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William L. Hoover

Ralph W. Gann

Robert W. Mayer

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W L Hoover
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**1994 INDIANA FOREST PRODUCTS PRICE
REPORT AND TREND ANALYSIS**

William L. Hoover
Professor of Forest Economics
Purdue University

Ralph W. Gann
State Statistician
Indiana Agricultural Statistics Service

and

Robert W. Mayer
Utilization Supervisor
Division of Forestry
Indiana Department of Natural Resources

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SUMMARY

A questionnaire requesting prices paid for timber products was sent to all known commercial sawmills and veneer mills in the state of Indiana. Sixty-two of the 230 mills surveyed responded with 53 providing usable data. Compared to May 1993, prices paid for sawlogs increased overall; however, decreases also occurred for some species. The increases were largest for non-premium species such as beech, cottonwood, soft maple, elm, and sweet gum. Veneer log prices were mixed. Decreases occurred for prime grade logs, but increases generally occurred for lower grade veneer logs. Conclusions concerning lower grade red oak logs must be discounted by the fact that only one mill reported select prices. Hard maple, the biggest price gainer last year, moved back down this year.

The five states making up the core of the Central Hardwood Region, Illinois, Indiana, Iowa, Missouri, and Ohio have led the nation in increased output of hardwood lumber according to estimates by Luppold and Dempsey (*Forest Products Journal*, June 1994, p. 8-14). The increase is disproportionate to the region's share of the total hardwood timber resource. They attribute the increased output to the availability of white oak.

Previous predictions that long-term timber price trends in Indiana will continue to outpace inflation by 1 to 2 percent per year on average still appear reasonable. Compared to price levels in 1993, the real value of the average stand of timber increased 1.9 percent, well below last year's jump of over 18 percent in real terms. The increase for the quality stand was 4.0 percent, also below last year's 15 percent increase in real terms. This year's increases are more consistent with long-term sustainable levels.

This year's price data again confirms that adequately stocked stands of hardwood timber in Indiana represent a sound investment opportunity. These stands provide very competitive real rates of return with income tax deferral on accumulated unrealized value increases. They also provide the opportunity to use the step-up in asset basis to avoid income tax liability prior to passing the wealth to heirs. Timber owners should consult a professional forester to properly assess the options available to manage and market their timber assets.

INTRODUCTION

The Department of Forestry and Natural Resources, Purdue University in cooperation with the Indiana Agricultural Statistics Service has conducted a formal survey of Indiana sawmills and veneer mills since at least 1957. The primary data collected is the price paid for logs delivered to the mills. From 1957 to 1976 the results were published as an Extension Circular. From 1977 to 1989 the results were published in the Indiana Forest Products Marketing and Wood Utilization Report. This is the fifth year that the results are being published as a Purdue Agricultural Experiment Station Bulletin. The results also appear in the *Woodland Steward* published by the Woodland Steward Institute, a cooperative effort of Indiana's leading natural resource organizations.

METHODOLOGY

The questionnaire was mailed by the Indiana Agricultural Statistics Service in early May to the 230 mills listed in the data base as buying logs. The data base is maintained by the Department of Forestry and Natural Resources in cooperation with Robert W. Mayer and Gary Gretter, Utilization Specialists, Indiana Department of Natural Resources, Division of Forestry. A second mailing was made three weeks later to non respondents. Two weeks later enumerators from Ag. Statistics called the larger mills who had not responded to request their assistance.

A total of 230 questionnaires was mailed. Four were returned by the U.S. Postal Service as undeliverable. Sixty-two mills responded, compared to eighty-five mills last year. Nine contained no data. Thus, the overall response rate was 27 percent (62/230). The size distribution of mills included in the survey is presented in Table 1. No attempt was made to sample non-respondents. Therefore, it must be assumed that the response is biased. The standard errors should be used for year-to-year comparisons only.

Responses were analyzed using a PC-based SPSS package. Data that appeared to be in error were purged. For example, if the responses for a category included many mills reporting prices of \$40, \$50, \$60, \$70, \$80, and so on, but only one mill reporting \$240, the \$240 response was discarded.

The median price shown in Tables 2 and 4 is the reported price that divides the distribution into two equal halves. The median and mean would have the same value if the distribution was an exact bell-shaped normal curve. The standard error of the mean (s.e.) is a measure of the variability of the responses. It indicates the amount by which the mean would vary if a different set of mills had responded to the survey. Note that the standard error is relatively small for those species/grade categories for which ten or more mills responded, but is high for categories for which only a few mills responded.

SAWLOG PRICES

Sawlog prices were generally higher compared to May of 1993; however, the prices of the premium species that increased by unprecedented amounts from 1992 to 1993 adjusted downward to more supportable levels. Hard maple and black cherry prices, for example, were down. The upper grade ash logs also declined slightly. Lower grade oak logs declined reflecting a glut of low grade lumber in the summer market. The Prime grade was up for red and white oak but down slightly for the black oak. No. 1's were up for red oak, about even for white oak, and down for black oak.

We have observed for the last several years significant price increases for what we'll call "non-premium species" for lack of a better term. Species such as soft maple, elm, tulip

Table 1. Type of mills included in data base.

	Total
Sawmills (SIC 2421)	237 ¹
Size Class (MBF)	
1 - 100	66
100 - 500	42
500 - 1,000	25
1,000 - 2,000	40
2,000 - 4,000	46
4,000 - 7,000	10
> 7,000	8
Veneer (SIC 2435)	15
Cooperage (SIC 2429)	2
Other	10
Total	

¹ Most custom mills didn't receive the questionnaire since they are listed in the data base as not buying logs.

poplar (yellow poplar or tulipwood), sycamore, and gum have always had a place in the market. They are not as colorful as walnut or as grainy (patterned) as the oaks, but with modern finishing techniques they can make a high quality furniture. In a market economy substitutions will, and are, occurring. This substitution will continue until the price difference between species is narrowed to the value consumers place on the look of real wood of a preferred species and production cost differentials. An example of the latter might be higher finishing cost to make poplar look like walnut.

Lumber prices for six-month periods are shown in Table 3. The price changes from July 1993 to July 1994 match the direction observed for sawlogs, Table 2. Figures 1 to 9 show price patterns for representative species since January of 1973. Ash lumber prices, Figure 1, have leveled off in the upper grades, however, the lower grades are still trending upward. Basswood prices, Figure 2, are flat in the lower grade but up for No. 1 and FAS. Note that basswood was more cyclical in the last half of the 1970's. Black cherry prices have only recently leveled for FAS but have been flat for No. 1C and 2A since early in 1993. Hard maple, Figure 4, has undergone a significant down cycle since about the time of the 1993 Indiana price report. A trend to hold at about the current price levels appears to be setting in for the near term. Red oak, a very cyclical species, Figure 5, is holding in FAS, but the lower grades have been trending down since mid 1993. Log prices are being buoyed by record high FAS prices which appear to be holding. White oak prices, Figure 6, started an adjustment early in 1993 and have leveled since late 1993. Lower grades continue to show weakness, however. Sycamore prices, Figure 7, continued to escalate until this spring. Cottonwood, Figure 8, has followed that exact same pattern. Yellow poplar prices, Figure 9, have been adjusting to a new supportable level since mid-1993. It appears that the current level will hold for the summer. Increased focus on production of this species in the southern Appalachian production region and ample log supplies make further price increases doubtful over the next year or so.

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 1993 and May 1994.

Species/Grade	Range (\$/MBF)	No. Respon.		Mean (s.e.) ¹		Median		Change (%)	
		1993	1994	1993	1994	1993	1994	Mean	Median
White Ash				(\$/MBF)		(\$MBF)			
Prime	400-750	34	26	594 (25.3)	581 (16.9)	600	600	- 2.2	0.0
No. 1	300-650	36	29	441 (19.0)	427 (16.2)	450	420	- 3.7	- 6.7
No. 2	150-500	35	26	282 (17.0)	291 (17.2)	280	300	3.2	7.4
No. 3	100-250	32	20	182 (10.6)	184 (9.3)	180	200	1.1	11.1
Basswood									
Prime	160-600	26	21	304 (26.2)	317 (22.8)	300	300	4.3	0.0
No. 1	140-450	29	22	241 (15.8)	252 (19.0)	200	250	4.6	25.0
No. 2	75-350	27	22	177 (8.4)	191 (15.6)	170	200	7.9	17.7
No. 3	80-225	28	16	151 (6.9)	164 (11.5)	150	170	8.6	13.3
Beech									
Prime	150-400	29	18	210 (8.5)	221 (12.5)	200	200	5.2	0.0
No. 1	125-300	28	19	183 (8.0)	212 (11.7)	180	200	15.6	11.1
No. 2	100-250	23	17	146 (7.2)	173 (12.3)	150	200	18.5	33.3
No.3	80-250	27	14	156 (6.7)	159 (13.8)	160	155	1.9	- 3.1
Cottonwood									
Prime	80-220	19	12	153 (6.1)	161 (13.3)	150	165	5.2	10.0
No. 1	80-250	16	12	143 (8.1)	167 (14.8)	135	170	16.8	26.0
No. 2	60-220	15	11	129 (6.9)	145 (15.4)	120	150	12.4	25.0
No. 3	60-200	23	10	142 (8.0)	137 (14.8)	150	135	- 3.5	-10.0

¹ Standard error of the mean is given in parentheses below the mean.

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 1993 and May 1994, continued.

Species/Grade	Range (\$/MBF)	No. Respon.		Mean (s.e.) ¹		Median		Change (%)	
		1993	1994	1993 (\$/MBF)	1994 (\$/MBF)	1993 (\$/MBF)	1994 (\$/MBF)	Mean	Median
Cherry									
Prime	400-1000	30	24	700 (24.4)	742 (30.5)	700	700	6.0	0.0
No. 1	300-800	32	28	566 (22.3)	552 (27.9)	600	500	-2.5	-16.7
No. 2	160-600	31	26	358 (19.3)	345 (24.1)	400	300	-3.6	-25.0
No. 3	100-250	30	19	199 (10.4)	188 (9.9)	193	200	-5.5	3.5
Elm									
Prime	100-300	20	15	206 (20.7)	209 (13.2)	180	200	1.4	11.1
No. 1	100-300	19	17	180 (10.1)	208 (13.3)	180	200	15.6	11.1
No. 2	100-250	18	17	151 (9.6)	184 (11.0)	160	200	21.9	25.0
No. 3	100-250	23	13	153 (7.4)	167 (12.8)	150	160	9.2	6.7
S. Hickory									
Prime	140-400	28	19	236 (12.0)	241 (13.5)	220	250	2.1	13.6
No. 1	125-320	30	21	202 (10.2)	228 (12.9)	200	200	12.9	0.0
No. 2	100-250	25	19	160 (7.7)	183 (10.7)	170	200	14.4	17.7
No. 3	100-250	28	15	157 (6.1)	160 (12.1)	160	150	1.9	-6.3
Hard Maple									
Prime	250-800	31	26	544 (26.7)	522 (25.3)	540	500	-4.0	-7.4
No. 1	200-650	33	30	430 (23.9)	400 (23.4)	400	400	-7.0	0.0
No. 2	150-500	31	26	277 (17.7)	279 (20.8)	280	290	0.7	3.6
No. 3	100-250	30	20	186 (7.3)	183 (10.6)	180	200	-1.6	10.0
Soft Maple									
Prime	200-400	31	21	257 (14.5)	281 (13.5)	250	300	9.3	20.0
No. 1	125-450	33	25	214 (11.1)	245 (16.3)	200	220	14.5	10.0
No. 2	100-350	29	23	174 (7.1)	201 (12.3)	170	200	15.5	17.7
No. 3	100-250	28	16	156 (6.4)	171 (11.3)	155	170	9.6	9.7

¹ Standard error of the mean is given in parentheses below the mean.

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 1993 and May 1994, cont.

Species/Grade	Range (\$/MBF)	No. Respon.		Mean (s.e.) ¹		Median		Change (%)	
		1993	1994	1993 (\$/MBF)	1994 (\$/MBF)	1993 (\$/MBF)	1994 (\$/MBF)	Mean	Median
White Oak									
Prime	400-900	32	25	606 (20.5)	618 (24.5)	600	600	2.0	0.0
No. 1	200-700	33	28	448 (20.9)	447 (20.9)	500	450	-0.2	-10.0
No. 2	150-550	33	27	297 (16.2)	298 (20.3)	300	300	-0.3	0.0
No. 3	100-250	33	19	198 (8.8)	183 (9.6)	200	200	-7.6	0.0
Red Oak									
Prime	350-900	34	26	698 (20.5)	718 (21.9)	700	700	2.9	0.0
No. 1	250-800	33	28	528 (20.8)	546 (23.3)	580	565	3.4	-2.6
No. 2	100-700	33	27	357 (20.0)	352 (26.6)	400	350	-1.4	-12.5
No. 3	100-250	33	19	209 (9.1)	195 (10.0)	200	200	-6.7	0.0
Black Oak									
Prime	250-800	31	22	623 (24.6)	616 (28.9)	650	650	-1.1	0.0
No. 1	150-650	32	27	471 (19.6)	455 (25.0)	500	450	-3.4	-10.0
No. 2	100-525	32	24	309 (15.6)	309 (20.7)	300	288	0.0	-4.0
No. 3	100-250	31	17	203 (9.8)	183 (9.8)	200	200	-9.9	0.0
Tulip Poplar									
Prime	300-500	35	26	359 (11.0)	384 (11.5)	350	400	7.0	14.3
No. 1	150-500	35	29	278 (9.8)	293 (14.4)	300	300	5.4	0.0
No. 2	120-350	34	25	201 (7.9)	220 (11.1)	200	200	9.5	0.0
No. 3	100-250	29	17	168 (7.7)	171 (10.5)	170	160	1.8	-5.9
Sycamore									
Prime	80-300	27	17	184 (7.4)	199 (12.1)	180	200	8.2	11.1
No. 1	70-300	22	16	161 (7.5)	185 (13.3)	165	190	14.9	15.2
No. 2	60-220	23	15	152 (9.8)	157 (12.5)	160	160	3.3	0.0
No. 3	60-220	27	14	147 (8.2)	154 (13.1)	150	155	4.8	3.3

¹ Standard error of the mean is given in parentheses below the mean.

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 1993 and May 1994, continued

Species/Grade	Range (\$/MBF)	No. Respon.		Mean (s.e) ¹		Median		Change (%)	
		1993	1994	1993	1994	1993	1994	Mean	Median
Sweetgum									
Prime	140-250	20	15	179 (5.3)	209 (10.4)	180	200	16.8	11.1
No. 1	125-250	20	14	171 (9.9)	188 (8.7)	165	200	9.9	21.2
No. 2	100-250	18	13	143 (8.7)	168 (13.0)	150	160	17.5	6.7
No. 3	80-250	20	11	150 (8.6)	150 (16.5)	155	150	0.0	- 3.2
Black Walnut									
Prime	150-2500	30	20	900 (40.4)	1035 (103.4)	900	1000	15.0	11.1
No. 1	100-1000	33	24	708 (28.9)	725 (37.7)	700	725	2.4	3.6
No. 2	200-800	32	25	478 (24.7)	470 (33.0)	500	500	- 1.7	0.0
No. 3	150-350	28	15	270 (18.2)	215 (14.1)	250	200	-20.4	-20.0
Softwood									
Pine		1	0	240		240			
Red cedar		1	0	350		350			

¹ Standard error of the mean is given in parentheses below the mean.

Table 3. Hardwood Lumber prices, 4/4 Appalachian unless otherwise indicated (Hardwood Market Report, Memphis, Tenn), \$ per MBF.

	Lumber Grade	July 1991	Jan. 1992	July 1992	Jan. 1993	July 1993	Jan. 1994	July 1994
Ash	FAS + Premium	730	730	805	830	860	860	870
	No. 1C	475	475	475	485	545	565	630
	No. 2C	195	195	195	220	265	285	330
Basswood	FAS + Premium	650	650	655	655	675	675	690
	No. 1C	305	305	310	310	320	320	335
	No. 2A	177	177	177	190	225	225	225
Beech	FAS	295	300	320	335	385	395	425
	No. 1C	255	260	280	295	345	355	385
	No. 2A	195	200	220	235	275	285	315
Cottonwood (Southern)	FAS	400	410	450	480	515	555	625
	No. 1C	285	290	300	315	340	380	430
	No. 2C	150	150	150	170	220	240	260
Cherry	FAS + Premium	1,175	1,275	1,375	1,400	1,495	1,510	1,585
	No. 1C	620	620	700	850	1025	1040	1,040
	No. 2A	285	285	335	450	575	590	590
Elm (Southern)	FAS	335	335	335	335	340	345	355
	No. 1C	315	315	315	315	320	325	335
	No. 2B	200	200	200	215	260	265	270
Hickory	FAS	335	335	340	355	395	405	445
	No. 1C	315	315	320	335	375	385	425
	No. 2A	195	195	200	210	240	245	265
Hard Maple	FAS + Premium	660	660	835	940	1,075	1,030	1,015
	No. 1C	430	430	535	650	760	750	730
	NO. 2A	265	265	335	415	495	485	475
Soft Maple	FAS + Premium	565	565	615	680	805	815	825
	No. 1C	405	405	445	495	590	600	610
	No. 2A	250	250	280	320	395	405	410
White Oak -Plain	FAS + Premium	950	980	1,010	1,010	955	880	880
	No. 1C	465	475	535	540	540	535	535
	No. 2A	220	250	290	320	390	340	325
Red Oak-Plain	FAS + Premium	845	885	990	1,065	1,140	1,140	1,170
	No. 1C	525	555	675	780	800	780	750
	No. 2A	250	285	350	400	485	455	420
Yellow Poplar	FAS + Premium	510	510	545	570	615	710	750
	No. 1C	280	280	295	320	420	425	425
	No. 2A	195	195	200	215	315	310	305

Table 3. Hardwood Lumber prices, 4/4 Appalachian unless otherwise indicated (Hardwood Market Report, Memphis, Tenn), \$ per MBF, cont.

Lumber Grade	July 1991	Jan. 1992	July 1992	Jan. 1993	July 1993	Jan. 1994	July 1994
Sycamore (Southern, Plain)							
FAS	315	320	330	340	365	415	445
No. 1C	295	300	310	320	345	395	425
No. 2A	255	265	275	280	305	350	370
Black Walnut							
FAS	1,605	1,605	1,605	1,605	1,605	1,615	1,615
		5			5		5
No. 1C	855	855	855	855	855	855	855
No. 2A	290	290	290	290	290	290	290

VENEER LOG PRICES

Veneer log prices were generally down for the prime grade and up for the select grade, Table 4. This is true for all species except yellow poplar for which prime logs increased by over 10 percent.

Black walnut prices were down by 10 to 20 percent for larger prime logs. Smaller prime logs were down by 3 to 8 percent. Small select logs were also down, but larger logs were up by at least 20 percent. Prime white oak was down except for the smallest size class. Select logs were up by at least 10 percent in all but one size class. Prime red oak was down in all size classes by 10 to 20 percent. Selects were up by over 10 percent, based on the report of only one mill. Hard maple prices were also down by over 10 percent except for large select logs.

It appears that a majority of the veneer mills in the state are now concentrating on custom slicing. Since these mills don't buy logs, the number of possible mills to report prices has continued to decline. We welcome suggestions for ways to supplement the data reported by mills buying logs.

Table 4. Prices paid for delivered veneer logs by Indiana veneer mills, May 1993 and May 1994.

Species/Grade/Log Dia.	1994 Range	No. Respon.		Mean (s.e.) ¹		Median		Change (%)	
		1993	1994	1993	1994	1993	1994	Mean	Median
Black Walnut				(\$/MBF)		(\$/MBF)			
Prime									
12-13	1000-2500	6	7	1850 (269.3)	1786 (184.4)	1750	2000	- 3.5	14.3
14-15	2000-3000	7	8	2543 (385.4)	2438 (175.2)	2500	2250	- 4.1	-10.0
16-17	2500-5000	6	8	3742 (552.3)	3500 (313.4)	3875	3000	- 6.5	-22.9
18-20	3000-6000	6	6	4625 (768.5)	4500 (447.2)	4375	4250	- 2.7	- 2.9
21-23	4000-5500	4	3	5375 (1028.2)	4833 (441.0)	5000	5000	-10.1	0.0
24-28	4000-8000	2	3	7000 (1000.0)	5833 (1166.7)	7000	5500	-16.7	-21.4
>28	4000-10000	1	3	6000 (1802.8)	6500	6000	5500	8.3	- 8.3
Select									
12-13	800-1500	4	5	1425 (75.0)	1300 (137.8)	1500	1500	- 8.8	0.0
14-15	1000-2000	6	6	1767 (197.8)	1667 (166.7)	1750	1750	- 5.7	0.0
16-17	1500-4000	5	6	2060 (294.3)	2417 (374.5)	1700	2000	17.3	17.7
18-20	3000-6000	5	4	2480 (453.2)	3750 (750.0)	2000	3000	51.2	50.0
21-23	4000	4	1	3050 (550.0)	4000	3100	4000	31.2	29.0
24-28	7000	1	1	4000	7000	4000	7000	75.0	75.0
>28	8000	0	1	---	8000	---	8000	---	---

¹ Standard error of the mean is given in parentheses below the mean

Table 4. Prices paid for delivered veneer logs by Indiana veneer mills, May 1993 and May 1994, cont..

Species/Grade Log Dia.	1993 Range (\$/MBF)	No. Respon.		Mean (s.e.) ¹		Median		Change (%)	
		1993	1994	1993	1994	1993	1994	Mean	Median
White Oak				(\$/MBF)		(\$/MBF)			
Prime									
13-14	850-1675	14	7	1250 (95.7)	1304 (110.5)	1200	1300	4.3	8.3
15-17	850-2400	14	8	1658 (191.7)	1616 (184.5)	1650	1588	-2.5	-3.8
18-20	850-3000	13	9	1940 (160.0)	1875 (235.2)	2000	2000	-3.4	0.0
21-23	1625-4000	11	7	2550 (221.7)	2718 (296.5)	2600	2500	6.6	-3.9
24-28	1875-3000	12	3	3100 (208.2)	2458 (325.4)	3000	2500	-20.7	-16.7
>28	1875-3000	7	2	2800 (562.5)	2438	2800	2438	-12.9	-12.9
Select									
13-14	800-1500	4	4	850 (150.0)	1150 (144.3)	850	1150	35.3	35.3
15-17	800-1800	5	4	1233 (202.8)	1350 (210.2)	1200	1400	9.5	16.7
18-20	1200-2000	4	4	1367 (185.6)	1550 (165.8)	1500	1500	13.4	0.0
21-23	1425-2000	4	4	1567 (33.3)	1731 (155.9)	1600	1750	10.5	9.4
24-28	1625-2000	3	2	1800 (200.0)	1813 (187.5)	1800	1813	0.7	0.7
>28	1625	1	1	1100	1625	1100	1625	47.7	47.7

¹ Standard error of the mean is given in parentheses below the mean.

Table 4. Prices paid for delivered veneer logs by Indiana veneer mills, May 1993 and May 1994, cont.

Species/Grade/ Log Dia.	1994 Range	No. Respon.		Mean (s.e) ¹		Median		Change (%)	
		1993	1994	1993	1994	1993	1994	Mean	Media n
Red Oak	(\$/MBF)			(\$/MBF)		(\$/MBF)			
Prime									
16-17	850-1600	4	5	1388 (136.0)	1250 (124.5)	1475	1200	-9.9	-18.6
18-20	850-1700	4	5	1425 (143.6)	1230 (149.7)	1550	1200	-13.7	-22.6
21-23	1200-1700	3	3	1600	1433 (145.3)	1600	1400	-10.4	-12.5
24-28	1200-1400	1	2	1600	1300 (100.0)	1600	1300	-18.7	-18.7
>28	1200-1400	1	2	1600	1300 (100.0)	1600	1300	-18.7	-18.7
Select									
16-17	1200-1500	1	2	1200	1350 (150.0)	1200	1350	12.5	12.5
18-20	1400-2000	1	2	1200 (115.5)	1700 (300.0)	1200	1700	41.7	41.7
21-23	1400	1	1	1200	1400	1200	1400	16.7	16.7
24-28	1400	1	1	1200	1200	1400	1400	16.7	16.7
>28	1200	1	1	1200	1200	1200	1200	0.0	0.0

¹ Standard error of the mean is given in parentheses below the mean.

Table 4. Prices paid for delivered veneer logs by Indiana veneer mills, May 1993 and May 1994, cont.

Species/Grade /Log Dia.	1994 Range (\$/MBF)	No. Respon.		Mean (s.e.) ¹		Median		Change (%)	
		1993	1994	1993 (\$/MBF)	1994 (\$/MBF)	1993 (\$/MBF)	1994 (\$/MBF)	Mean	Median
Hard Maple Prime									
16-20	400-2000	7	7	1421 (233.2)	1100 (198.8)	1650	1000	-22.6	-39.4
>20	400-1500	3	5	1267 (520.7)	1080 (213.1)	1200	1200	-14.8	0.0
Select									
16-20	400-1500	3	4	1133 (240.4)	925 (228.7)	1000	900	-18.4	-10.0
>20	400-2000	2	3	1200 (400.0)	1217 (462.2)	1200	1250	1.4	4.2
Tulip Poplar Prime									
16-20	350-750	6	6	458 (20.1)	517 (57.3)	475	525	12.9	10.5
>20	400-650	6	4	475 (17.1)	525 (52.0)	500	525	10.5	5.0
Select									
16-20	500	2	1	350 (50.0)	500 ---	350	500	42.9	42.9
>20	---	2	0	400	---	400	---	---	---

¹ Standard error of the mean is given in parentheses below the mean.

CUSTOM COSTS AND MISCELLANEOUS PRODUCTS

The few mills reporting custom costs and prices for minor forest products makes analysis difficult. Custom costs as reported in 1993 and 1994 indicate a decrease for sawing and logging, Table 5. No explanation for this is apparent. Hauling costs were up, consistent with increased fuel and equipment costs.

Table 5. Custom costs reported by Indiana mills, May 1993, and May 1994.

	No. Responses	1994 Range	Mean		Median	
			1993	1994	1993	1994
Sawing (\$/MBF)	19	100-200	174	166	170	165
Logging (\$/MBF)	7	35-130	103	77	100	68
Hauling (\$/MBF)	6	40-100	47	64	50	65
Distance (Miles)	10	10-100	56	42	30	43
\$/MBF/Mile			0.84	1.52	1.66	1.52

Prices for miscellaneous products, Table 6, were generally up. The higher price for pallet logs is surprising considering the glut of low grade lumber on the market. The small mills specializing in pallet lumber must be paying more for their logs because of competition from the grade mills. The by-product market in Indiana remains strong. The two pulp mills drawing on Indiana take chips, not pulpwood. On site energy production has increased the value of wood scraps and sawdust, and in some cases bark. The landscape market for bark continues to grow in competition with southern bark and chip material barged in on the Ohio River.

Table 6. Prices of miscellaneous products reported by Indiana mills, May 1993 and May 1994, fob the producing mill.

	No. Responses	1994 Range	Mean		Median	
			1993	1994	1993	1994
Pallet logs, \$/MBF	11	140-240	170	199	170	200
Pulp Chips, \$/ton	11	7-37	13.16	17.53	12.75	16.5
Sawdust, \$/ton	8	2-20	5.87	6.86	5.25	5.50
Bark, \$/ton	16	5-40	24.47	15.90	7.50	14.50

Handle log prices were up for white ash based on data from four mills, Table 7. With only one mill reporting hickory and hard maple prices, conclusions are difficult. Ash is clearly the dominant species in this market.

Table 7. Prices paid for handle logs by Indiana mills, May 1993 and May 1994, fob mill.

	No. Responses	1994 Range	Mean	
			1993 (\$/MBF)	1994 (\$/MBF)
White Ash				
No. 1	4	550-700	438	638
No. 2	4	450-600	467	525
No. 3	2	250-500	300	375
Hickory				
No. 1	1	250	275	250
No. 2	0	---	200	---
No. 3	0	---	180	---
Sugar Maple				
No. 1	1	650	700	650
No. 2	1	500	550	500
No. 3	1	250	300	250

INDIANA TIMBER PRICE INDEX -- UPDATE

The delivered log prices collected in the Indiana Forest Products Price Survey are used to calculate the delivered log value of typical stands of timber. This provides trend-line data that can be used to monitor long-term price trends for timber. The species distribution used to calculate the weighted averages are presented in Table 8. The log quality weights used are presented in Table 9. These weights are based primarily on the 1967 Forest Survey of Indiana. The weights will be adjusted in the future to reflect changes in species composition and timber quality as reflected in the 1986 Forest Survey.

Table 8. Species composition of the Indiana timber price index for an average and a quality stand.

Species	Average Stand (%)	Quality Stand (%)
Veneer species:	(%)	(%)
White oak	13.4	21.0
Red oak	15.1	20.0
Hard maple	9.6	14.0
Yellow poplar	7.5	9.0
Black walnut	5.4	5.0
Nonveneer species:		
White ash	5.8	3.1
Basswood	1.5	3.1
Beech	5.6	3.1
Cottonwood	6.2	3.1
Black cherry	0.8	3.1
Elm	1.2	3.1
Hickory	4.7	3.1
Soft maple	6.7	3.1
Black oak	11.4	3.1
Sycamore	5.1	3.1

Table 9. Log quality composition of the Indiana timber price index for an average and a quality stand.

Log Grade	Average Stand		Quality Stand	
	Veneer Species (%)	Nonveneer Species (%)	Veneer Species (%)	Nonveneer Species (%)
Veneer logs:	(%)	(%)	(%)	(%)
Prime	1.0	0.0	7.0	0.0
Select	3.0	0.0	13.0	0.0
Sawlogs				
Prime	20.0	24.0	19.0	24.0
No. 1	26.0	26.0	21.0	26.0
No. 2	38.0	38.0	33.0	38.0
No. 3	12.0	12.0	7.0	12.0

The nominal (not deflated) price, columns 3 and 6 of Table 10, are a weighted average of the delivered log prices reported in the price survey. The price indexes, columns 4 and 7, are the series of current (actual) prices divided by the price in 1957, the base year multiplied by 100. Thus, the index is the percentage of the 1957 price. The real prices, columns 5 and 8 are the actual prices deflated by the producer price index for finished goods with 1982 as the base year, Figure 10. Previously we used the producer price index for all commodities to determine real prices. The Department of Commerce informed me that the all commodities index over estimates inflation because of double counting, i.e. both goods in process and finished goods were included. The real price series represents the purchasing power of dollars based on a 1982 market basket of industrial goods. It's this real price trend that is important to long-term investments like timber.

Average Stand

The nominal weighted average price increased from \$357.1 in 1993 to \$365.5 in 1994 for the average stand, Table 10, column 3. Considering the current somewhat weakened market for the premium species this 2.3% increase is somewhat surprising. The price increases reported for many of the lower value species we take for granted are the reason for the increase. Species other than oak, walnut and cherry are a significant component of Indiana timber stands, Table 8.

The increase from 1993 to 1994 was sufficient to push up the average annual compound rate of increase for the trend line by 0.7% to 1.08%, Figure 11. The equation for the trend line for the 1957 to 1994 period is,

$$\text{Avg. Index} = 172.11 + 2.29 \times T,$$

where,

$$T=1 \text{ for } 1957, 2 \text{ for } 1958, \text{ etc.}$$

As I have discussed before, this linear trend line should be used if it's necessary to project timber prices. It's easier to simply plug the average annual compound rate of increase value into the compound interest formula, but for projections much over 15 years, the result is not realistic. Real prices can't increase exponentially for long periods of time. Market adjustments, like those observed for black walnut, come into play to retard the increase and eventually reverse it.

Quality Stand

The index for the quality stand increased by 4.5% from 537.8 in 1993 to 562.0 in 1994, Table 10, column 6. Again the increase was due to increases in the prices of many of the non-premium species. The average annual compound rate of increase for the trend line stayed the same at 1.8%, Figure 12. The equation for the trend line is,

$$\text{Qual. Index} = 194.59 + 5.13 \times T$$

Table 10. Weighted average actual price, price index, and deflated price for an average and quality stand of timber in Indiana, 1957 to 1994.

Year	Producer Price Index	Average Stand			Quality Stand		
		Nominal Price	Index Number	Real Price ¹	Nominal Price	Index Number	Real Price ¹
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		(\$/MBF)		(\$/MBF)	(\$/MBF)		(\$/MBF)
1957	32.5	55.6	100.0	171.0	66.5	100.0	204.7
1958	33.2	54.3	97.7	163.6	66.1	99.4	199.2
1959	33.1	54.7	98.4	165.2	68.1	102.4	205.7
1960	33.4	58.0	104.4	173.6	69.9	105.1	209.3
1961	33.4	59.5	107.1	178.1	70.4	105.9	210.9
1962	33.5	59.8	107.6	178.4	72.9	109.5	217.5
1963	33.4	59.4	107.0	177.9	75.3	113.1	225.3
1964	33.5	60.9	109.6	181.7	75.1	112.9	224.2
1965	34.1	65.0	117.0	190.7	80.6	121.1	236.3
1966	35.2	69.7	125.5	198.1	88.0	132.2	249.9
1967	35.6	71.9	129.4	202.0	89.0	133.7	249.9
1968	36.6	76.5	137.6	208.9	97.6	146.6	266.6
1969	38.0	78.7	141.6	207.1	100.0	150.3	263.1
1970	39.3	84.1	151.4	214.0	105.5	158.5	268.4
1971	40.5	87.0	156.6	214.8	109.5	164.5	270.3
1972	41.8	89.8	161.7	214.9	112.8	169.6	269.9
1973	45.6	113.5	204.3	249.0	143.7	215.9	315.1
1974	52.6	135.1	243.2	256.8	175.9	264.4	334.4
1975	58.2	124.9	224.9	214.7	169.9	255.4	292.0
1976	60.8	133.5	240.2	219.5	177.6	266.9	292.1
1977	64.7	143.5	258.2	221.8	194.7	292.7	300.9
1978	69.8	181.7	327.1	260.4	247.6	372.1	354.7
1979	77.6	200.1	360.2	257.9	276.7	415.9	356.5
1980	88.0	208.8	375.8	237.3	326.7	491.0	371.2
1981	96.1	206.6	371.9	215.0	300.2	451.2	312.3
1982	100.0	201.5	362.6	201.5	293.3	440.9	293.3
1983	101.6	201.0	361.8	197.8	278.3	418.3	273.9
1984	103.7	233.6	420.4	225.3	336.7	506.1	324.7
1985	104.7	210.4	378.8	201.0	290.3	436.4	277.3
1986	103.2	224.1	403.4	217.2	331.6	498.4	321.3
1987	105.4	258.0	464.3	244.7	358.4	538.7	340.0
1988	108.0	262.7	472.8	243.2	366.5	550.9	339.4
1989	113.6	288.8	519.9	254.3	445.0	668.9	391.7
1990	119.2	290.5	522.9	243.7	433.4	651.4	363.6
1991	121.7	270.1	486.2	222.0	395.5	594.4	325.0
1992	123.2	295.1	531.2	239.5	454.9	683.7	369.2
1993	124.7	357.1	642.7	286.4	537.8	808.3	431.2
1994	125.5	365.5	657.8	291.2	562.0	844.7	447.8

¹ Actual price deflated by Producer Price Index for Finished Goods, U.S. Dept. Commerce, 1982 base year.

IMPLICATIONS

The major lesson from the price data covering the last several years is not to take a species for granted when marking a stand for TSI or harvest. The time value of money and long growing periods for hardwood timber leave you little choice other than to work with the stocking you have in your stands. Management based on optimum dollar return focuses the biological potential of the site on the highest value species of the best possible quality. But, in terms of returns generated on the value tied-up in growing stock (opportunity cost), the non-premium species component represents a lower level of investments. Price increases over the last several years show a good return for these non-premium species.

Diversify, diversify, diversify is standard investment advice. It applies very well to Indiana timber investments, as this price report shows. When the price of one species is trending down the price of another may be trending up. The small tract sizes in Indiana mean that most landowners have to select trees throughout a stand to make a sale. Except for the really high valued trees, marketing a mix of species is increasingly appropriate.

Strong demand for many different hardwood species is also good news for the many timber owners who are interested in helping maintain biological diversity and healthy forests. A clear majority of Indiana's forest owners are interested in healthy forests and producing a little income at the same time. Proper management allows all these goals to be achieved. You can "have your cake and eat it too."

Regarding whether or not to sell timber within the next several months or wait until "things get better," it's hard to imagine how things can get much better overall in the hardwood timber business. The mid-summer market is adjusting primarily for an over supply of low grade lumber. As the above data shows, the small declines observed this Spring were from historically high prices. Demand remains exceptionally strong and will continue to remain so for the foreseeable future. Therefore, if it makes sense to market timber now because of timber management or financial goals, do it.

Looking at the longer term for winter offerings, you'll want to keep track of what the Federal Reserve Board does with interest rates. So far they haven't increased rates because of the decline in the value of the dollar relative to other currencies. Stronger than expected economic growth and the declining value of the dollar may yet trigger an increase, however. A significant decline in consumer borrowing due to higher rates will impact the demand for hardwood lumber. Any price declines would occur gradually, giving you plenty of time to adjust your marketing decisions. Work with your professional forester to watch lumber price trends.

Figure 1. Ash lumber prices, monthly, 1957 to July 1994,
4/4 Appalachian, Hdwd. Mkt. Rpt.

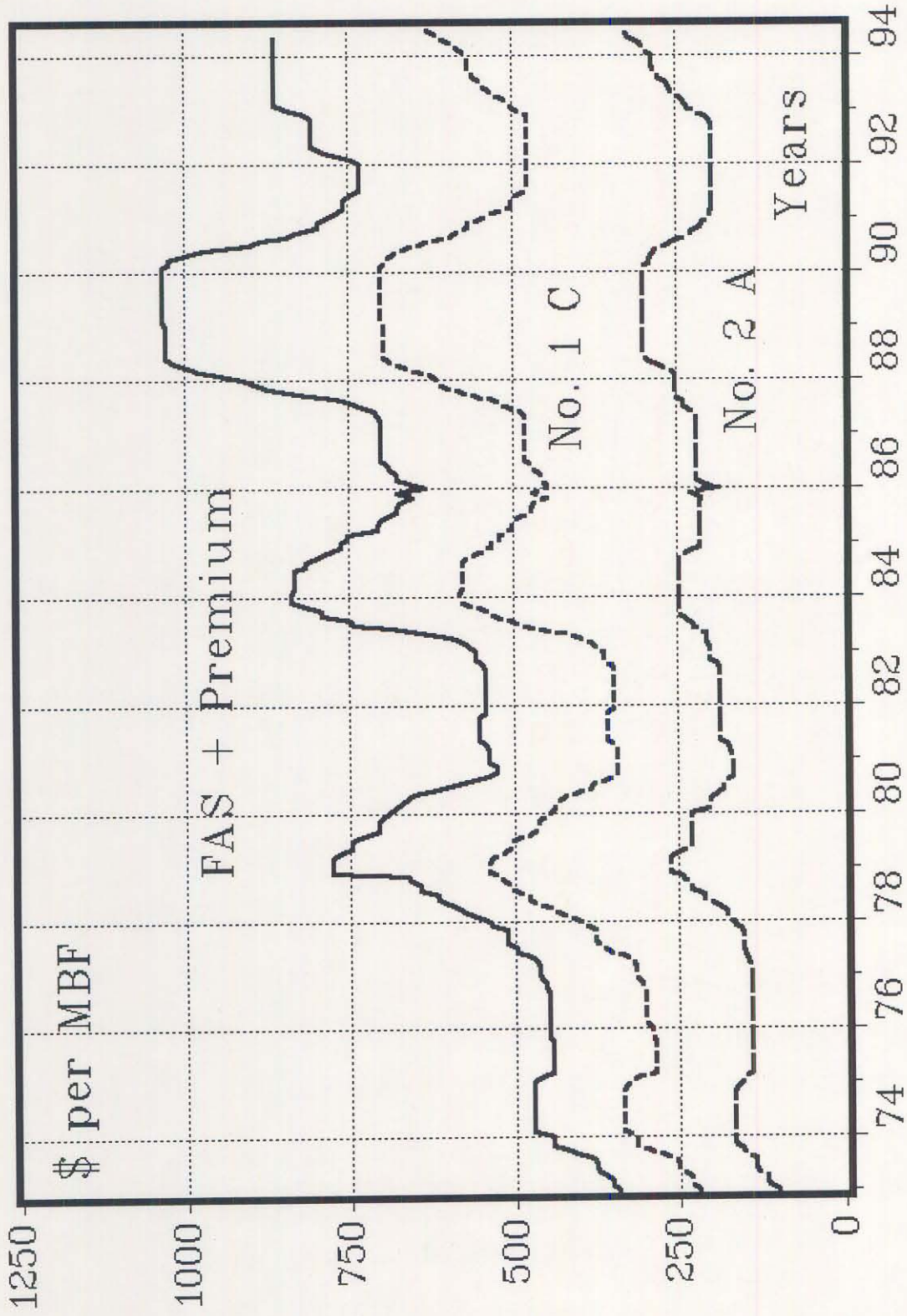


Figure 2. Basswood lumber prices, monthly, 1957 to July 1994, 4/4 Appalachian, Hdwd. Mkt. Rpt.

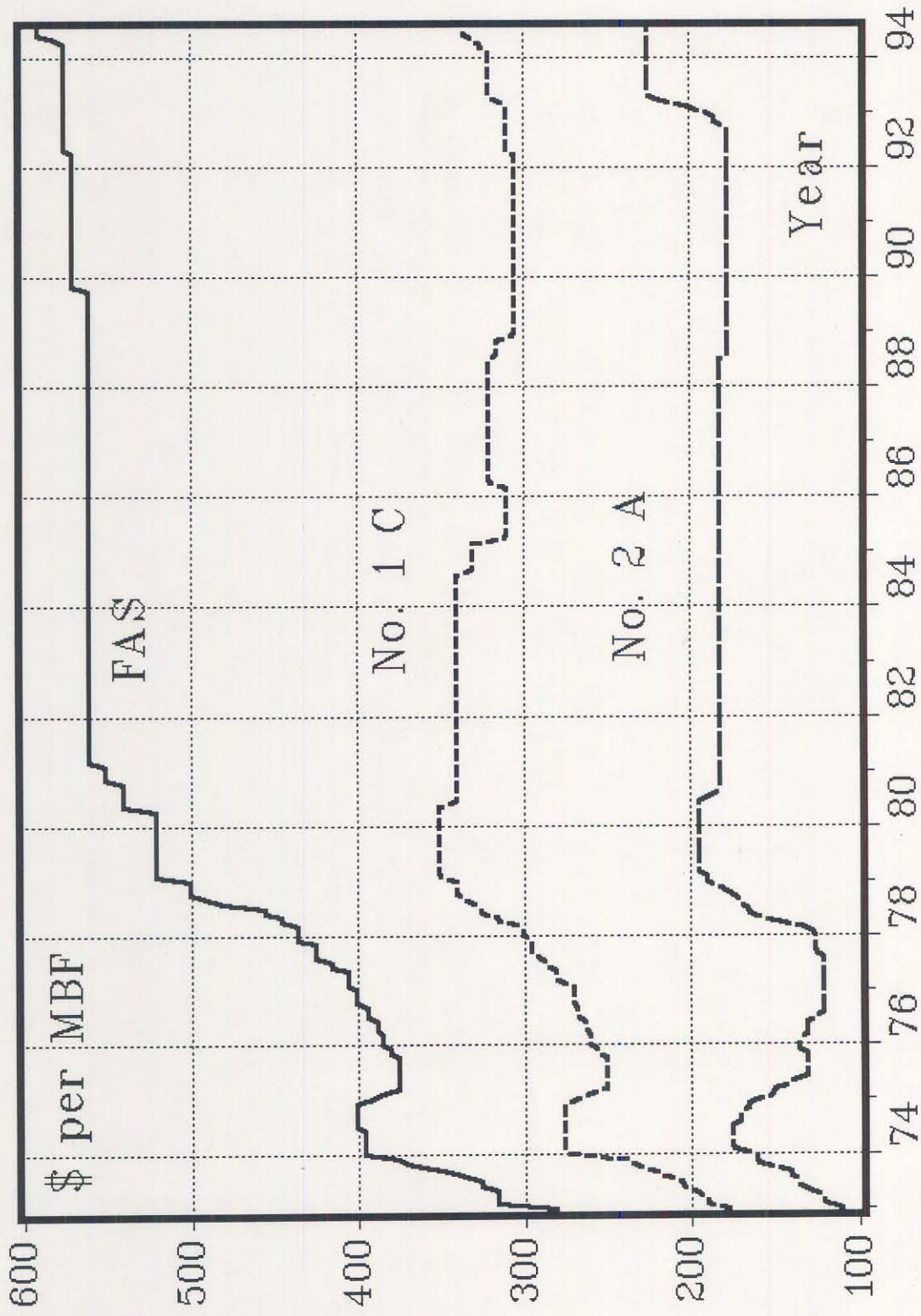


Figure 3. Black cherry lumber prices, monthly, 1973 to July 1994, 4/4 Appalachian, Hdwd. Mkt. Rpt.

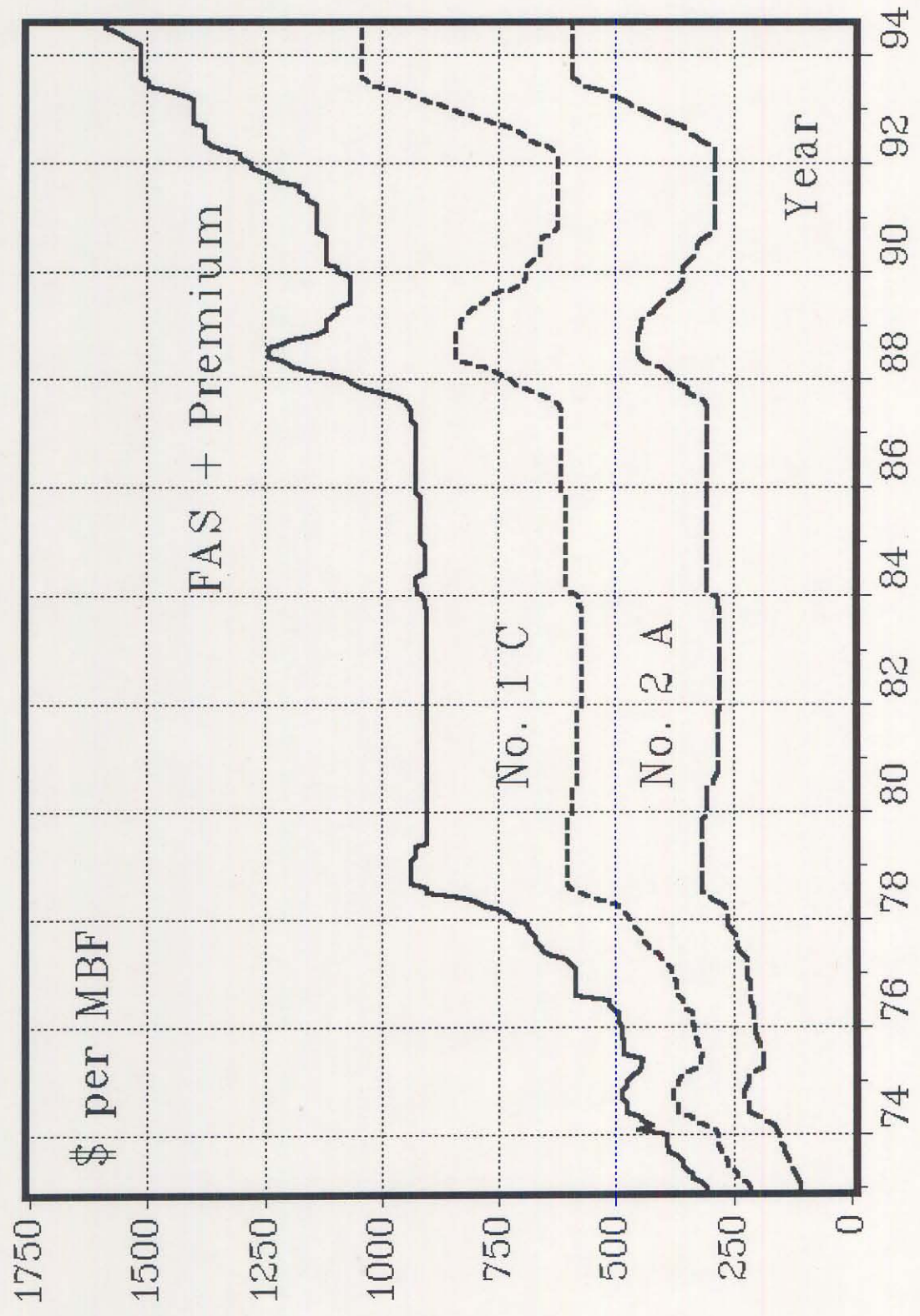


Figure 4. Hard maple lumber prices, monthly, 1957 to July 1994, 4/4 Appalachian, Hdwd. Mkt. Rpt.

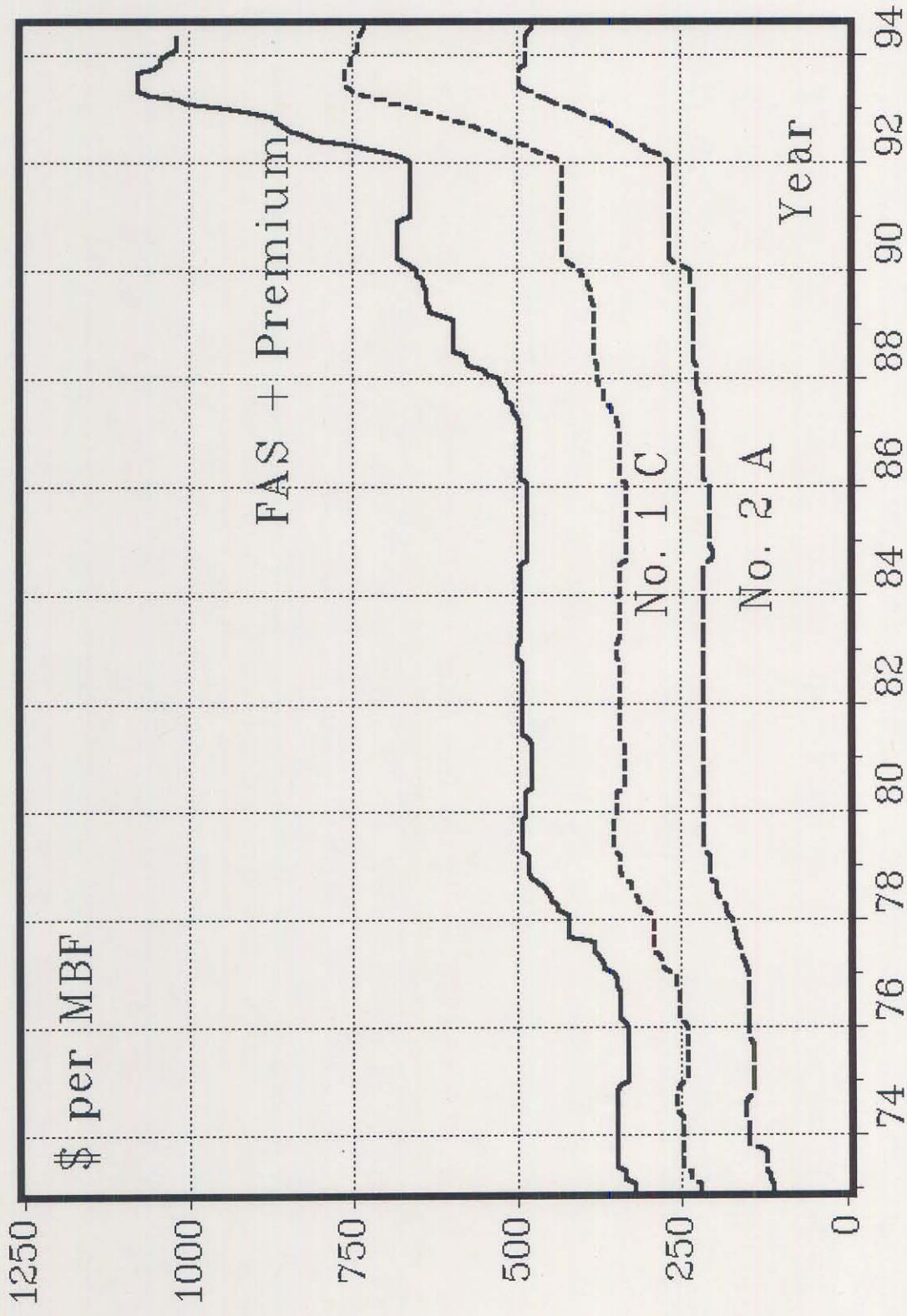


Figure 5. Red oak lumber prices, monthly, 1973 to July 1994, 4/4 Appalachian, Hdwd. Mkt. Rpt.

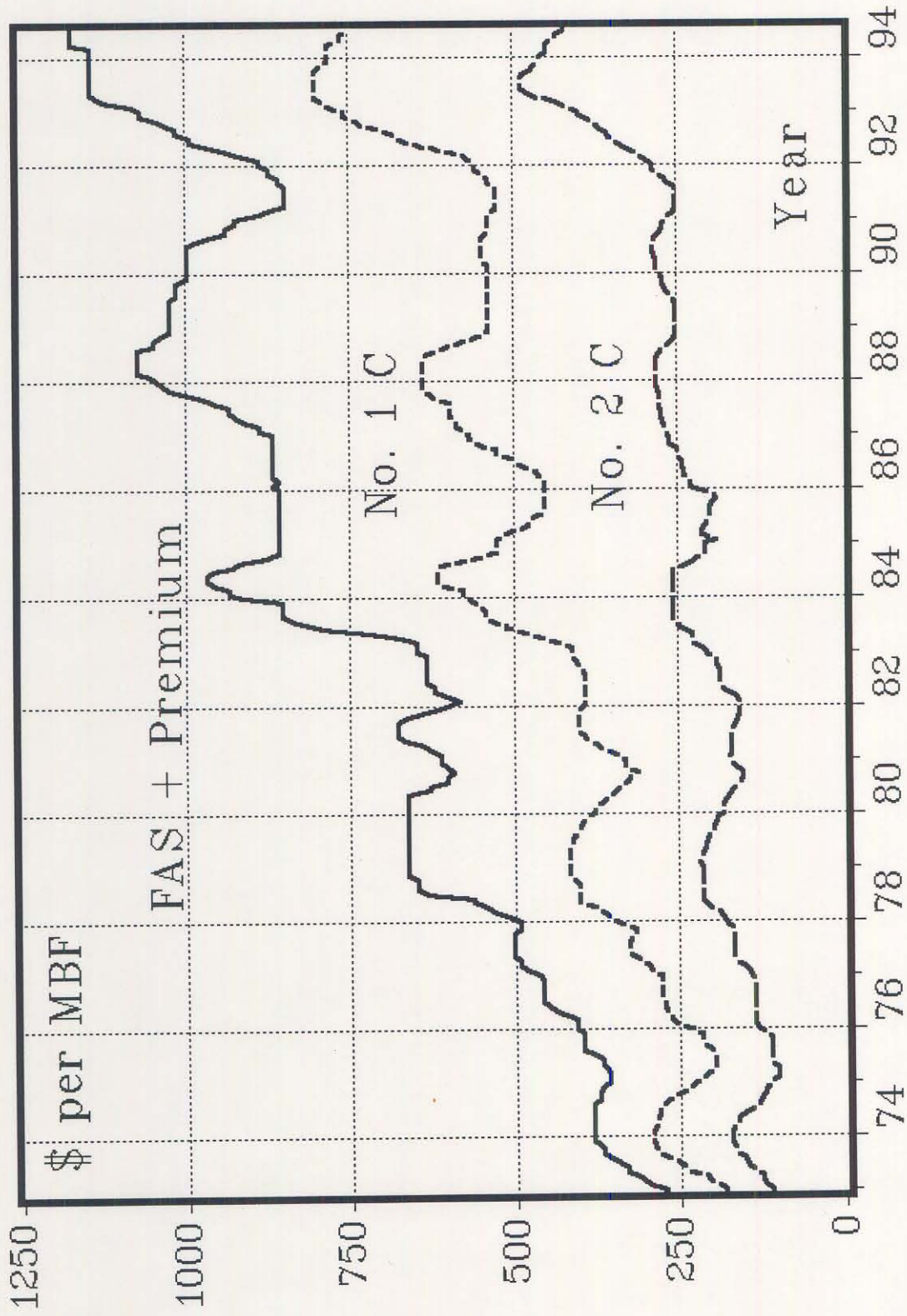


Figure 6. White oak lumber prices, monthly, 1973 to July 1994, 4/4 Appalachian, Hdwd. Mkt. Rpt.

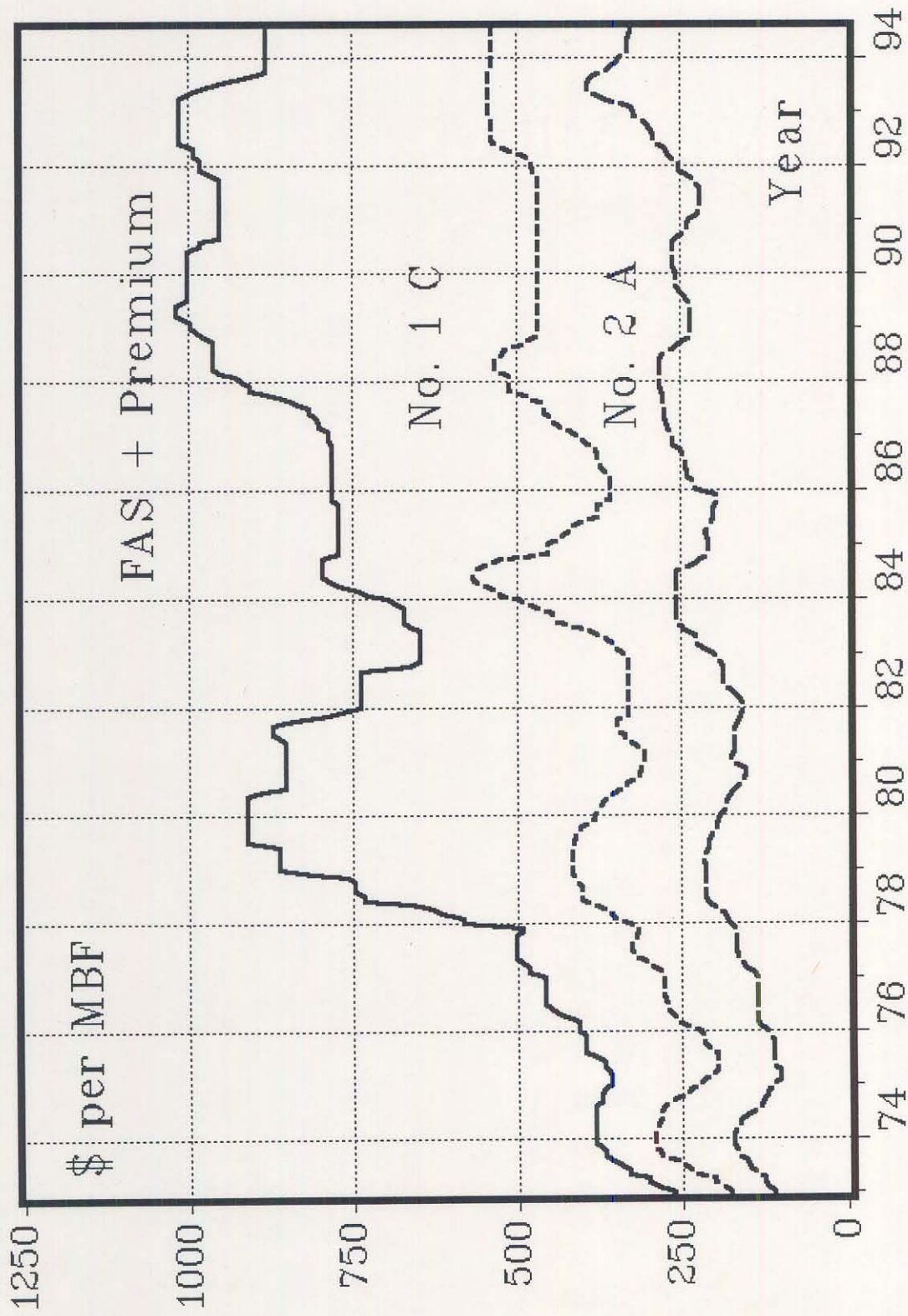


Figure 7. Sycamore lumber prices, monthly, 1973 to July 1994, Southern, Hdwd. Mkt. Rpt.

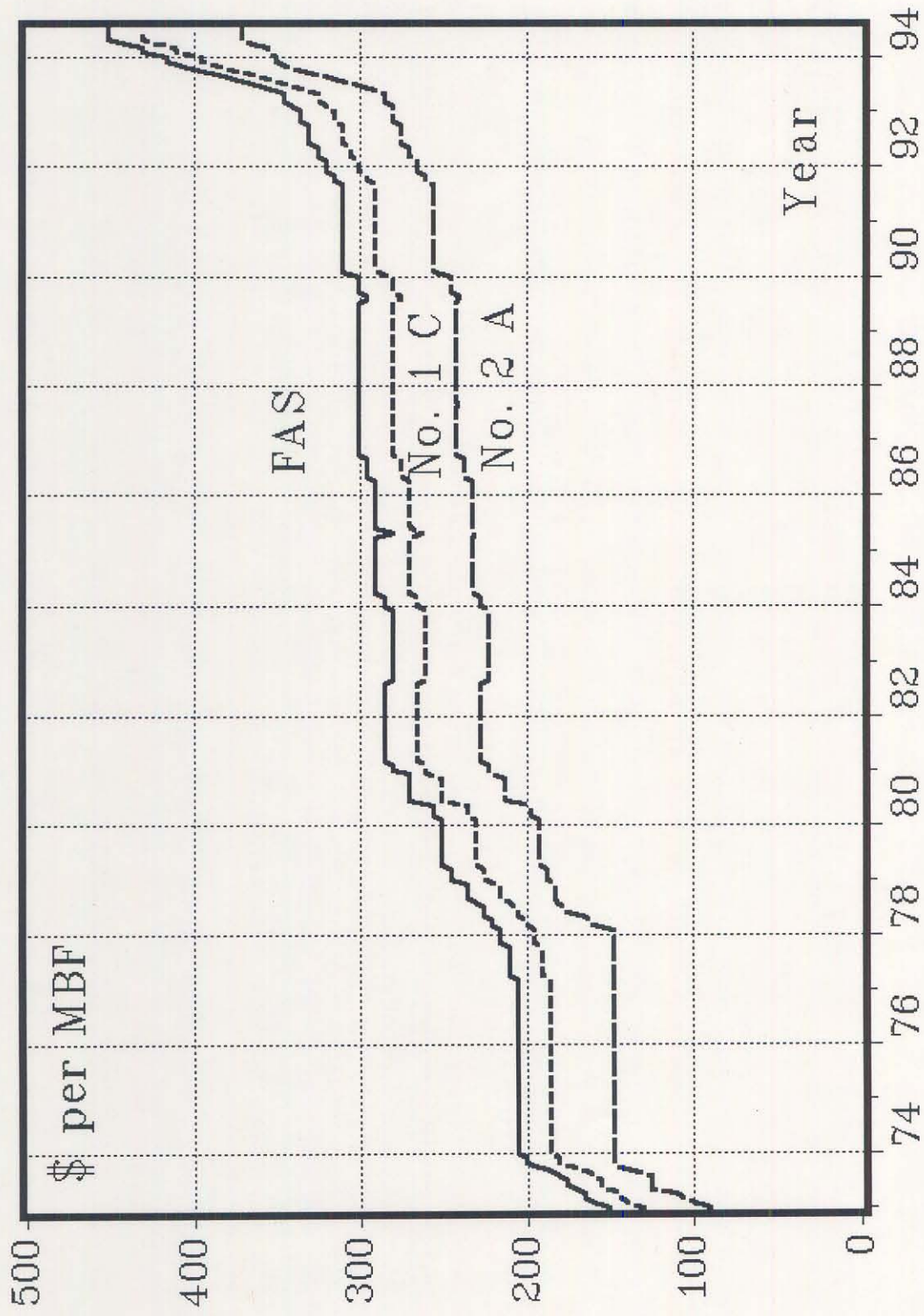


Figure 8. Cottonwood lumber prices, monthly, 1957 to July 1994, 4/4 Southern, Hdwd. Mkt. Rpt.

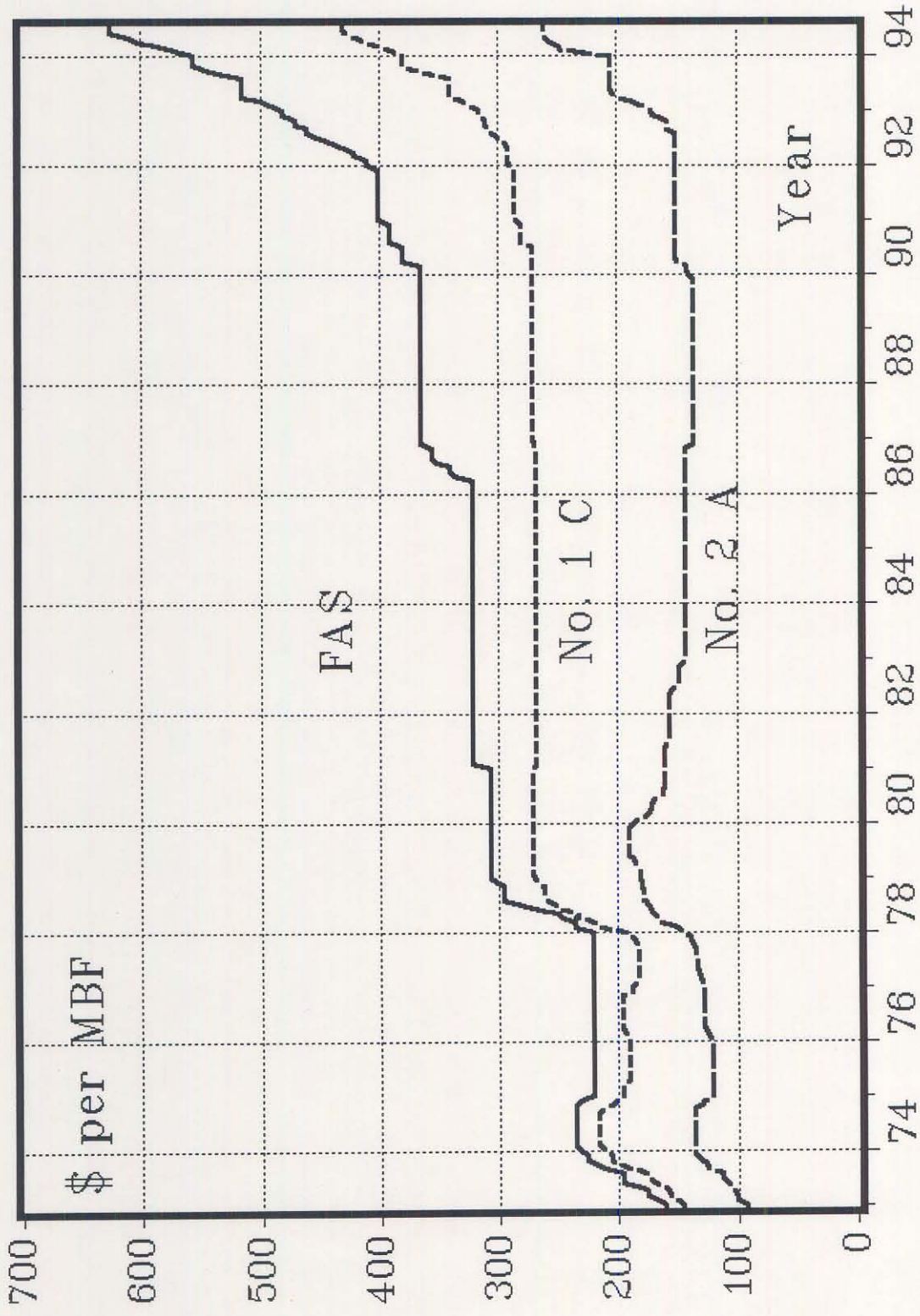


Figure 9. Yellow poplar lumber price, monthly, 1973 to July 1974, 4/4 Appalachian, Hdwd. Mkt. Rpt.

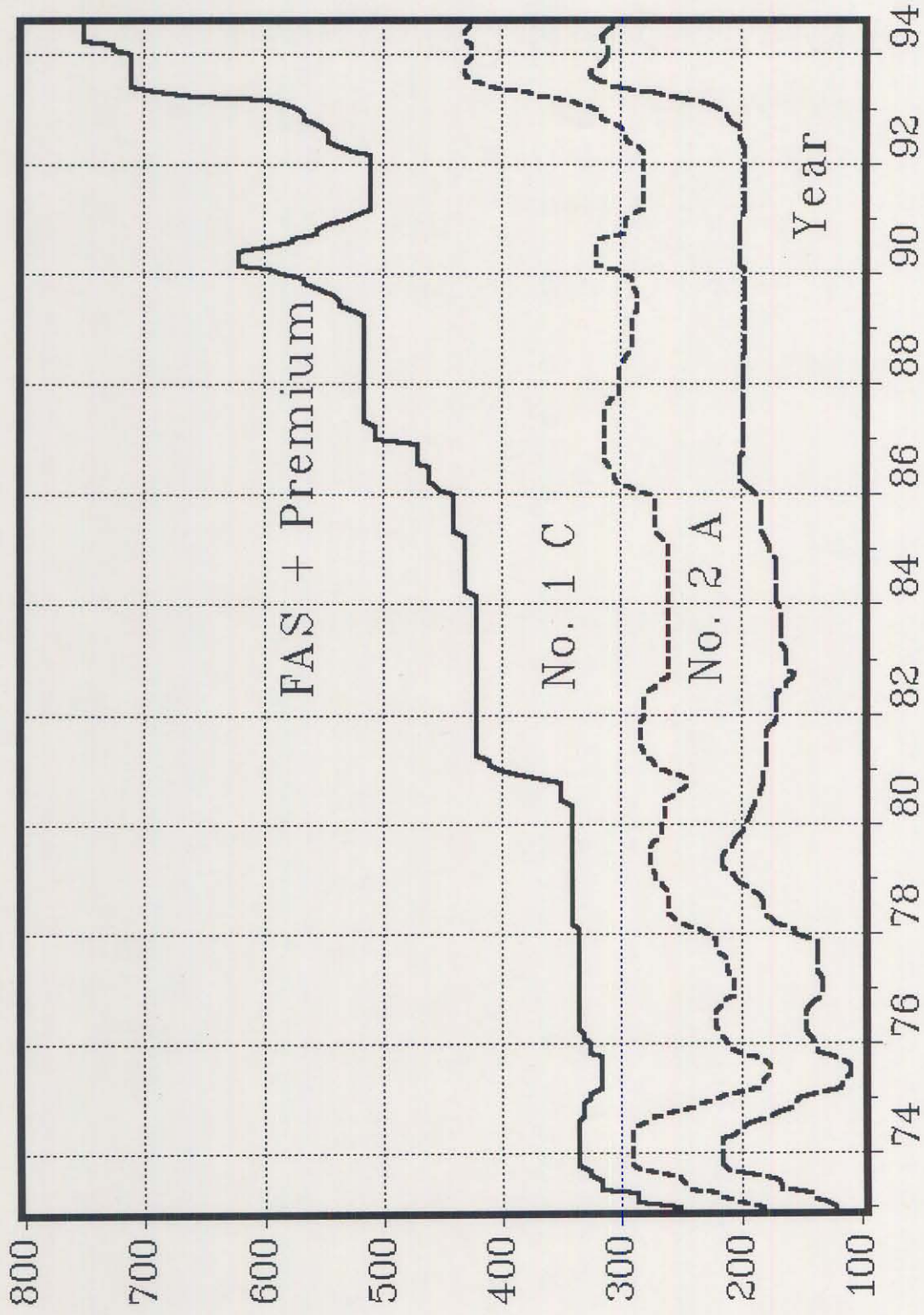


Figure 10. Producer price index for finished goods,
U.S. Dept. Commerce, 1957 to 1994

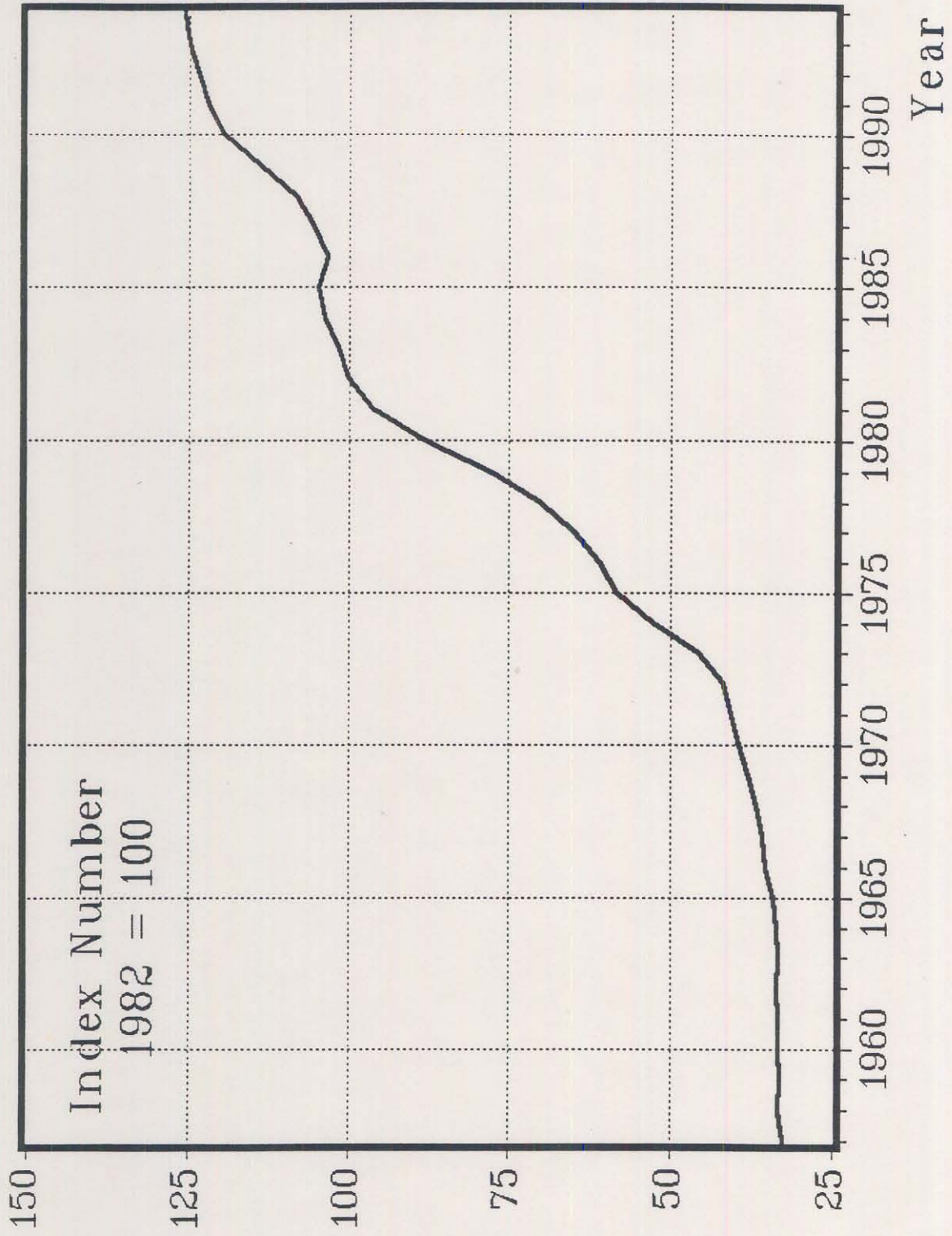


Figure 11. Average stand - nominal, real, and trend line price, 1957 to 1994.

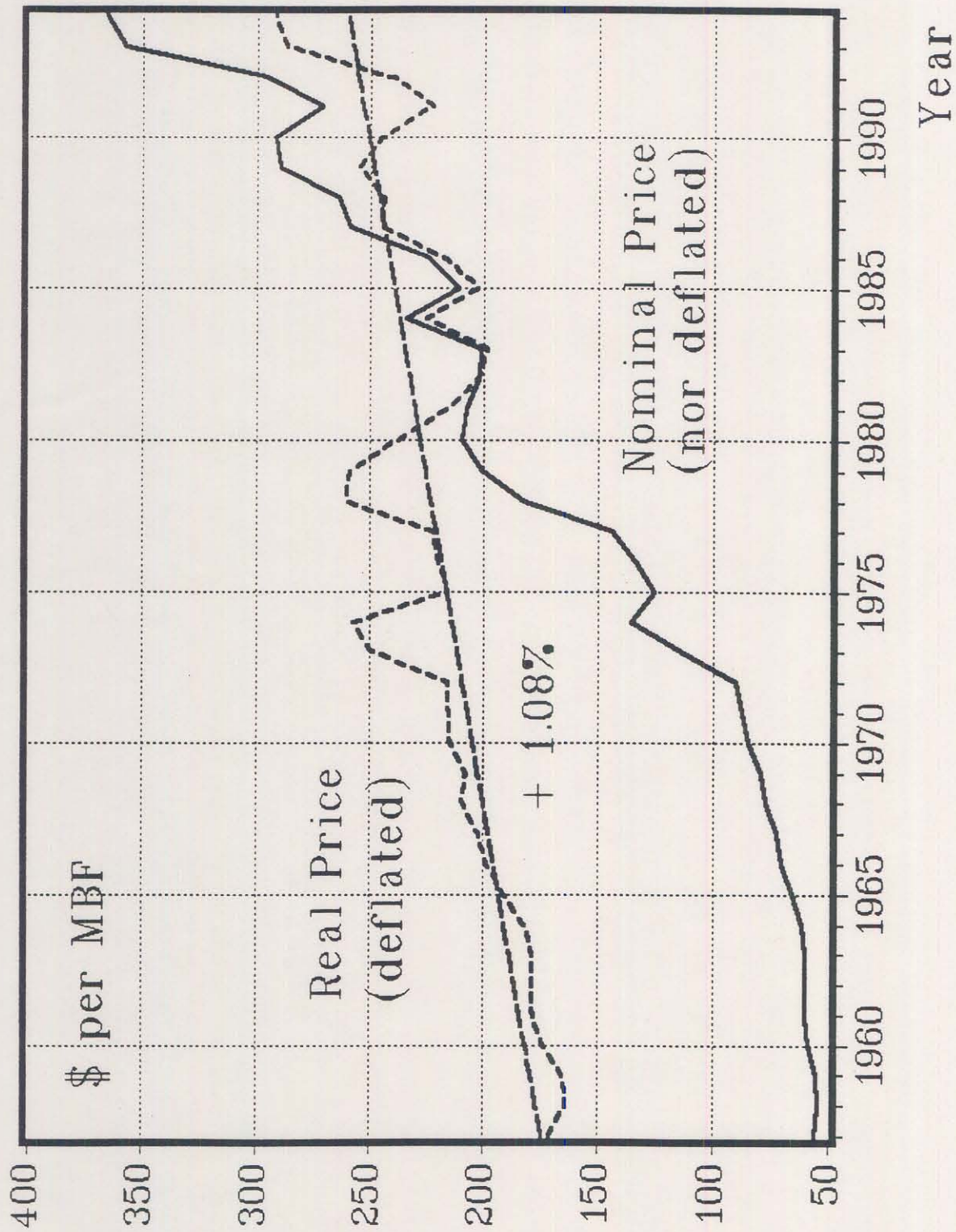


Figure 12. Quality stand - nominal, real, and trend line price series, 1957 to 1994.

