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tupelo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tropical	110	0	24	11	0	39	119	0	0	18	6	23	12	0	0	363
Not defined by species	2,665	1,527	1,161	1,149	171	1,365	699	693	106	13	36	54	9	19	0	9,666
Total ocean ports[a]	8,211	13,324	13,060	7,460	1,078	10,887	3,219	4,989	253	994	573	967	2,026	55	12	67,108
Inland multiplier	1.25	1.09	1.16	1.49	1.04	1.05	1.40	1.02	1.30	1.07	1.13	1.09	1.01	1.00	1.00	1.17
Total all ports[a]	10,264	14,523	15,149	11,116	1,119	11,431	4,507	5,089	328	1,064	648	1,054	2,046	55	12	78,406

[a]Totals reflect rounding to nearest thousand board foot.

Table 8.—Hardwood lumber export estimates for 1986, Europe

Species	United Kingdom	West Germany	Belgium and Luxembourg	Netherlands	Other Countries, Northern Europe	Italy	France	Spain	Other Countries, Southern Europe	Denmark	Finland	Sweden	Norway	Iceland	Central Europe	Total Europe
	Mbf															
Red oak	2,977	1,075	7,206	1,611	711	1,464	1,442	738	0	94	243	26	1,409	14	0	19,009
White oak	4,119	11,946	10,038	6,887	272	7,542	1,055	7,408	430	682	460	709	619	34	0	52,202
Beech	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hard maple	229	62	71	9	0	81	60	7	0	0	0	0	0	0	0	518
Soft maple	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4
Alder	33	184	233	814	0	131	358	23	0	0	0	0	0	0	0	1,776
Cherry	283	346	191	133	0	181	32	67	0	0	0	0	0	0	0	1,233
Yellow-poplar	281	18	57	104	0	2,241	14	97	0	0	0	0	0	0	0	2,812
Birch	0	0	0	12	0	11	0	0	0	0	0	0	0	0	0	23
Ash	1,894	593	226	663	154	556	0	25	56	72	66	11	28	0	0	4,344
Hickory	661	401	154	168	31	4	26	0	0	8	0	155	52	0	0	1,661
Walnut	156	235	0	14	0	134	13	78	0	0	45	0	0	0	0	675
Basswood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	10
Cottonwood	67	41	6	0	0	7	0	0	0	0	0	0	0	0	0	120
Sassafras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aspen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sap gum	35	0	0	0	0	1,140	0	0	0	0	0	0	0	0	0	1,175
Sycamore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paulownia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackberry	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Tupelo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tropical	419	6	413	14	0	17	76	0	5	20	21	30	74	0	0	1,095
Not defined by species	2,830	1,611	773	591	106	1,921	386	824	11	85	39	75	60	16	0	9,329
Total ocean ports[a]	13,994	16,520	19,368	11,021	1,274	15,439	3,462	9,266	502	961	874	1,006	2,242	64	0	95,994
Inland multiplier	1.21	1.09	1.15	1.37	1.20	1.06	1.43	1.03	1.01	1.06	1.07	1.03	1.01	1.00	.00	1.15
Total all ports[a]	16,933	18,007	22,273	15,098	1,532	16,366	4,951	9,544	506	1,019	935	1,036	2,265	64	0	110,529

[a]Totals reflect rounding to nearest thousand board foot.

Table 9.—Hardwood lumber export estimates for 1987, Europe

Species	United Kingdom	West Germany	Belgium and Luxembourg	Netherlands	Other Countries, Northern Europe	Italy	France	Spain	Other Countries, Southern Europe	Denmark	Finland	Sweden	Norway	Iceland	Central Europe	Total Europe
	Mbf															
Red oak	4,092	1,174	7,152	1,506	8,114	834	1,491	1,121	44	297	223	132	1,376	0	0	27,556
White oak	6,876	12,344	14,356	6,927	538	10,456	947	9,746	581	720	466	680	563	12	60	65,273
Beech	0	0	0	0	0	23	0	5	0	0	0	0	0	0	0	28
Hard maple	410	4	123	1	0	164	15	45	12	43	0	0	0	0	0	816
Soft maple	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Alder	0	735	1,284	169	132	1,635	322	137	0	19	0	0	0	0	0	4,434
Cherry	379	418	115	100	12	577	218	205	0	0	0	0	0	0	0	2,026
Yellow-poplar	1,366	52	87	151	0	7,618	1	241	0	7	9	188	14	34	0	9,769
Birch	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Ash	2,264	1,699	453	697	222	1,203	21	84	114	207	18	32	18	0	0	7,032
Hickory	716	244	103	174	21	0	18	0	0	51	0	169	31	0	0	1,528
Walnut	98	202	18	15	4	236	36	183	0	25	2	14	0	0	0	832
Basswood	0	0	0	2	0	14	0	15	0	0	7	0	0	0	0	38
Elm	2	0	0	0	0	10	0	0	0	0	0	0	0	0	0	12
Cottonwood	16	5	0	0	0	0	0	0	0	0	0	0	0	0	0	21
Sassafras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aspen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sap gum	28	0	0	0	0	3,224	0	12	0	0	0	0	0	0	0	3,265
Sycamore	0	0	0	0	0	32	0	0	0	0	0	0	0	0	0	32
Paulownia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackberry	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Tupelo	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
Tropical	215	1	27	0	0	38	293	23	0	14	91	18	93	0	0	812
Not defined by species	3,955	1,503	677	306	90	4,181	288	1,442	20	212	6	128	60	32	0	12,899
Total ocean ports[a]	20,434	18,381	24,400	10,049	9,133	30,247	3,649	13,258	770	1,595	821	1,361	2,155	78	60	136,394
Inland multiplier	1.32	1.24	1.28	1.49	1.29	1.06	1.50	1.01	1.02	1.03	1.18	1.03	1.01	1.00	1.00	1.22
Total all ports[a]	26,973	22,793	31,232	14,973	11,765	32,062	5,474	13,391	785	1,643	969	1,402	2,177	78	60	165,777

[a]Totals reflect rounding to nearest thousand board foot.

Table 10.—Hardwood lumber export estimates for 1988, Europe

Species	United Kingdom	West Germany	Belgium and Luxembourg	Netherlands	Other Countries, Northern Europe	Italy	France	Spain	Other Countries, Southern Europe	Denmark	Finland	Sweden	Norway	Iceland	Central Europe	Total Europe
	Mbf															
Red oak	5,086	1,525	11,310	1,846	938	710	3,224	1,420	75	229	429	95	1,207	13	0	28,108
White oak	11,692	14,165	16,022	8,186	447	10,964	1,966	17,522	1,044	721	688	798	876	0	0	85,091
Beech	0	1	0	14	0	35	0	4	0	0	0	0	0	0	0	54
Hard maple	435	106	339	126	6	205	64	117	0	14	7	21	0	0	0	1,440
Soft maple	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Alder	0	1,683	783	193	38	4,141	221	37	0	0	0	19	0	0	0	7,116
Cherry	834	549	280	153	17	660	1,248	365	0	14	0	0	0	0	0	4,118
Yellow-poplar	1,219	128	14	160	0	7,534	45	380	0	44	27	145	48	18	47	9,808
Birch	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Ash	5,113	2,343	797	1,400	326	1,244	91	213	301	599	63	116	46	0	0	12,652
Hickory	741	414	111	127	7	10	9	0	0	9	4	186	16	0	0	1,633
Walnut	157	195	20	13	2	1,495	49	179	0	29	14	11	0	0	0	2,164
Basswood	12	11	0	12	0	0	0	0	0	0	0	0	0	0	0	35
Elm	6	0	0	0	0	111	10	0	0	0	0	0	0	0	0	127
Cottonwood	153	0	0	0	0	54	0	79	0	0	0	227	0	0	0	513
Sassafras	0	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
Aspen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sap gum	13	0	0	0	0	4,006	0	26	0	0	0	0	0	0	0	4,046
Sycamore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paulownia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackberry	16	0	0	19	0	33	0	0	0	0	0	0	0	0	0	67
Tupelo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tropical	322	6	27	0	0	60	113	72	0	12	22	24	24	0	0	681
Not defined by species	4,596	2,242	1,163	663	165	6,404	457	2,925	74	120	48	141	77	1	0	19,076
Total ocean ports[a]	30,398	23,366	30,872	12,912	1,947	37,666	7,497	23,340	1,493	1,791	1,300	1,782	2,295	32	47	176,739
Inland multiplier	1.21	1.15	1.00	1.57	1.11	1.06	1.65	1.02	1.04	1.02	1.03	1.03	1.01	1.00	1.00	1.14
Total all ports[a]	36,782	26,870	30,872	20,272	2,164	39,926	12,369	23,807	1,545	1,827	1,339	1,836	2,318	32	47	202,007

[a]Totals reflect rounding to nearest thousand board foot.

Table 11.—Hardwood lumber export estimates for 1989, Europe

Species	United Kingdom	West Germany	Belgium and Luxembourg	Netherlands	Other Countries, Northern Europe	Italy	France	Spain	Other Countries, Southern Europe	Denmark	Finland	Sweden	Norway	Iceland	Central Europe	Total Europe
	Mbf															
Red oak	3,555	845	11,233	944	1,389	731	4,834	2,144	50	41	537	149	559	0	20	27,031
White oak	13,241	16,513	17,365	9,262	1,112	8,887	3,478	21,693	1,279	486	921	728	714	12	72	95,766
Beech	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hard maple	772	362	185	145	11	111	90	326	7	63	61	11	0	0	0	2,143
Soft maple	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	13
Alder	161	1,985	922	113	55	5,570	606	414	0	18	0	95	25	0	0	9,964
Cherry	933	348	407	376	73	1,190	2,100	240	0	61	0	13	15	0	0	5,754
Yellow-poplar	1,751	560	64	108	13	10,533	179	1,002	31	27	50	181	100	17	0	14,617
Birch	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Ash	6,403	1,908	748	1,222	283	1,105	151	410	250	415	75	177	92	0	10	13,249
Hickory	721	383	76	191	30	0	0	0	0	4	13	299	10	0	0	1,728
Walnut	157	160	76	14	0	1,285	63	254	11	4	12	0	13	0	0	2,050
Basswood	29	10	12	0	4	0	7	0	0	0	0	0	3	0	0	65
Elm	12	0	0	0	0	128	103	0	0	0	0	0	0	0	0	243
Cottonwood	338	0	0	0	0	48	0	125	0	21	0	119	12	0	0	665
Sassafras	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
Aspen	0	0	8	0	0	0	0	0	0	16	0	16	0	0	0	40
Sap gum	17	0	0	2	0	3,137	0	0	13	0	0	0	0	0	0	3,169
Sycamore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paulownia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackberry	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
Tupelo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tropical	216	2	31	0	0	109	155	44	0	12	22	26	0	0	0	618
Not defined by species	3,702	2,452	1,236	436	185	3,377	1,111	2,318	94	334	41	174	89	5	6	15,561
Total ocean ports[a]	32,024	25,536	32,371	12,812	3,157	36,210	12,877	28,971	1,735	1,504	1,745	1,988	1,632	35	109	192,703
Inland multiplier	1.07	1.07	1.23	1.40	1.04	1.08	1.27	1.01	1.05	1.03	1.02	1.04	1.00	1.00	1.00	1.12
Total all ports[a]	34,265	27,323	39,816	17,937	3,288	39,107	16,353	29,261	1,824	1,549	1,780	2,068	1,632	35	109	216,346

[a]Totals reflect rounding to nearest thousand board foot.

Table 12.—Hardwood lumber export estimates for 1981, Asia

Species	Japan	Taiwan	Korea	Hong Kong	Australia	Singapore	Other Pacific Rim	Total Pacific Rim
					Mbf			
Red oak	133	5,141	1,213	208	0	258	0	6,954
White oak	289	1,724	801	17	281	124	48	3,284
Beech	95	52	0	0	0	0	0	147
Hard maple	3,039	328	39	0	0	0	0	3,406
Soft maple	8	13	0	0	0	0	0	21
Alder	1,756	196	0	0	0	0	0	1,952
Cherry	0	8	0	0	0	0	0	8
Yellow-poplar	11	21	0	0	0	0	0	32
Birch	127	0	0	0	0	0	0	128
Ash	170	86	6	24	0	0	0	285
Hickory	21	6	0	0	51	0	7	84
Walnut	170	82	0	11	0	0	0	263
Basswood	0	0	0	0	0	0	0	0
Elm	0	0	13	0	0	0	0	13
Cottonwood	0	0	0	0	0	0	0	0
Sassafras	3	0	0	0	0	0	0	3
Aspen	1	0	0	0	0	0	0	1
Sap gum	0	0	0	0	0	0	0	0
Sycamore	14	0	0	0	0	0	0	14
Paulownia	19	0	0	0	0	0	0	19
Persimmon	0	0	0	0	0	0	0	0
Hackberry	0	0	0	0	0	0	0	0
Tupelo	0	0	0	0	0	0	0	0
Tropical	0	0	0	0	0	0	33	33
Not defined by species	1,836	2,198	427	6	138	10	29	4,645
Total ocean ports[a]	7,692	9,855	2,499	266	470	392	118	21,292
Inland multiplier	1.01	1.00	1.01	1.02	1.01	1.00	1.00	1.01
Total all ports[a]	7,769	9,855	2,524	272	475	392	118	21,404

[a]Totals reflect rounding to nearest thousand board foot.

Table 13.—Hardwood lumber export estimates for 1982, Asia

Species	Japan	Taiwan	Korea	Hong Kong	Australia	Singapore	Other Pacific Rim	Total Pacific Rim
	Mbf							
Red oak	113	5,174	1,177	222	0	12	1	6,698
White oak	628	1,891	115	130	171	7	1	2,942
Beech	0	0	0	0	0	0	0	0
Hard maple	977	305	130	21	0	0	0	1,433
Soft maple	95	0	0	0	0	0	0	95
Alder	2,225	96	131	0	0	0	0	2,452
Cherry	0	0	12	0	0	0	0	12
Yellow-poplar	70	0	0	0	0	0	0	70
Birch	46	0	0	0	0	0	0	46
Ash	156	54	0	28	0	0	1	239
Hickory	24	16	0	0	13	0	7	61
Walnut	94	46	0	0	6	0	0	147
Basswood	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	0	0	0
Cottonwood	206	0	0	0	0	0	0	206
Sassafras	0	0	0	0	0	0	0	0
Aspen	0	0	12	0	0	0	0	0
Sap gum	23	0	0	0	0	0	0	12
Sycamore	0	0	0	0	0	0	0	23
Paulownia	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0
Hackberry	0	0	168	0	0	0	0	168
Tupelo	0	0	0	0	0	0	0	0
Tropical	12	0	0	0	0	0	0	12
Not defined by species	1,362	3,536	313	196	119	23	260	5,809
Total ocean ports[a]	6,029	11,117	2,057	597	310	42	270	20,423
Inland multiplier	1.00	1.01	1.00	1.00	1.01	1.00	1.00	1.01
Total all ports[a]	6,029	11,228	2,057	597	313	42	270	20,537

[a]Totals reflect rounding to nearest thousand board foot.

Table 14.—Hardwood lumber export estimates for 1983, Asia

Species	Japan	Taiwan	Korea	Hong Kong	Australia	Singapore	Other Pacific Rim	Total Pacific Rim
	Mbf							
Red oak	776	15,975	328	47	1	30	104	17,261
White oak	646	9,780	810	0	333	232	113	11,914
Beech	0	23	29	0	0	0	0	52
Hard maple	3,590	499	190	1	0	15	0	4,296
Soft maple	0	0	0	0	0	0	0	0
Alder	11,711	380	0	0	0	0	0	12,091
Cherry	24	0	27	0	0	0	0	52
Yellow-poplar	343	80	0	0	0	4	0	427
Birch	18	0	0	0	0	0	0	18
Ash	357	247	40	108	0	26	0	778
Hickory	35	14	0	0	36	0	0	86
Walnut	74	12	71	5	11	0	4	177
Basswood	0	0	59	0	0	0	0	59
Elm	0	0	0	0	0	0	0	0
Cottonwood	0	0	0	0	0	0	1	1
Sassafras	0	0	0	0	0	0	0	0
Aspen	0	0	0	0	0	0	0	0
Sap gum	0	0	0	0	0	0	0	0
Sycamore	0	0	0	0	0	0	0	0
Paulownia	620	0	0	0	0	0	0	620
Persimmon	0	0	0	0	0	0	0	0
Hackberry	0	0	51	0	0	0	0	51
Tupelo	0	0	0	0	0	0	0	0
Tropical	6	0	0	0	12	0	0	18
Not defined by species	1,734	2,224	105	81	173	81	427	4,825
Total ocean ports[a]	19,935	29,234	1,711	241	566	388	650	52,724
Inland multiplier	1.00	1.01	1.01	1.00	1.01	1.07	1.00	1.01
Total all ports[a]	19,935	29,527	1,728	241	571	415	650	53,066

[a]Totals reflect rounding to nearest thousand board foot.

Table 15.—Hardwood lumber export estimates for 1984, Asia

Species	Japan	Taiwan	Korea	Hong Kong	Australia	Singapore	Other Pacific Rim	Total Pacific Rim
	Mbf							
Red oak	1,962	20,928	648	80	7	77	8	23,709
White oak	2,629	13,428	872	29	782	669	262	18,672
Beech	69	0	17	0	0	32	0	117
Hard maple	3,627	792	274	0	0	12	0	4,705
Soft maple	14	0	8	0	0	0	0	22
Alder	16,334	632	111	0	7	0	0	17,083
Cherry	64	28	0	0	0	0	0	92
Yellow-poplar	1,362	63	0	0	0	0	0	1,425
Birch	137	0	31	0	0	0	0	168
Ash	983	357	1	138	0	27	0	1,506
Hickory	43	15	0	0	39	0	0	97
Walnut	211	59	38	0	57	23	0	389
Basswood	0	0	179	0	0	0	0	179
Elm	13	10	1	0	0	0	2	26
Cottonwood	249	0	0	0	0	0	0	249
Sassafras	0	0	0	0	0	0	0	0
Aspen	61	14	0	0	0	0	0	75
Sap gum	0	0	0	0	0	0	0	0
Sycamore	30	0	0	0	0	0	0	30
Paulownia	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0
Hackberry	93	0	241	0	0	0	0	334
Tupelo	0	0	0	0	0	0	0	0
Tropical	13	0	12	13	41	0	6	85
Not defined by species	9,428	1,687	72	238	209	488	16	12,138
Total ocean ports[a]	37,322	38,014	2,505	498	1,141	1,328	293	81,101
Inland multiplier	1.01	1.01	1.00	1.00	1.01	1.00	1.00	1.01
Total all ports[a]	37,695	38,394	2,505	498	1,153	1,328	293	81,866

[a]Totals reflect rounding to nearest thousand board foot.

Table 16.—Hardwood lumber export estimates for 1985, Asia

Species	Japan	Taiwan	Korea	Hong Kong	Australia	Singapore	Other Pacific Rim	Total Pacific Rim
	Mbf							
Red oak	1,774	33,002	515	488	24	49	76	35,928
White oak	1,393	8,365	215	116	506	474	69	11,140
Beech	13	11	49	0	0	0	0	74
Hard maple	804	524	1,030	13	0	3	0	2,373
Soft maple	60	0	0	0	0	0	0	60
Alder	6,994	95	0	0	16	0	0	7,104
Cherry	10	0	127	0	0	11	0	148
Yellow-poplar	1,850	21	7	0	0	0	0	1,878
Birch	13	0	81	10	0	0	0	104
Ash	650	348	13	404	12	34	27	1,488
Hickory	139	68	0	0	35	0	4	246
Walnut	294	88	301	0	6	0	4	692
Basswood	0	5	204	0	0	0	0	209
Elm	40	1	0	10	1	0	0	52
Cottonwood	139	0	0	0	0	0	0	139
Sassafras	0	1	0	0	0	0	0	1
Aspen	0	0	0	0	0	0	0	0
Sap gum	0	0	0	0	0	0	0	0
Sycamore	48	0	0	0	0	0	0	48
Paulownia	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0
Hackberry	121	0	0	0	0	0	0	121
Tupelo	0	0	0	0	0	0	0	0
Tropical	0	3	43	0	25	0	13	84
Not defined by species	15,817	2,559	111	426	326	32	117	19,388
Total ocean ports[a]	30,159	45,092	2,696	1,467	951	603	310	81,277
Inland multiplier	1.00	1.00	1.01	1.00	1.00	1.00	1.00	1.00
Total all ports[a]	30,159	45,092	2,723	1,467	951	603	310	81,304

[a]Totals reflect rounding to nearest thousand board foot.

Table 17.—Hardwood lumber export estimates for 1986, Asia

Species	Japan	Taiwan	Korea	Hong Kong	Australia	Singapore	Other Pacific Rim	Total Pacific Rim
				Mbf				
Red oak	3,620	59,410	933	2,536	93	25	202	66,819
White oak	2,296	14,642	490	388	638	527	230	19,210
Beech	50	23	52	0	0	0	0	125
Hard maple	1,290	923	1,532	62	12	0	0	3,819
Soft maple	0	17	14	0	0	0	0	31
Alder	9,187	576	357	23	28	0	62	10,234
Cherry	75	159	157	26	5	16	0	438
Yellow-poplar	1,973	17	17	0	0	16	0	2,023
Birch	154	13	170	0	0	20	0	356
Ash	1,913	952	14	581	5	21	6	3,493
Hickory	186	300	0	18	32	0	0	535
Walnut	428	88	25	0	16	0	31	587
Basswood	0	60	383	0	0	0	0	443
Elm	125	0	0	1	0	0	1	127
Cottonwood	535	4	0	0	0	0	0	539
Sassafras	9	0	0	0	0	0	0	9
Aspen	22	0	0	0	0	0	0	22
Sap gum	0	0	0	0	0	0	0	0
Sycamore	0	0	0	0	0	0	0	0
Paulownia	0	0	0	0	0	0	0	0
Persimmon	8	0	0	0	0	0	0	8
Hackberry	266	0	0	0	5	0	0	271
Tupelo	0	0	0	0	0	0	0	0
Tropical	39	0	86	89	18	0	7	240
Not defined by species	26,891	4,085	350	412	259	53	411	32,461
Total ocean ports[a]	49,067	81,269	4,578	4,137	1,111	678	949	141,790
Inland multiplier	1.00	1.00	1.01	1.00	1.01	1.00	1.00	1.00
Total all ports[a]	49,067	81,269	4,624	4,137	1,122	678	949	141,847

[a]Totals reflect rounding to nearest thousand board foot.

Table 18.—Hardwood lumber export estimates for 1987, Asia

Species	Japan	Taiwan	Korea	Hong Kong	Australia	Singapore	Other Pacific Rim	Total Pacific Rim
	Mbf							
Red oak	6,048	47,770	1,152	2,924	80	15	415	58,404
White oak	9,499	17,792	1,347	503	832	816	237	31,027
Beech	175	88	27	6	12	0	0	308
Hard maple	2,104	2,724	1,594	277	34	44	0	6,776
Soft maple	0	11	0	0	0	0	0	11
Alder	8,354	4,113	625	43	0	0	91	13,226
Cherry	76	44	183	30	4	14	0	352
Yellow-poplar	5,286	202	192	0	0	24	0	5,704
Birch	227	61	64	0	0	0	0	352
Ash	9,840	3,007	60	1,078	101	97	62	14,245
Hickory	85	339	0	33	34	0	0	491
Walnut	423	273	268	4	11	1	5	986
Basswood	67	218	915	0	0	0	0	1,200
Elm	337	0	0	0	0	0	0	337
Cottonwood	686	37	14	0	0	0	11	748
Sassafras	45	0	0	0	0	0	0	45
Aspen	0	0	0	0	0	0	0	0
Sap gum	0	0	0	0	0	0	0	0
Sycamore	0	0	14	0	0	0	0	14
Paulownia	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	0	0	0	0
Hackberry	667	32	27	0	0	0	0	726
Tupelo	0	0	0	0	0	0	0	0
Tropical	0	0	0	3	21	0	162	186
Not defined by species	36,252	3,924	341	657	668	35	294	42,172
Total ocean ports[a]	80,171	80,635	6,823	5,558	1,796	1,046	1,278	177,307
Inland multiplier	1.00	1.00	1.00	1.00	1.03	1.00	1.00	1.00
Total all ports[a]	80,171	80,635	6,823	5,558	1,850	1,046	1,278	177,361

[a]Totals reflect rounding to nearest thousand board foot.

Table 19.—Hardwood lumber export estimates for 1988, Asia

Species	Japan	Taiwan	Korea	Hong Kong	Australia	Singapore	Other Pacific Rim	Total Pacific Rim
				Mbf				
Red oak	7,713	37,056	1,066	3,538	19	185	2,201	51,778
White oak	9,737	12,799	1,601	849	1,433	1,156	467	28,042
Beech	878	44	428	65	0	0	0	1,415
Hard maple	3,196	2,236	1,778	245	51	51	6	7,563
Soft maple	13	28	0	0	0	0	0	41
Alder	14,674	6,560	954	19	0	18	77	22,302
Cherry	105	189	108	34	8	48	12	503
Yellow-poplar	7,396	209	132	103	0	0	30	7,870
Birch	491	73	209	6	0	0	0	780
Ash	16,049	4,269	539	1,319	112	310	57	22,655
Hickory	101	189	0	0	72	1	0	364
Walnut	972	268	353	34	22	13	4	1,666
Basswood	574	121	768	1	0	0	0	1,465
Elm	1,963	0	37	0	0	0	12	2,011
Cottonwood	262	17	461	0	0	0	0	739
Sassafras	201	0	0	0	0	0	0	201
Aspen	77	0	2	0	0	0	0	79
Sap gum	0	0	0	0	0	0	0	0
Sycamore	13	0	0	0	0	0	0	13
Paulownia	0	0	0	0	0	0	0	0
Persimmon	0	0	0	1	7	1	0	9
Hackberry	1,250	14	14	0	0	0	0	1,278
Tupelo	11	0	0	0	0	0	0	11
Tropical	413	1,446	81	8	31	3	56	2,037
Not defined by species	45,813	6,581	1,263	764	402	276	505	55,604
Total ocean ports[a]	111,902	72,098	9,795	6,986	2,158	2,062	3,426	208,427
Inland multiplier	1.00	1.00	1.00	1.00	1.08	1.00	1.00	1.00
Total all ports[a]	111,902	72,098	9,795	6,986	2,331	2,062	3,426	208,599

[a]Totals reflect rounding to nearest thousand board foot.

Table 20.—Hardwood lumber export estimates for 1989, Asia

Species	Japan	Taiwan	Korea	Hong Kong	Australia	Singapore	Other Pacific Rim	Total Pacific Rim
				Mbf				
Red oak	7,518	47,262	341	1,352	0	51	1,399	57,924
White oak	11,992	10,240	2,288	89	1,329	1,590	175	27,704
Beech	1,103	198	979	37	0	0	0	2,317
Hard maple	2,378	4,900	2,797	515	65	49	18	10,723
Soft maple	23	15	10	2	0	0	0	50
Alder	44,509	4,492	1,792	30	0	66	259	51,149
Cherry	80	47	99	78	1	20	0	325
Yellow-poplar	14,546	198	689	46	0	19	143	15,641
Birch	291	43	13	22	0	0	13	382
Ash	18,506	2,612	52	1,938	165	561	279	24,114
Hickory	215	196	0	0	23	0	9	443
Walnut	808	391	879	0	44	13	6	2,142
Basswood	308	326	1,235	0	0	0	0	1,869
Elm	1,269	12	11	0	0	0	25	1,317
Cottonwood	351	0	0	0	0	0	0	351
Sassafras	125	0	5	0	0	0	0	130
Aspen	0	0	41	0	0	0	0	41
Sap gum	0	0	0	0	0	0	0	0
Sycamore	119	71	16	0	0	0	0	205
Paulownia	0	0	0	0	0	0	0	0
Persimmon	0	0	0	0	5	0	0	5
Hackberry	1,260	32	68	0	0	0	0	1,360
Tupelo	63	0	0	0	0	0	0	63
Tropical	401	401	63	57	16	0	22	959
Not defined by species	29,147	12,218	950	312	555	167	1,055	44,404
Total ocean ports[a]	135,014	83,655	12,328	4,478	2,203	2,537	3,403	243,617
Inland multiplier	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total all ports[a]	135,014	83,655	12,328	4,478	2,203	2,537	3,403	243,617

[a]Totals reflect rounding to nearest thousand board foot.

Luppold, William G.; Thomas, R. Edward. 1991. **New estimates of hardwood lumber exports to Europe and Asia.** Res. Pap. NE-652. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 22 p.

Explains how earlier estimates of hardwood-lumber exports were in error, discusses the procedures used to develop a new set of hardwood-lumber export estimates, and presents a detailed set of new hardwood-lumber export estimates for European and Asian markets.

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