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# 1992 INDIANA FOREST PRODUCTS PRICE REPORT AND TREND ANALYSIS

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# SUMMARY

A questionnaire requesting price paid for timber products
was sent to all the known sawmills and veneer mills in the state
of Indiana.  Thirty-five percent of the 230 mills responded.
Compared to May 1991, prices paid for almost all species and
grades of log increased from a low of 3 percent to a high of 20
percent.  Price increases were particularly high for black
cherry, hard maple, and red oak logs.

Comparison of lumber prices for the Appalachian production
region with Indiana log prices showed a very strong correlation.
However, differences in magnitude exist because of the relative
availability of log of a given species in Indiana compared to
other states.  The large price increases for black cherry and
hard maple are due to strong consumer demand for furniture and
other household furnishing made from lumber of these species.  In
addition, the supply response to high prices is weak because of
the inability of mills to selectively procure just these species.

Analysis of long-term price trends indicates that timber
prices in Indiana continue to out-pace inflation by 1 to 2
percent per year on average.  The growth in timber volume is 2.5
to 3 percent.  Stands of timber also increase in value as trees
get larger, providing higher quality logs.  The total value
growth of 4 to 8 percent, depending on stand conditions, make
timber production competitive with many other investment
alternatives.

## 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 third year that the results are being published as a Purdue Agricultural Experiment Station Bulletin.

## 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, maintained by the Department of Forestry and Natural Resources, was updated to include the results of the mill survey conducted by 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 nonrespondents. Two weeks later enumerators from Ag. Statistics called nonrespondents and asked them to return the questionnaire.

A total of 230 questionnaires were mailed. Five were returned by the U.S. Postal Service as undeliverable. Seventy-five mills responded. Five of these contained no data. Thus, the overall response rate was 35 percent (80/230). 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.

The distribution of responses by type of mill and size in the case of sawmills is shown in Table 1. Based on the 44 mills providing this data, the average mill responding to the questionnaire produced 3 million board feet in 1991. The total 1991 production reported by these 44 mills was 86.4 million board feet. Estimated total lumber production for Indiana will be analyzed in a forthcoming Station Bulletin. The source of the discrepancy between the number of mills classified as producing over 7 million board feet in the data base and those reporting 1991 production of at least 7 million is not known.

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

Table 1.  Mills by type included in data base and response to 1992 price
         survey.
-------------------------------------------------------------------------

|  |  | Mills Providing Data | |
|  | Total | Based on Data Base Record | Based on Reported 1991 Production |
| Sawmills (SIC 2421) | 237[1] | 62 | 44 |
| Size Class (MBF) | | | |
| 1 - 100 . . . . . | 66 | 7 | 3 |
| 100 - 500 . . . . . | 42 | 9 | 9 |
| 500 - 1,000 . . . . | 25 | 8 | 2 |
| 1,000 - 2,000 . . . . | 40 | 13 | 11 |
| 2,000 - 4,000 . . . . | 46 | 16 | 10 |
| 4,000 - 7,000 . . . . | 10 | 8 | 6 |
| > 7,000 . . . . . . | 8 | 1 | 4 |
| Veneer (SIC 2435) | 15 | 10 | |
| Cooperage (SIC 2429) | 2 | 0 | |
| Other | 10 | 3 | |
| Total | 264 | 75 | |

-------------------------------------------------------------------------

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


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

    Improved markets for hardwood lumber are reflected in higher delivered
log prices of almost all species and grades, Table 2.   The largest increases
over May 1991 prices were for hard maple, black cherry, and red oak.   The
average price for the two top grades of hard maple increased over 18 percent.
The top grades of cherry increased about 14 percent.   Even the lower grades of
red oak increased by at least 11 percent.

    Hardwood sawlog prices respond to changes in hardwood lumber prices,
Table 3.   Economic theory holds that the percentage change in the price of an
input like sawlogs will be greater than the percentage change in the price of
the product -- lumber.   For example, from May 1991 to May 1992 the price of
No. 1 Common black cherry lumber increased by 6.5 percent.   Over the same
period the average price of the two top grades of sawlogs increased by about
14 percent.   The increase in the price of No. 1 Common red oak lumber was 22.9
percent.   The change in saw log prices was only between 11 and 12 percent,

however. Noncompliance with theory may indicate that less of a price increase is needed to bring forth an increased supply of red oak, than in the case for black cherry. Consider that cherry composes only 1.7 percent of sawtimber volume in Indiana, while the red oak family composes 18.1 percent. The high volatility in red oak lumber prices may also make buyers reluctant to build up high priced inventories of red oak stumpage and logs.

Ash lumber prices are continuing to follow the cyclical pattern typical for premium species, Figure 1. Note, however, the relatively small increase so far from the last cyclical trough during the October 1990 to February 1992 period. Unlike the last business cycle when ash was a leader in escalating prices, it is lagging in this cycle. Ash prices in the Lake States Region generally are reportedly running above the levels in other regions.

The lumber price pattern for Basswood, Figure 2, is representative of the majority of the species other than hard maple, black cherry, and the oaks. Modest price increases have occurred with no indication of the rapid rises seen in the late 1970's.

Black cherry lumber prices have shown a persistent pattern of price increases since November 1989. The persistent rush didn't start until after several wait-and-see periods in 1990 and 1992. Price increases during an economic down-turn and ahead of the increases for other species is a clear indication of a fundamental shift to cherry in consumer preferences. In economic jargon the demand curve has undergone a fundamental shift.

The sharp increase in hard maple prices didn't start until late in 1991, Figure 4. Note that the price cycles for hard maple are different than those for cherry, ash, and the oaks. Periods of increasing prices are followed by a small drop and then a period of steady prices. The price level is ratcheted up by each cyclical upturn. Oak and ash prices tend to follow the classic business cycle pattern.

Red oak prices, Figure 5, have not returned to the peak level of 1987 for FAS plus premium. However, No. 1 Common and 2 A are at or above this peak. It's tempting to assume that continued lack of consumer confidence and high unemployment will dampen further price increases for red oak. This doesn't appear to be prudent, however, for reasons discussed in the implications section below.

Recent price increases for white oak sawlogs weren't quite as strong as for red oak. This comparison also holds for lumber, Figure 6. White oak lumber price cycles are similar to those for red oak, especially for the No. 2 A grade and lower. White oak cycles for the upper grades are less severe than for red, however.

Changes in consumer preference are reflected in the relative change in the price of white and red oak. Historically, white oak was preferred to red. This is reflected in the ratio of FAS plus premium during the 1950's and 1960's, Figure 7. The pattern changed briefly in the early 1970's. Export demand re-established white oak as the premier oak starting in 1977. However, in 1983 the red oak craze hit in the United States and persisted until 1990. Over the last two years white oak prices have again exceeded red, but given recent increases in red oak prices it isn't clear that white oak will dominate for long.

Separate prices are collected for red and black oak sawlogs. The lumber market doesn't distinguish between species within the red oak category. The price difference is based on the fact that black oak logs of a given grade produce a lower yield of No. 1 Common and better lumber. With the increased value of the upper grades of red oak lumber relative to the lower grades, a change in the relative prices of red oak and black oak sawlogs would be expected. There is some indication that this is happening, but the change is statistically insignificant.

The ratio of prime red oak sawlogs to prime black oak sawlogs is shown in Figure 8a. Note that the ratios are highly variable. This may be due in part to the relatively poor grade yield data available to the stumpage and log buyers in many mills. Red oak has remained more valuable than black (ratio always greater than 1.0), as expected. There is some indication, however, that the differential has declined somewhat as the demand for clear red oak lumber increased. My assumption is that some buyers may believe that the lower cost for black oak logs more than compensates for the lower grade yield. Thus, they are willing to slightly bid up black oak price relative to red oak. On the other hand the relatively low value of the lower grades has tended to increase the premium of red over black oak for low grade sawlogs, Figure 8b.

The relatively modest increases in yellow poplar sawlog prices, about 3 percent, have resulted from equally modest increases in lumber prices, Figure 9. Although used increasingly for furniture, further price increases for this species are more closely tied to the demand for millwork. Thus, consumer's willingness to rehabilitate and redecorate existing homes is an important demand factor.

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Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 1992 and May 1991.

| Species/Grade | 1992 Range | No. Respon. | | Mean (s.e.)[1] | | Median | | Change (%) | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1991 | 1992 | 1991 | 1992 | 1991 | 1992 | Mean | Median |
| White Ash | ($/MBF) | | | ($/MBF) | | ($/MBF) | | | |
| Prime | 350-700 | 28 | 26 | 478 (19.8) | 527 (18.0) | 500 | 500 | 10.3 | 0.0 |
| No. 1 | 200-600 | 33 | 31 | 358 (15.1) | 389 (15.3) | 350 | 400 | 8.7 | 14.3 |
| No. 2 | 120-400 | 33 | 31 | 221 (14.9) | 227 (12.6) | 200 | 200 | 2.7 | 0.0 |
| No. 3 | 80-300 | 22 | 25 | 131 (7.5) | 150 (8.8) | 135 | 150 | 14.5 | 11.1 |
| Basswood | | | | | | | | | |
| Prime | 150-500 | 22 | 17 | 228 (15.7) | 268 (21.5) | 250 | 250 | 17.5 | 0.0 |
| No. 1 | 130-400 | 26 | 23 | 203 (13.2) | 225 (14.8) | 200 | 200 | 10.8 | 0.0 |
| No. 2 | 100-300 | 26 | 24 | 152 (8.1) | 163 (8.7) | 150 | 150 | 7.2 | 0.0 |
| No. 3 | 80-170 | 20 | 20 | 126 (7.4) | 130 (5.5) | 120 | 125 | 3.0 | 4.2 |
| Beech | | | | | | | | | |
| Prime | 100-250 | 20 | 19 | 156 (7.5) | 166 (9.8) | 150 | 160 | 6.4 | 6.7 |
| No. 1 | 100-450 | 21 | 22 | 141 (6.8) | 155 (14.9) | 120 | 145 | 9.9 | 20.8 |
| No. 2 | 100-170 | 22 | 19 | 127 (5.5) | 130 (4.9) | 120 | 120 | 2.4 | 0.0 |
| No. 3 | 80-170 | 18 | 20 | 122 (7.7) | 127 (6.3) | 120 | 125 | 4.1 | 4.2 |

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

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 1992 and May 1991, continued.

| Species/Grade | 1992 Range | No. Respon. | | Mean (s.e.) | | Median | | Change (%) | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1991 | 1992 | 1991 | 1992 | 1991 | 1992 | Mean | Median |
| Cottonwood | ($/MBF) | | | ($/MBF) | | ($/MBF) | | | |
| Prime | 100-150 | 14 | 8 | 126 (5.4) | 119 (5.5) | 120 | 120 | -5.6 | 0.0 |
| No. 1 | 100-150 | 15 | 10 | 119 (5.1) | 122 (6.1) | 120 | 120 | 2.5 | 0.0 |
| No. 2 | 100-150 | 14 | 9 | 116 (6.4) | 119 (28.6) | 120 | 120 | 2.6 | 0.0 |
| No. 3 | 100-150 | 13 | 11 | 113 (7.4) | 120 (5.9) | 120 | 120 | 6.2 | 0.0 |
| Cherry | | | | | | | | | |
| Prime | 400-800 | 28 | 27 | 529 (17.0) | 605 (21.6) | 550 | 600 | 14.4 | 9.1 |
| No. 1 | 280-650 | 32 | 32 | 403 (20.1) | 459 (18.3) | 400 | 450 | 13.9 | 12.5 |
| No. 2 | 120-410 | 31 | 31 | 240 (15.8) | 259 (13.8) | 220 | 250 | 7.9 | 13.6 |
| No. 3 | 80-250 | 22 | 24 | 151 (10.0) | 149 (7.7) | 150 | 150 | - 1.3 | 0.0 |
| Elm | | | | | | | | | |
| Prime | 100-250 | 18 | 13 | 154 (9.9) | 163 (17.6) | 145 | 140 | 5.8 | - 3.4 |
| No. 1 | 100-250 | 22 | 17 | 147 (7.6) | 156 (12.8) | 145 | 140 | 6.1 | - 3.4 |
| No. 2 | 100-250 | 22 | 14 | 133 (5.8) | 134 (10.6) | 125 | 120 | 0.8 | - 4.0 |
| No. 3 | 100-250 | 18 | 15 | 127 (7.5) | 136 (9.7) | 120 | 120 | 7.1 | 0.0 |

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 1992 and May 1991, continued.

| Species/Grade | 1992 Range | No. Respon. | | Mean (s.e.) | | Median | | Change (%) | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1991 | 1992 | 1991 | 1992 | 1991 | 1992 | Mean | Median |
| S. Hickory | ($/MBF) | | | ($/MBF) | | ($/MBF) | | | |
| Prime | 120-320 | 22 | 18 | 177 (10.6) | 176 (11.6) | 180 | 155 | - 0.5 | -13.9 |
| No. 1 | 120-280 | 26 | 21 | 159 (8.2) | 167 (9.1) | 160 | 150 | 5.0 | - 6.3 |
| No. 2 | 100-200 | 24 | 20 | 139 (6.0) | 143 (6.7) | 150 | 150 | 2.9 | 0.0 |
| No. 3 | 80-170 | 19 | 20 | 125 (8.1) | 129 (5.5) | 120 | 125 | 3.2 | 4.2 |
| Hard Maple | | | | | | | | | |
| Prime | 185-600 | 25 | 26 | 290 (15.1) | 344 (21.2) | 300 | 300 | 18.6 | 0.0 |
| No. 1 | 150-650 | 29 | 31 | 229 (11.0) | 276 (18.7) | 220 | 250 | 20.5 | 13.6 |
| No. 2 | 100-280 | 27 | 30 | 169 (9.0) | 181 (9.0) | 160 | 160 | 7.1 | 0.0 |
| No. 3 | 80-200 | 22 | 25 | 127 (6.7) | 135 (5.3) | 120 | 140 | 6.3 | 16.7 |
| Soft Maple | | | | | | | | | |
| Prime | 120-400 | 24 | 23 | 218 (8.9) | 213 (13.8) | 200 | 200 | - 2.3 | 0.0 |
| No. 1 | 100-350 | 28 | 29 | 184 (8.2) | 184 (11.1) | 180 | 150 | 0.0 | -16.7 |
| No. 2 | 100-250 | 28 | 29 | 146 (6.0) | 146 (6.1) | 150 | 150 | 0.0 | 0.0 |
| No. 3 | 80-200 | 22 | 25 | 127 (6.7) | 130 (5.6) | 120 | 120 | 2.4 | 0.0 |

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 1992 and May 1991, continued.

| Species/Grade | 1992 Range | No. Respon. | | Mean (s.e.) | | Median | | Change (%) | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | 1991 | 1992 | 1991 | 1992 | 1991 | 1992 | Mean | Median |
| White Oak | ($/MBF) | | | ($/MBF) | | ($/MBF) | | | |
| Prime | 350-750 | 27 | 29 | 500 (18.1) | 556 (18.1) | 500 | 600 | 11.2 | 20.0 |
| No. 1 | 200-650 | 33 | 32 | 381 (17.2) | 409 (18.2) | 375 | 400 | 7.4 | 6.7 |
| No. 2 | 120-400 | 33 | 32 | 232 (13.5) | 242 (13.4) | 200 | 250 | 4.3 | 25.0 |
| No. 3 | 80-300 | 23 | 24 | 135 (8.2) | 157 (9.8) | 120 | 150 | 16.3 | 25.0 |
| Red Oak | | | | | | | | | |
| Prime | 450-800 | 28 | 28 | 532 (13.9) | 596 (15.0) | 550 | 600 | 12.0 | 9.1 |
| No. 1 | 200-800 | 33 | 33 | 407 (14.2) | 453 (21.6) | 400 | 450 | 11.3 | 12.5 |
| No. 2 | 120-500 | 32 | 32 | 246 (13.2) | 273 (16.9) | 250 | 250 | 11.0 | 0.0 |
| No. 3 | 80-350 | 24 | 27 | 142 (9.2) | 164 (10.9) | 138 | 150 | 15.5 | 8.0 |
| Black Oak | | | | | | | | | |
| Prime | 300-700 | 26 | 25 | 473 (15.3) | 522 (21.6) | 500 | 600 | 10.4 | 20.0 |
| No. 1 | 150-600 | 32 | 29 | 350 (13.6) | 377 (17.7) | 350 | 400 | 7.7 | 14.3 |
| No. 2 | 120-500 | 32 | 29 | 206 (10.7) | 223 (14.3) | 200 | 200 | 8.3 | 0.0 |
| No. 3 | 80-350 | 23 | 24 | 138 (7.9) | 147 (10.5) | 150 | 150 | 6.5 | 0.0 |

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 1992 and May 1991, continued.

| Species/Grade | 1991 Range | No. Respon. | | Mean (s.e.) | | Median | | Change (%) | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1991 | 1992 | 1991 | 1992 | 1991 | 1992 | Mean | Median |
| Tulip Poplar | ($/MBF) | | | ($/MBF) | | ($/MBF) | | | |
| Prime | 200-400 | 26 | 26 | 275 (5.8) | 284 (9.1) | 263 | 300 | 3.3 | 14.1 |
| No. 1 | 140-500 | 30 | 30 | 219 (7.6) | 239 (13.0) | 205 | 235 | 9.1 | 14.6 |
| No. 2 | 100-250 | 28 | 29 | 162 (5.0) | 164 (6.9) | 160 | 150 | 1.2 | - 6.3 |
| No. 3 | 80-170 | 22 | 26 | 128 (6.5) | 131 (4.6) | 120 | 125 | 2.3 | 4.2 |
| Sycamore | | | | | | | | | |
| Prime | 100-200 | 20 | 15 | 145 (5.1) | 143 (6.4) | 150 | 150 | - 1.4 | 0.0 |
| No. 1 | 100-170 | 21 | 18 | 131 (5.0) | 134 (4.8) | 120 | 135 | 2.3 | 12.5 |
| No. 2 | 80-200 | 21 | 17 | 125 (5.9) | 131 (7.7) | 120 | 130 | 4.8 | 8.3 |
| No. 3 | 80-170 | 17 | 17 | 125 (7.7) | 128 (6.8) | 120 | 130 | 2.4 | 8.3 |
| Sweetgum | | | | | | | | | |
| Prime | 120-200 | 19 | 11 | 144 (6.3) | 154 (8.6) | 140 | 150 | 6.9 | 7.1 |
| No. 1 | 120-150 | 19 | 12 | 130 (5.4) | 138 (3.7) | 120 | 140 | 6.2 | 16.7 |
| No. 2 | 100-150 | 19 | 12 | 122 (6.1) | 132 (5.6) | 120 | 135 | 8.2 | 12.5 |
| No. 3 | 80-150 | 15 | 12 | 121 (8.1) | 130 (6.6) | 120 | 135 | 7.4 | 12.5 |

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 1992 and May 1991, continued.

| Species/Grade | 1992 Range | No. Respon. | | Mean (s.e.) | | Median | | Change (%) | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1991 | 1992 | 1991 | 1992 | 1991 | 1992 | Mean | Median |
| Black Walnut | ($/MBF) | | | ($/MBF) | | ($/MBF) | | | |
| Prime | 500-1250 | 24 | 27 | 754 (33.8) | 813 (40.7) | 700 | 750 | 7.8 | 7.1 |
| No. 1 | 150-1000 | 30 | 31 | 613 (32.2) | 643 (34.4) | 550 | 600 | 4.9 | 9.1 |
| No. 2 | 150-750 | 30 | 30 | 383 (26.5) | 416 (30.2) | 300 | 400 | 8.6 | 33.3 |
| No. 3 | 100-400 | 24 | 22 | 207 (21.6) | 235 (21.6) | 200 | 200 | 8.7 | 0.0 |
| Softwood | | | | | | | | | |
| Pine | 120-150 | 2 | 2 | 110 | 135 | 110 | 135 | 13.6 | 13.6 |
| Red cedar | 350 | 1 | 1 | 350 | 350 | 350 | 350 | 0.0 | 0.0 |

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

| | July 1989 | Jan. 1990 | July 1990 | Jan. 1991 | July 1991 | Jan. 1992 | June 1992 |
|---|---|---|---|---|---|---|---|
| **Tough Ash** | | | | | | | |
| FAS + Premium | 1,030 | 1,030 | 900 | 780 | 730 | 730 | 805 |
| No. 1C | 700 | 700 | 640 | 540 | 475 | 475 | 475 |
| No. 2C | 300 | 300 | 260 | 200 | 195 | 195 | 195 |
| | | | | | | | |
| **Basswood** FAS + Premium | 640 | 650 | 650 | 650 | 650 | 650 | 655 |
| No. 1C | 305 | 305 | 305 | 305 | 305 | 305 | 310 |
| No. 2A | 177 | 177 | 177 | 177 | 177 | 177 | 177 |
| **Beech** | | | | | | | |
| FAS | 295 | 295 | 295 | 295 | 295 | 300 | 320 |
| No. 1C | 255 | 255 | 255 | 255 | 255 | 260 | 280 |
| No. 2A | 195 | 195 | 195 | 195 | 195 | 200 | 220 |
| **Cottonwood (Southern)** | | | | | | | |
| FAS | 365 | 365 | 380 | 400 | 400 | 410 | 450 |
| No. 1C | 270 | 270 | 270 | 285 | 285 | 290 | 300 |
| No. 2C | 135 | 140 | 150 | 150 | 150 | 150 | 150 |
| **Cherry** | | | | | | | |
| FAS + Premium | 1,065 | 1,090 | 1,115 | 1,135 | 1,175 | 1,275 | 1,375 |
| No. 1C | 770 | 690 | 660 | 620 | 620 | 620 | 690 |
| No. 2A | 390 | 355 | 325 | 285 | 285 | 285 | 330 |
| **Elm (Southern)** | | | | | | | |
| FAS | 375 | 345 | 345 | 335 | 335 | 335 | 335 |
| No. 1C | 355 | 325 | 325 | 315 | 315 | 315 | 315 |
| No. 2B | 220 | 200 | 200 | 200 | 200 | 200 | 200 |
| **Hickory** | | | | | | | |
| FAS | 340 | 340 | 340 | 335 | 335 | 335 | 340 |
| No. 1C | 320 | 320 | 320 | 315 | 315 | 315 | 320 |
| No. 2A | 160 | 160 | 200 | 195 | 195 | 195 | 200 |
| **Hard Maple** | | | | | | | |
| FAS + Premium | 635 | 650 | 680 | 660 | 660 | 660 | 820 |
| No. 1C | 385 | 400 | 430 | 430 | 430 | 430 | 525 |
| No. 2A | 230 | 235 | 265 | 265 | 265 | 265 | 330 |
| **Soft Maple** | | | | | | | |
| FAS + Premium | 450 | 480 | 565 | 565 | 565 | 565 | 610 |
| No. 1C | 350 | 365 | 405 | 405 | 405 | 405 | 440 |
| No. 2A | 210 | 215 | 250 | 250 | 250 | 250 | 275 |
| **White Oak (Plain)** | | | | | | | |
| FAS + Premium | 1,000 | 1,000 | 980 | 950 | 950 | 980 | 1,010 |
| No. 1C | 465 | 465 | 465 | 465 | 465 | 475 | 535 |
| No. 2A | 240 | 255 | 260 | 235 | 220 | 250 | 285 |
| **Red Oak** | | | | | | | |
| FAS + Premium | 1,165 | 955 | 995 | 920 | 845 | 885 | 990 |
| No. 1C | 905 | 535 | 545 | 535 | 525 | 555 | 665 |
| No. 2A | 710 | 275 | 285 | 265 | 250 | 285 | 345 |
| **Yellow Poplar** | | | | | | | |
| FAS + Premium | 530 | 585 | 595 | 530 | 510 | 510 | 545 |
| No. 1C | 285 | 300 | 320 | 295 | 280 | 280 | 295 |
| No. 2A | 195 | 195 | 200 | 200 | 195 | 195 | 200 |

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

| | July 1989 | Jan. 1990 | July 1990 | Jan. 1991 | July 1991 | Jan. 1992 | June 1992 |
|---|---|---|---|---|---|---|---|
| **Sycamore (Southern, Plain)** | | | | | | | |
| FAS | 295 | 300 | 310 | 315 | 315 | 320 | 330 |
| No. 1C | 275 | 280 | 290 | 295 | 295 | 300 | 310 |
| No. 2A | 240 | 245 | 255 | 255 | 255 | 265 | 275 |
| **Black Walnut** | | | | | | | |
| FAS | 1,605 | 1,605 | 1,605 | 1,605 | 1,605 | 1,605 | 1,605 |
| No. 1C | 855 | 855 | 855 | 855 | 855 | 855 | 855 |
| No. 2A | 290 | 290 | 290 | 290 | 290 | 290 | 290 |

Except for black walnut, veneer log prices increased from May 1991 to May 1992, Table 4. Price declines for black walnut were particularly great for the select grade, down 20 to 30 percent. Very modest increases occurred for small prime logs.

The largest increases appear to be for red oak. This is consistent with the trend in sawlog prices. The size of the price increases for veneer logs, however, appears to be unrealistic, especially for select. The number of mills reporting red oak veneer log prices in 1991 was very small. Thus, comparisons with 1992 have limited significance. However, the 15 to 20 percent increases for small prime logs are realistic.

White oak veneer log prices also increased substantially, even for select logs. Increased export demand is the driving force.

Prime hard maple veneer log prices increased 15 to 20 percent. The large increases shown for select logs are not meaningful because only one mill reported prices in 1991. The same conclusion applies to select yellow poplar.

Table 4. Prices paid for delivered veneer logs by Indiana veneer mills, May 1992 and revised May 1990.

| Species/Grade /Log Dia. | 1992 Range | No. Respon. | | Mean (s.e.)[1] | | Median | | Change (%) | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1991 | 1992 | 1991 | 1992 | 1991 | 1992 | Mean | Median |
| Black Walnut | ($/MBF) | | | ($/MBF) | | ($/MBF) | | | |
| Prime | | | | | | | | | |
| 12-13 | 1000-3833 | 9 | 13 | 1728 (260.7) | 1780 (242.3) | 1500 | 1500 | 3.0 | 0.0 |
| 14-15 | 1500-3500 | 11 | 14 | 2281 (321.4) | 2293 (195.7) | 2000 | 2250 | 0.5 | 12.5 |
| 16-17 | 2000-5000 | 12 | 14 | 3177 (368.1) | 3054 (312.5) | 3000 | 2750 | - 3.9 | - 8.3 |
| 18-20 | 2500-7000 | 11 | 14 | 4182 (473.3) | 3996 (414.1) | 4000 | 3100 | - 4.5 | -22.5 |
| 21-23 | 3000-8000 | 8 | 10 | 5188 (834.2) | 4907 (564.9) | 5000 | 4250 | - 5.4 | -15.0 |
| 24-28 | 3930-9000 | 8 | 10 | 5625 (805.9) | 5443 (552.1) | 5500 | 4750 | - 3.2 | -13.6 |
| >28 | 3930-10000 | 8 | 8 | 6375 (929.4) | 6429 (707.9) | 6250 | 6500 | 0.9 | 4.0 |
| Select | | | | | | | | | |
| 12-13 | 500-1500 | 5 | 4 | 1200 (122.5) | 1075 (253) | 1000 | 1150 | -10.4 | 15.0 |
| 14-15 | 500-2500 | 7 | 6 | 1757 (211.4) | 1617 (289) | 1500 | 1750 | - 8.0 | 16.7 |
| 16-17 | 500-3000 | 7 | 6 | 2143 (179.8) | 2050 (354.7) | 2000 | 2250 | - 4.3 | 12.5 |
| 18-20 | 500-3500 | 6 | 7 | 2750 (214.1) | 2286 (375.7) | 2750 | 2500 | -16.9 | - 9.1 |
| 21-23 | 500-3500 | 6 | 5 | 3333 (333.3) | 2600 (533.8) | 3250 | 3000 | -22.0 | - 7.7 |
| 24-28 | 1000-3500 | 5 | 5 | 3800 (435.9) | 2600 (430.1) | 3500 | 3000 | -31.6 | -14.3 |
| >28 | 1000-3500 | 5 | 4 | 4200 (514.8) | 2625 (554.3) | 4000 | 3000 | -32.7 | -25.0 |

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

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Table 4. Prices paid for delivered veneer logs by Indiana veneer mills, May 1992 and
        May 1991, continued.

| Species/Grade /Log Dia. | 1992 Range | No. Respon. | | Mean (s.e.) | | Median | | Change (%) | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1991 | 1992 | 1991 | 1992 | 1991 | 1992 | Mean | Median |
| White Oak | ($/MBF) | | | ($/MBF) | | ($/MBF) | | | |
| Prime | | | | | | | | | |
| 13-14 | 600-1800 | 12 | 14 | 1090 (101.7) | 1221 (104.8) | 1000 | 1250 | 12.0 | 25.0 |
| 15-17 | 600-2600 | 12 | 14 | 1479 (102.9) | 1610 (150.4) | 1500 | 1650 | 8.9 | 10.0 |
| 18-20 | 600-3000 | 12 | 13 | 1902 (137.6) | 2131 (194.8) | 1875 | 2000 | 12.0 | 6.7 |
| 21-23 | 1500-3500 | 12 | 11 | 2260 (145.2) | 2466 (180.0) | 2500 | 2500 | 9.1 | 0.0 |
| 24-28 | 1800-4000 | 9 | 12 | 2675 (254.3) | 2776 (175.4) | 2700 | 2750 | 3.8 | 1.9 |
| >28 | 1800-4000 | 6 | 7 | 2729 (478.0) | 2971 (264.3) | 2500 | 3000 | 8.9 | 20.0 |
| Select | | | | | | | | | |
| 13-14 | 800-1400 | 7 | 4 | 768 (147.5) | 1050 (125.8) | 700 | 1000 | 36.7 | 30.0 |
| 15-17 | 1000-1800 | 6 | 5 | 975 (125.0) | 1360 (183.3) | 1000 | 1200 | 39.5 | 20.0 |
| 18-20 | 1200-2600 | 6 | 4 | 1408 (141.7) | 1775 (301.0) | 1500 | 1650 | 26.1 | 10.0 |
| 21-23 | 1500-3000 | 6 | 4 | 1600 (152.8) | 2075 (325.0) | 1550 | 1900 | 27.0 | 22.6 |
| 24-28 | 1500-3200 | 6 | 3 | 1650 (117.6) | 2167 (523.9) | 1550 | 1800 | 31.3 | 16.1 |
| >28 | 1800 | 4 | 1 | 1900 (100.0) | 1800 (n.a.) | 2000 | 1800 | -5.3 | -10.0 |

Table 4. Prices paid for delivered veneer logs by Indiana veneer mills, May 1992 and May 1991, continued.

| Species/Grade /Log Dia. | 1992 Range | No. Respon. | | Mean (s.e.) | | Median | | Change (%) | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1991 | 1992 | 1991 | 1992 | 1991 | 1992 | Mean | Median |
| Red Oak | | | | | | | | | |
| Prime | ($/MBF) | | | ($/MBF) | | ($/MBF) | | | |
| 16-17 | 800-1600 | 7 | 11 | 985 (138.8) | 1139 (82.0) | 1000 | 1000 | 15.6 | 0.0 |
| 18-20 | 800-1600 | 5 | 10 | 930 (216.6) | 1124 (90.1) | 900 | 1000 | 20.9 | 11.1 |
| 21-23 | 800-1600 | 4 | 9 | 775 (110.9) | 1095 (86.1) | 800 | 1000 | 41.3 | 20.0 |
| 24-28 | 800-1600 | 3 | 7 | 733 (120.2) | 1146 (99.1) | 800 | 1100 | 56.3 | 37.5 |
| >28 | 800-1600 | 3 | 5 | 767 (133.3) | 1100 (134.2) | 900 | 1000 | 43.4 | 11.1 |
| Select | | | | | | | | | |
| 16-17 | 800-1200 | 4 | 3 | 675 (143.6) | 1000 (115.5) | 700 | 1000 | 48.2 | 42.9 |
| 18-20 | 800-1200 | 1 | 3 | 350 (n.a.) | 1000 (115.5) | 350 | 1000 | 185.7 | 185.7 |
| 21-23 | 800-1200 | 1 | 3 | 400 (n.a.) | 1000 (115.5) | 400 | 1000 | 150.0 | 150.0 |
| 24-28 | 800-1200 | 1 | 3 | 400 (n.a.) | 1000 (115.5) | 400 | 1000 | 150.0 | 150.0 |
| >28 | 1000-1200 | 1 | 2 | 400 (n.a.) | 1100 (100) | 400 | 1100 | 175.0 | 175.0 |

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Table 4. Prices paid for delivered veneer logs by Indiana veneer mills, May 1992 and
         May 1991, continued.

| Species/Grade /Log Dia. | 1992 Range | No. Respon. | | Mean (s.e.) | | Median | | Change (%) | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1991 | 1992 | 1991 | 1992 | 1991 | 1992 | Mean | Median |
| Hard Maple | ($/MBF) | | | ($/MBF) | | ($/MBF) | | | |
| Prime | | | | | | | | | |
| 16-20 | 500-1400 | 7 | 6 | 786 (160.6) | 908 (134.4) | 800 | 800 | 15.5 | 0.0 |
| >20 | 500-1400 | 4 | 4 | 801 (287.9) | 975 (201.6) | 700 | 1000 | 21.7 | 42.9 |
| Select | | | | | | | | | |
| 16-20 | 350-1100 | 1 | 4 | 180 (n.a.) | 638 (162.5) | 180 | 550 | 254.4 | 205.6 |
| >20 | 350-1100 | 1 | 3 | 180 (n.a.) | 650 (229.1) | 180 | 500 | 261.1 | 177.8 |
| Tulip Poplar | | | | | | | | | |
| Prime | | | | | | | | | |
| 16-20 | 300-500 | 5 | 7 | 337 (26.3) | 369 (28.2) | 310 | 380 | 9.5 | 22.6 |
| >20 | 300-500 | 4 | 6 | 330 (23.5) | 370 (34.2) | 310 | 350 | 12.1 | 12.9 |
| Select | | | | | | | | | |
| 16-20 | 300 | 1 | 1 | 225 (n.a.) | 300 (n.a.) | 225 | 300 | 33.3 | 33.3 |
| >20 | 300 | 1 | 1 | 265 (n.a.) | 300 (n.a.) | 265 | 300 | 13.2 | 13.2 |

# CUSTOM COSTS AND MISCELLANEOUS PRODUCTS

Costs reported for custom activities, Table 5, increased significantly for sawing and logging. The average hauling cost also increased from just over $1.00 per MBF per mile to $1.20. This figure is highly variable because it depends on both the average cost per MBF and average haul distance.

The price paid for pallet lumber logs, Table 6, was essentially unchanged again this year. Bark prices remain strong for mills located within a reasonable haul distance of urban landscape markets, or a wood-residue fired boiler. Note that the unit of measure has been changed to $ per cubic yard to be consistent with industry practices. As a rough approximation there are about 2.5 cubic yards per ton.

Handle logs prices, Table 7, were down for ash, but up for hard maple. Note that ash handle log prices fall between the price of No. 1 and No. 2 sawlogs.

Table 5. Custom costs reported by Indiana mills, May 1992, and May 1991.

|  | No. Re-sponses | 1992 Range | Mean (s.e.) | | Median | |
|---|---|---|---|---|---|---|
|  |  |  | 1991 | 1992 | 1991 | 1992 |
| Sawing $/MBF | 16 | 115-300 | 138 (5.1) | 183 (14.3) | 150 | 173 |
| Logging $/MBF | 5 | 60-140 | 67 (12.1) | 92 (15.4) | 60 | 80 |
| Hauling: |  |  |  |  |  |  |
| $/MBF | 4 | 35-65 | 53 (3.7) | 48 (6.6) | 55 | 45 |
| Distance | 4 | 30-60 | 50 (8.5) | 40 (7.1) | 43 | 35 |
| $/MBF/Mile | 4 |  | 1.06 | 1.20 | 1.28 | 1.29 |

Table 6. Prices of miscellaneous products reported by Indiana mills, May 1992 and May 1991, fob the producing mill.

| | No. Re-sponses | 1992 Range | Mean (s.e.) | | Median | |
|---|---|---|---|---|---|---|
| | | | 1991 | 1992 | 1991 | 1992 |
| Pallet logs, $/MBF | 29 | 90-180 | 137 (6.2) | 140 (4.2) | 140 | 140 |
| Pulp Chips, $/Ton | 19 | 7-35 | 15.85 (1.5) | 13.85 (1.5) | 14.50 | 13.00 |
| Sawdust, $/Yd. | 13 | 1.00-8.10 | 6.33* (0.9) | 2.69 (0.6) | 6.37* | 2.00 |
| Bark, $/Yd. | 18 | 2.00-12.00 | 11.15* (1.8) | 5.69 (0.7) | 9.50* | 5.00 |

* 1991 prices are per ton, not comparable with 1992 prices per cubic yard.


Table 7. Prices paid for handle logs by Indiana mills, May 1992 and May 1991, fob mill.

| | No. Re-sponses | 1992 Range | Mean (s.e.) | |
|---|---|---|---|---|
| | | | 1991 | 1992 |
| White Ash | | | ($/MBF) | ($/MBF) |
| No. 1 | 4 | 300-500 | 426 (34) | 406 (35) |
| No. 2 | 4 | 300-485 | 381 (10) | 334 (51) |
| No. 3 | 1 | 250 | 308 (30) | 250 (n.a.) |
| Hard Maple | | | | |
| No. 1 | 1 | 350 | 300 (35) | 350 (n.a.) |
| No. 2 | 1 | 200 | 200 | 200 |
| No. 3 | | | n.a. | |
| Hickory | | | | |
| No. 1 | 0 | | 175 (18) | |
| No. 2 | 0 | | 150 (20) | |
| No. 3 | 0 | | 120 | |

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 and log quality distribution used to calculate the weighted averages were reported in <u>Indiana Forest Products Marketing and Wood Utilization Report, Bulletin No. 189</u>, June 16, 1987, p. 13.

The actual price, Table 8, is a weighted average of the delivered log prices reported in the price survey. The price index is the series of actual prices divided by the price in 1957, the base year.  The real price is the actual price deflated by the producer price index for all commodities with 1982 as the base year. Thus, the real price series represents the purchasing power of dollars based on a 1982 market basket of industrial goods.

Average Stand
The value of the logs in an average stand of timber increased from $270 per MBF in 1991 to $295 per MBF in 1992, a 9.3 percent increase, Table 8. After adjusting for inflation the increase was 9.4 percent.  The inflationary pattern is shown in Figure 10.  The low inflation rate over the last several years is consistent with continuing declines in interest rates.  If the change in real prices from 1957 to 1992 had been constant from year to year, that is, a straight line, the yearly change would have averaged 0.92 percent, Figure 11.  After the decline in 1991, price levels again exceed the trend line.  Of course by construction, the trend line evenly splits deviations above and below the trend line over the period of observations.

Quality Stand
The value of the logs in a high quality stand of timber increased from $395 per MBF in 1991 to $455 per MBF in 1992, a 15% percent increase, Table 8.  After adjusting for inflation the increase was from was from $340 per MBF to $391, also a 15 percent increase.  If the change in real prices from 1957 to 1990 had been constant from year to year, that is, a straight line, the yearly change would have averaged 1.65 percent, Figure 12.

Table 8. Weighted average actual price, price index, and deflated price for an average and quality stand of timber in Indiana, 1957 to 1992

| Year | Average Stand[1] | | | Quality Stand[1] | | |
|------|------------------|-----------------|-------------------|------------------|-----------------|-------------------|
|      | Actual Price | Index Number | Real Price[2] | Actual Price | Index Number | Real Price[2] |
|      | ($/MBF) | | ($/MBF) | ($/MBF) | | ($/MBF) |
| 1957 | 55.6 | 100.0 | 172.2 | 66.5 | 100.0 | 206.2 |
| 1958 | 54.3 | 97.7 | 166.0 | 66.1 | 99.4 | 202.1 |
| 1959 | 54.7 | 98.4 | 166.8 | 68.1 | 102.4 | 207.7 |
| 1960 | 58.0 | 104.4 | 176.7 | 70.0 | 105.1 | 213.0 |
| 1961 | 59.5 | 107.1 | 182.0 | 70.4 | 105.9 | 215.5 |
| 1962 | 59.8 | 107.6 | 182.3 | 72.9 | 109.5 | 222.2 |
| 1963 | 59.4 | 107.0 | 181.8 | 75.3 | 113.1 | 230.2 |
| 1964 | 60.9 | 109.6 | 185.9 | 75.1 | 112.9 | 229.3 |
| 1965 | 65.0 | 117.0 | 194.6 | 80.6 | 121.1 | 241.1 |
| 1966 | 69.7 | 125.5 | 202.0 | 88.0 | 132.2 | 254.9 |
| 1967 | 71.9 | 129.4 | 207.9 | 89.0 | 133.7 | 257.2 |
| 1968 | 76.5 | 137.6 | 215.7 | 97.6 | 146.6 | 275.2 |
| 1969 | 78.7 | 141.6 | 213.6 | 100.0 | 150.3 | 271.4 |
| 1970 | 84.1 | 151.4 | 220.3 | 105.5 | 158.5 | 276.2 |
| 1971 | 87.0 | 156.5 | 220.8 | 109.5 | 164.5 | 277.8 |
| 1972 | 89.8 | 161.7 | 218.1 | 112.8 | 169.6 | 273.9 |
| 1973 | 113.5 | 204.3 | 243.7 | 143.7 | 216.0 | 308.4 |
| 1974 | 135.1 | 243.1 | 244.0 | 175.9 | 264.4 | 317.6 |
| 1975 | 124.9 | 224.8 | 206.5 | 169.9 | 255.4 | 280.9 |
| 1976 | 133.5 | 240.2 | 210.9 | 177.6 | 266.9 | 280.6 |
| 1977 | 143.5 | 258.2 | 213.6 | 194.7 | 292.7 | 289.9 |
| 1978 | 181.7 | 327.1 | 251.0 | 247.6 | 372.1 | 342.0 |
| 1979 | 200.1 | 360.2 | 245.6 | 276.7 | 415.9 | 339.5 |
| 1980 | 208.8 | 375.8 | 224.7 | 326.7 | 491.1 | 351.5 |
| 1981 | 206.6 | 371.8 | 203.6 | 300.2 | 451.2 | 295.8 |
| 1982 | 201.5 | 362.6 | 194.6 | 293.3 | 440.9 | 283.3 |
| 1983 | 201.0 | 361.7 | 191.7 | 278.3 | 418.3 | 265.5 |
| 1984 | 233.6 | 420.4 | 217.6 | 336.7 | 506.1 | 313.7 |
| 1985 | 210.4 | 378.7 | 196.7 | 290.3 | 436.4 | 271.4 |
| 1986 | 224.1 | 403.4 | 223.7 | 331.6 | 498.5 | 331.0 |
| 1987 | 258.0 | 464.2 | 254.1 | 358.4 | 538.7 | 353.0 |
| 1988 | 262.7 | 472.7 | 245.7 | 366.5 | 550.9 | 342.8 |
| 1989 | 288.8 | 519.8 | 257.2 | 445.0 | 668.9 | 396.3 |
| 1990 | 290.5 | 522.8 | 249.8 | 433.4 | 651.4 | 372.6 |
| 1991 | 270.1 | 486.1 | 231.9 | 395.5 | 594.4 | 339.5 |
| 1992 | 295.1 | 531.1 | 253.8 | 454.9 | 683.8 | 391.1 |

[1] See Indiana Forest Products Marketing and Wood Utilization Report, Bulletin No. 189, June 16, 1987, p. 13, for definition of stand quality.

[2] Actual price deflated by Producer Price Index for All Commodities, U.S. Dept. Commerce, 1982 base year.

# IMPLICATIONS

Considering the lackluster performance of the general economy, the log and lumber price rises observed over the last year are surprising. In a market economy prices are most likely to rise when demand increases faster than supply or supply decreases faster than demand. Indications are that prices are up now because a modest rise in demand was not matched by a proportionate rise in overall supply. In addition, the price of a few species such as black cherry and hard maple is being driven by a change in consumer preferences. Wet weather in the south has also been a drag on supply.

The rise in the average price series used to track timber prices in Indiana is certainly a reconfirmation of the conclusion that holding good stands of Central hardwood timber is an excellent investment for many individuals. The attractiveness of this investment is certainly enhanced by trends in interest rates. Depending on how long your memory goes back you'll recognize that interest rates at the current level are the long-run norm. Hardwood timber easily competes with interest based returns such as CD's at 4 to 5 percent. Volume growth between 2.5 and 3 percent and real price increase of over 1 percent makes timber competitive. As always the investment key is to hold stands which are capable of improving in quality as reflected in log grades.

Landowners who are considering selling timber will not be disappointed by the offers they receive. Increased production capacity in Indiana's lumber industry and strong demand make the mills compete for the available stands. Stands in the northern part of the state where northern hardwood species such as hard maple and black cherry constitute a larger proportion of the stocking should be particularly attractive to buyers. However, the continued strong demand for oak makes almost any stand attractive. This is also a good time to salvage stands with ash suffering die-back.

At this time there is no factor looming on the horizon that would justify holding timber off the market. Income tax rates are as low as they're going to get for the next two years. Changes may be possible if the make-up of the House of Representatives is radically changed by this fall's election. All the signs point to a continuation of the current lethargic level of economic activity. By fall the hardwood lumber supply pipelines for most species should be filled and prices should level off. However, because black cherry is a relatively minor component of the hardwood timber supply nationally prices may rise until furniture manufacture's margins are squeezed by consumer resistance to further price increases for cherry furniture. The supply of hard maple lumber is also not as responsive as one would expect considering the large volume of hard maple timber in the Lake States and Canada.

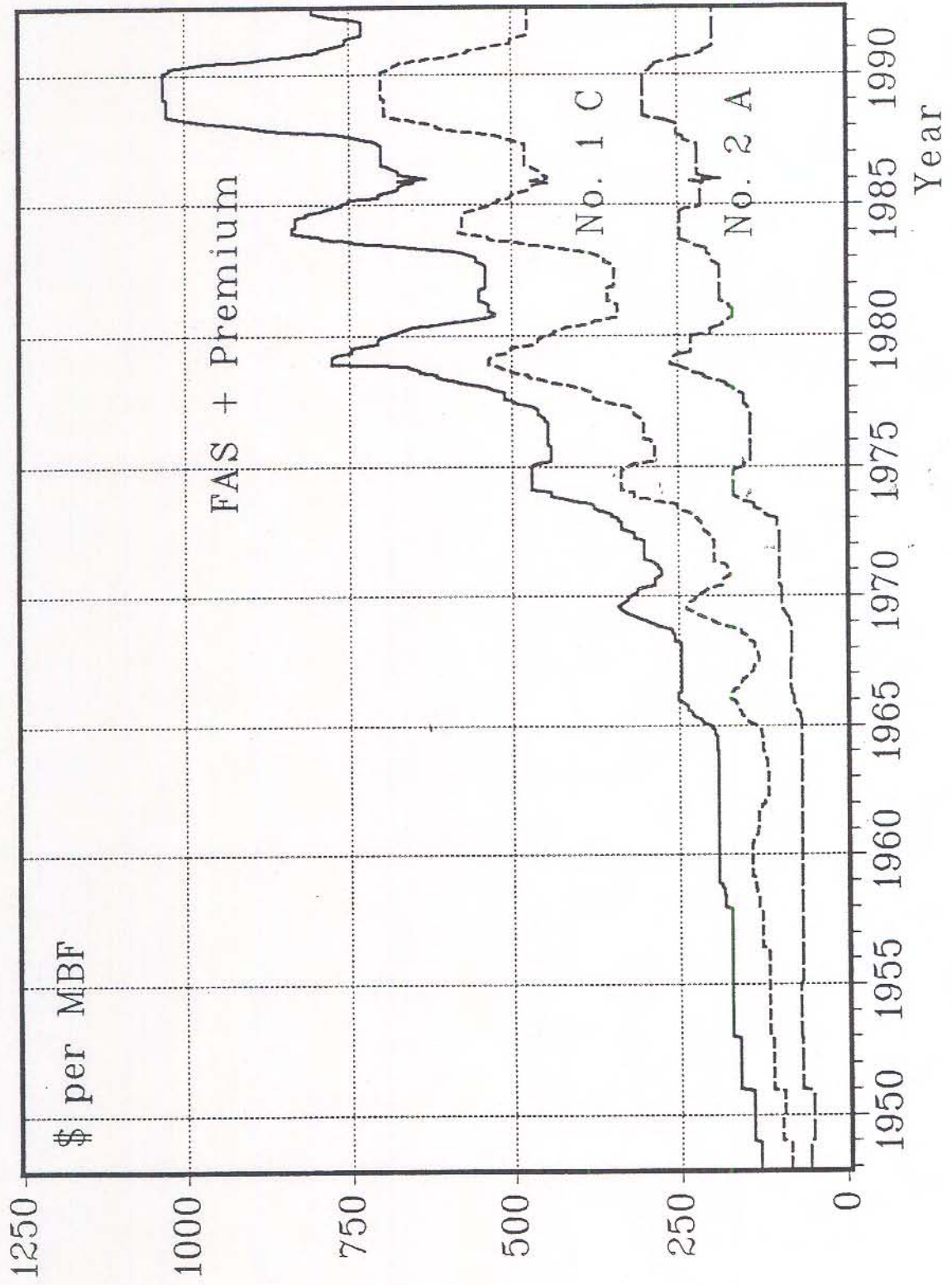Figure 1. Ash lumber prices, monthly, 1948 to June 1991, 4/4 Applachian, Hdwd. Mkt. Report

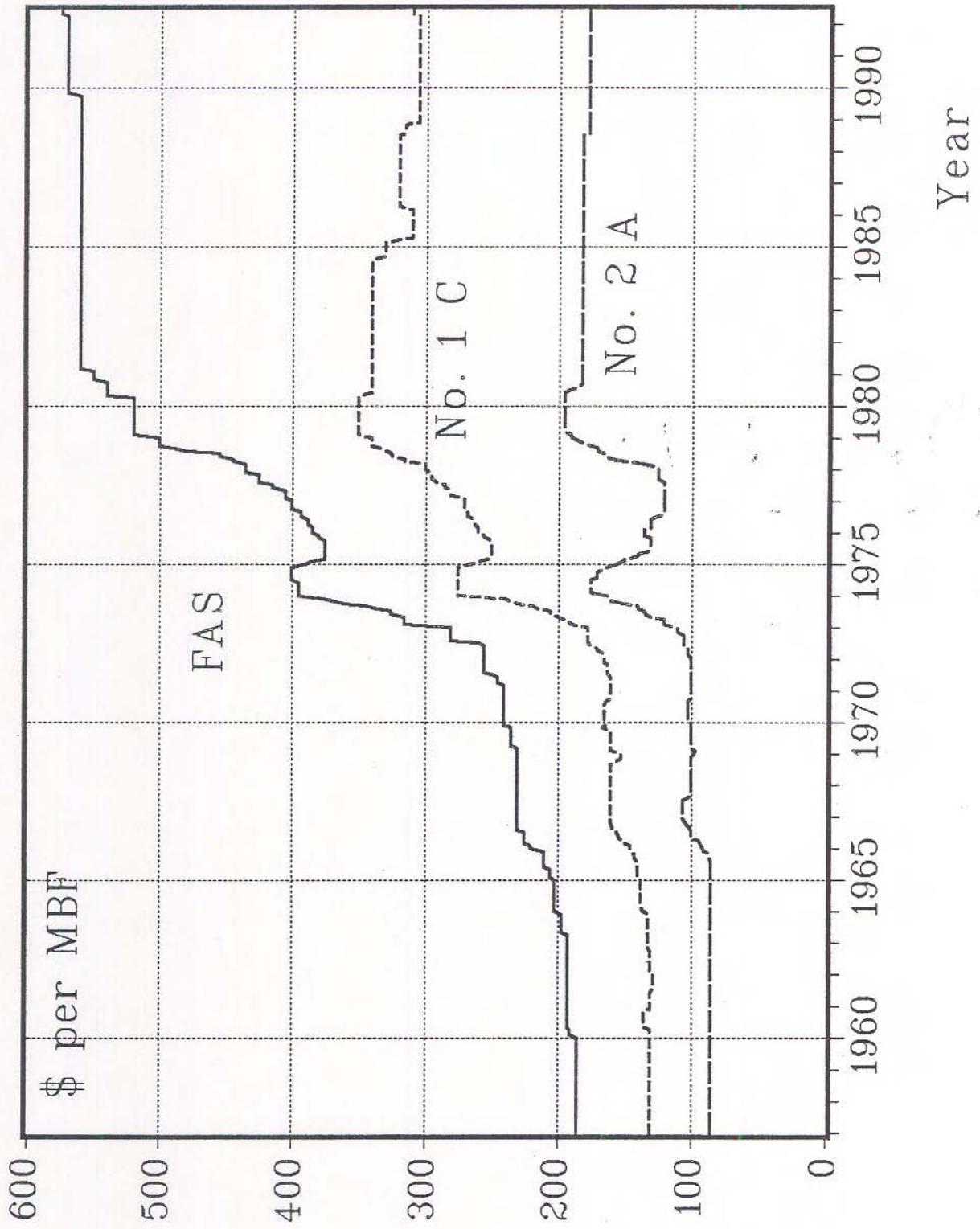Figure 2. Basswood lumber prices, monthly, 1948 to June 1992, 4/4 Applachian, Hdwd. Market Report

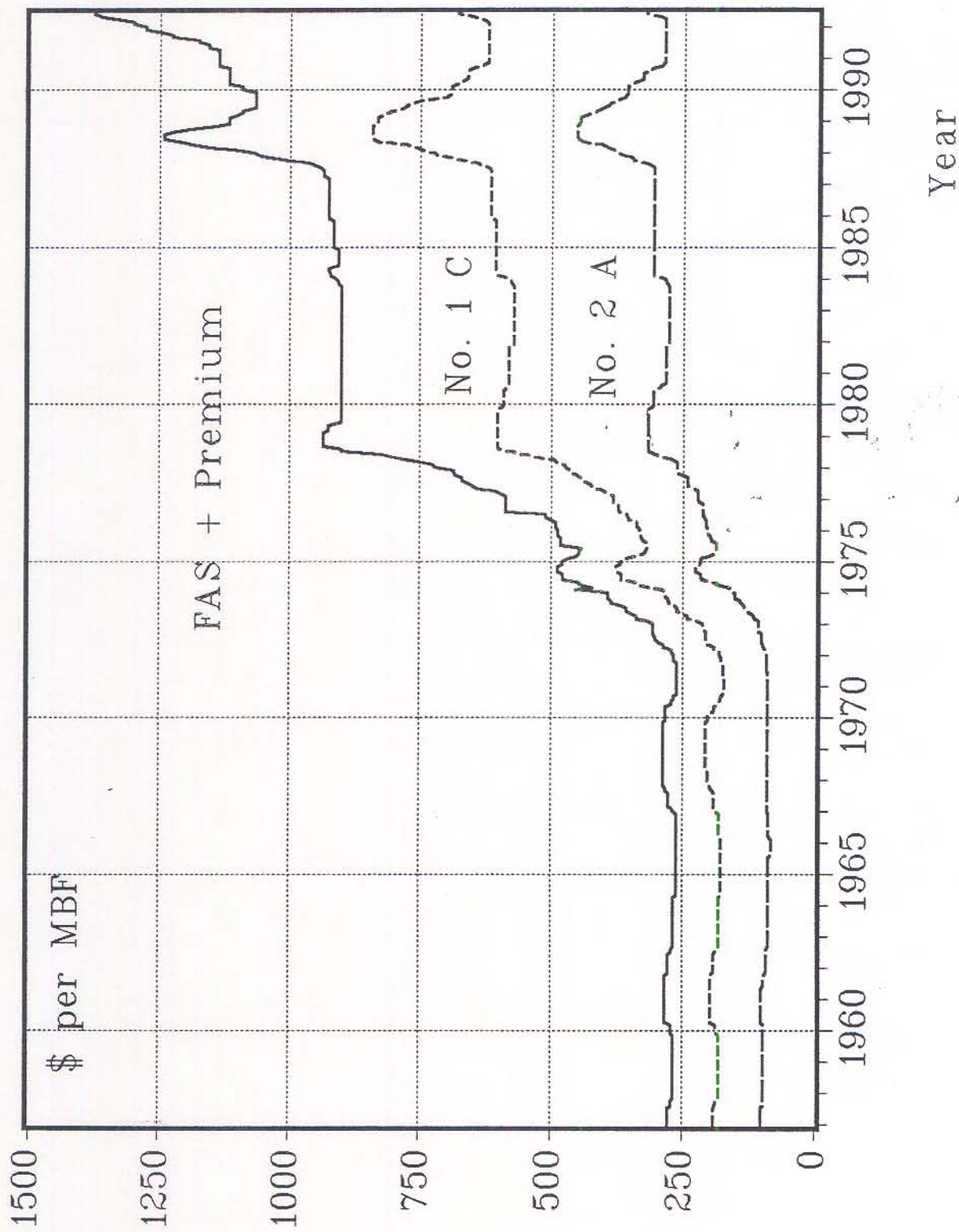Figure 3. Black cherry lumber prices, monthly, 1948 to June 1992, 4/4 Applachian, Hdwd. Mkt. Rpt.

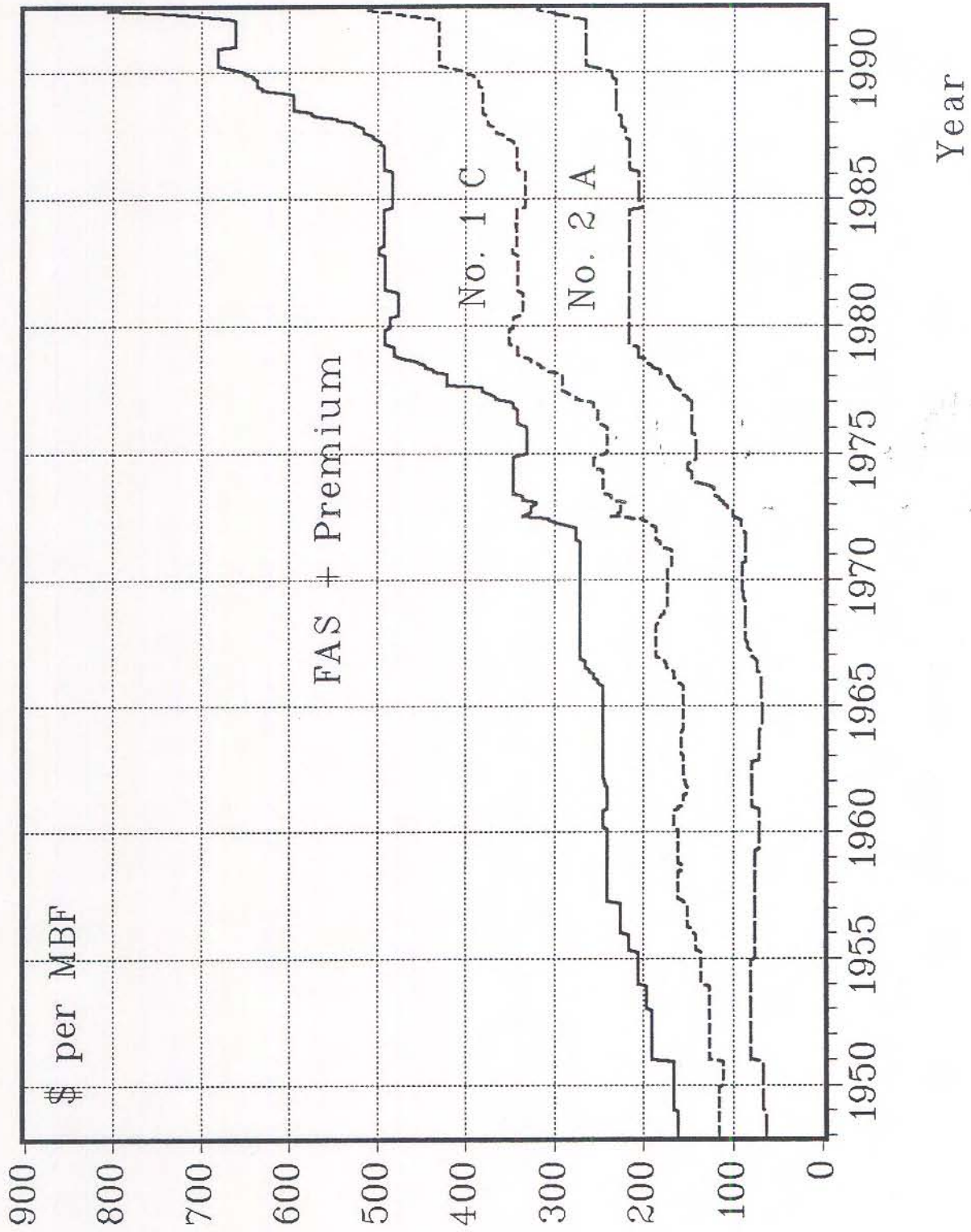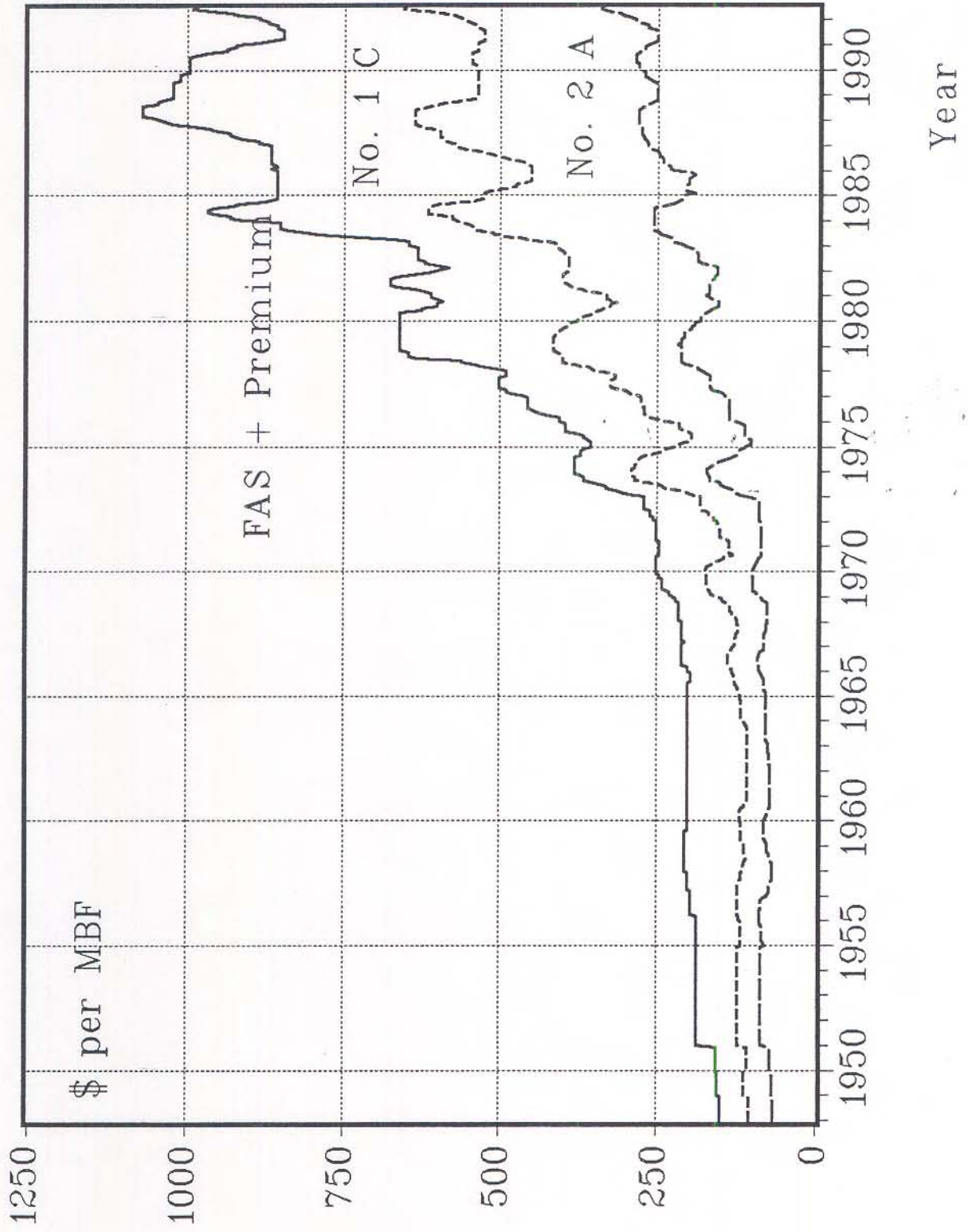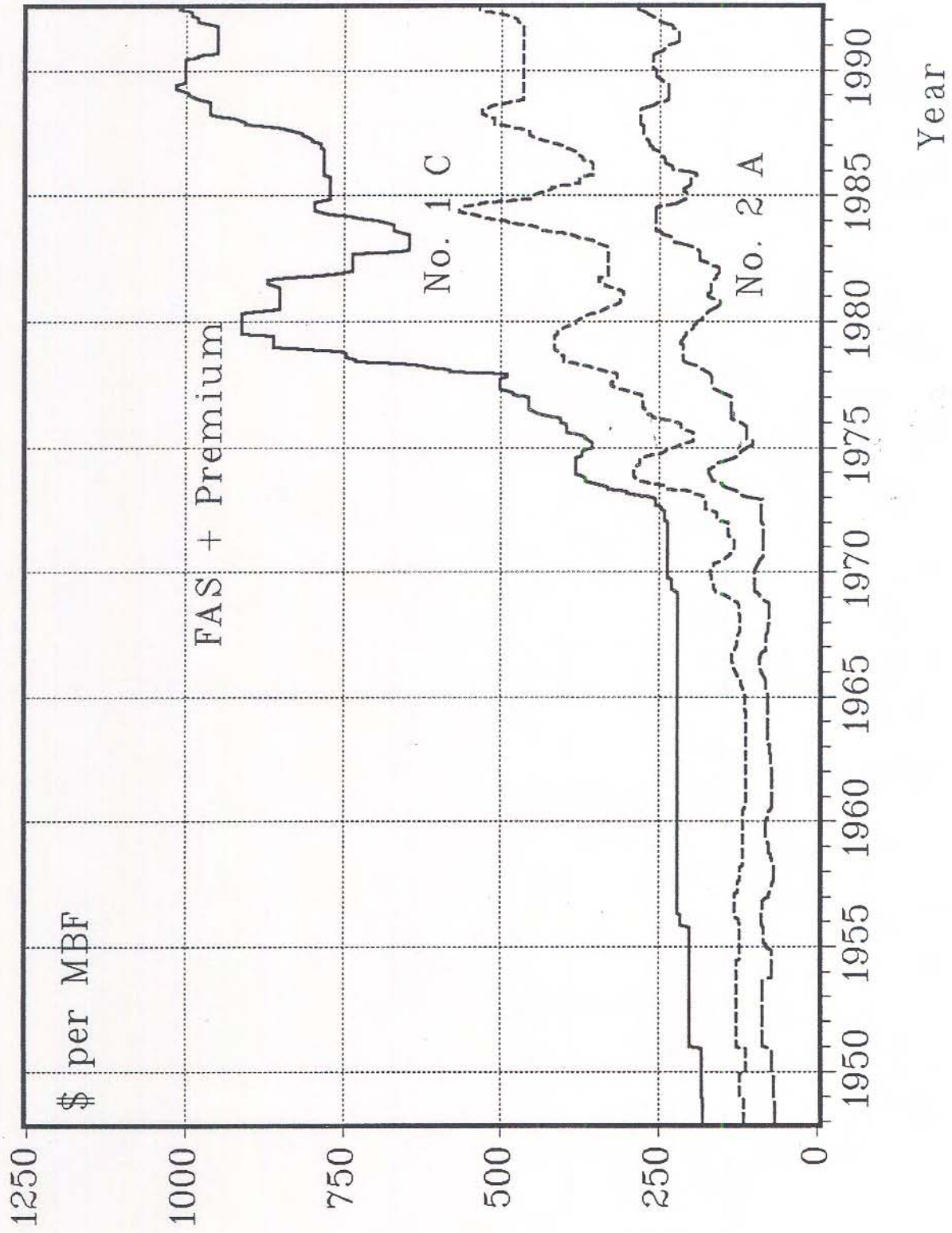Figure 4. Hard maple lumber prices, monthly, 1948 to June 1992, 4/4 Applachian, Hdwd. Mkt. Rpt.

Figure 5. Red oak lumber prices, monthly, 1948 to June 1992, 4/4 Applachian, Hdwd. Market Report.

Figure 6. White oak lumber prices, monthly, 1948 to June 1992, 4/4 Applachian, Hdwd. Market Report.

Figure 7. Ratio of FAS + Prem. price of white oak to red oak.

Ratio: WO/RO
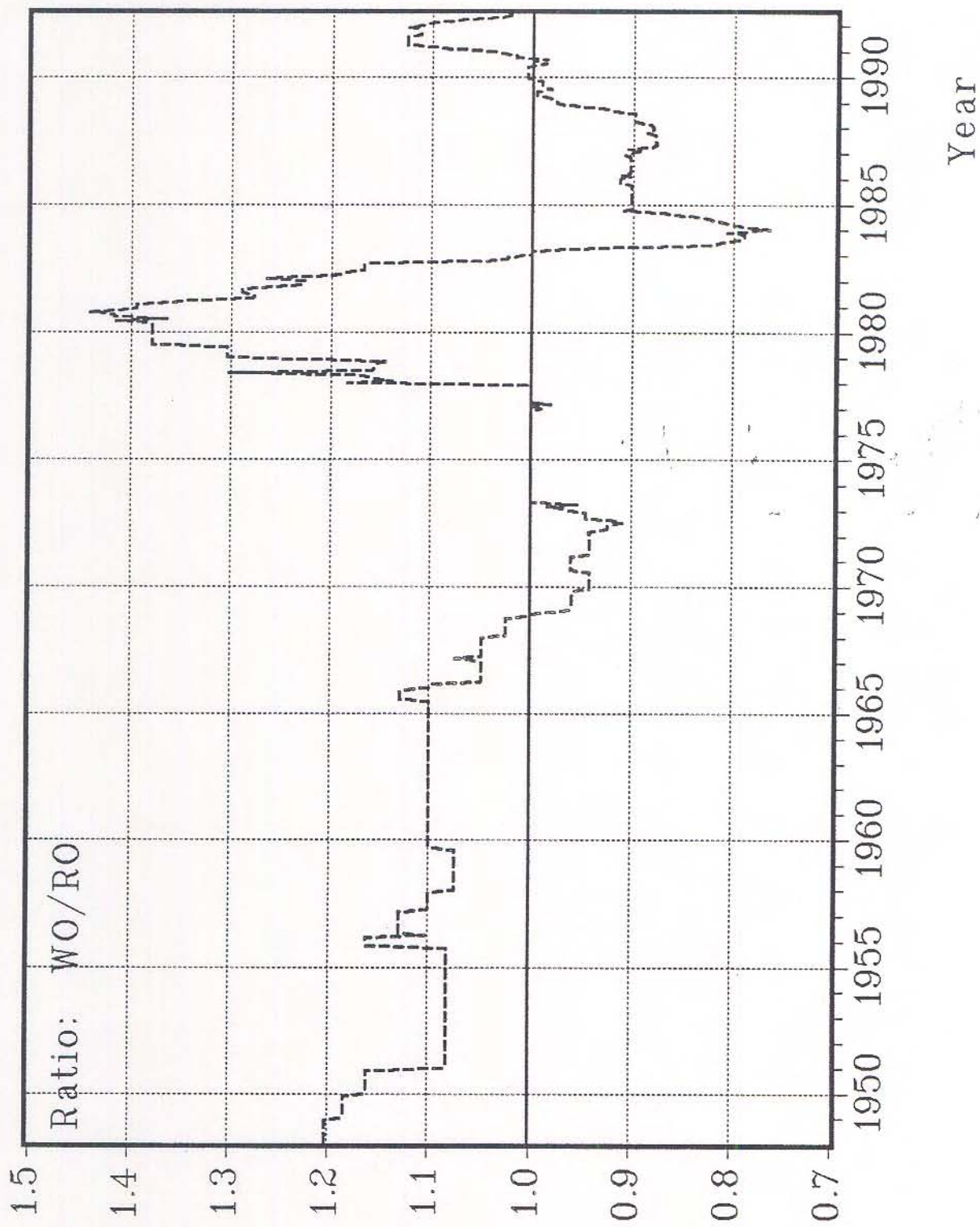
Figure 8a. Ratio of prime red to prime black oak sawlog
prices, and trend line.
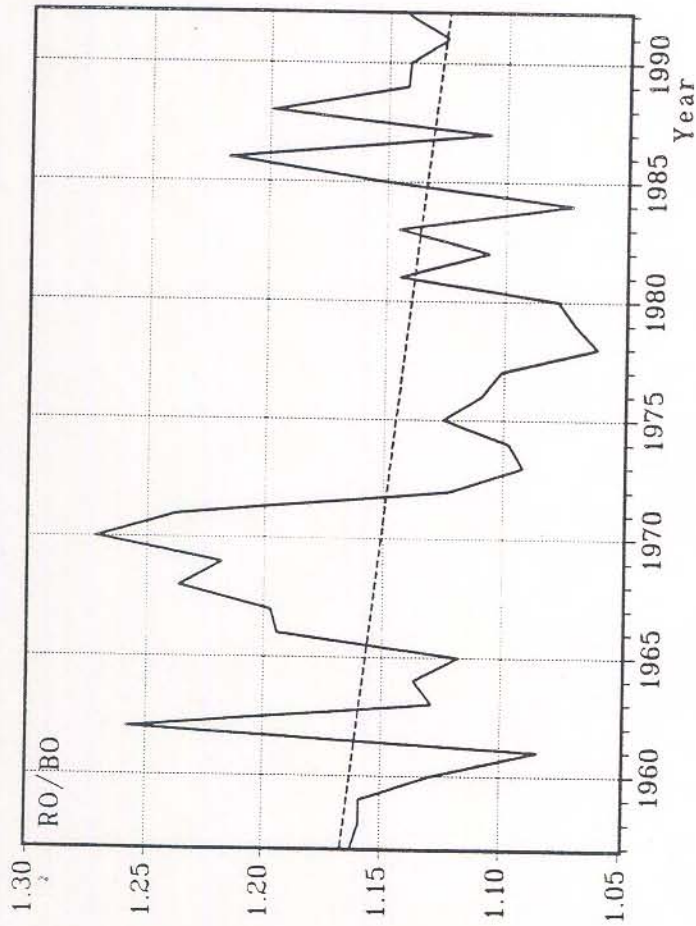
Figure 8b. Ratio of No. 3 red to No. 3 black oak sawlog
prices, and trend line.
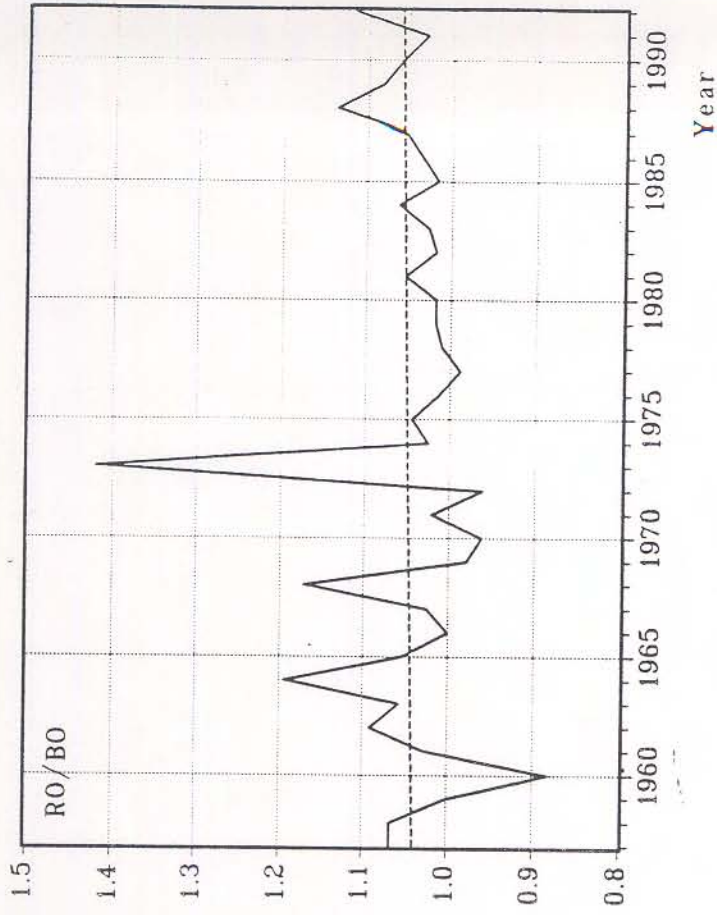
Figure 9. Yellow poplar lumber price, monthly, 1948 to June 1992, 4/4 Appla., Hdwd. Market Report.
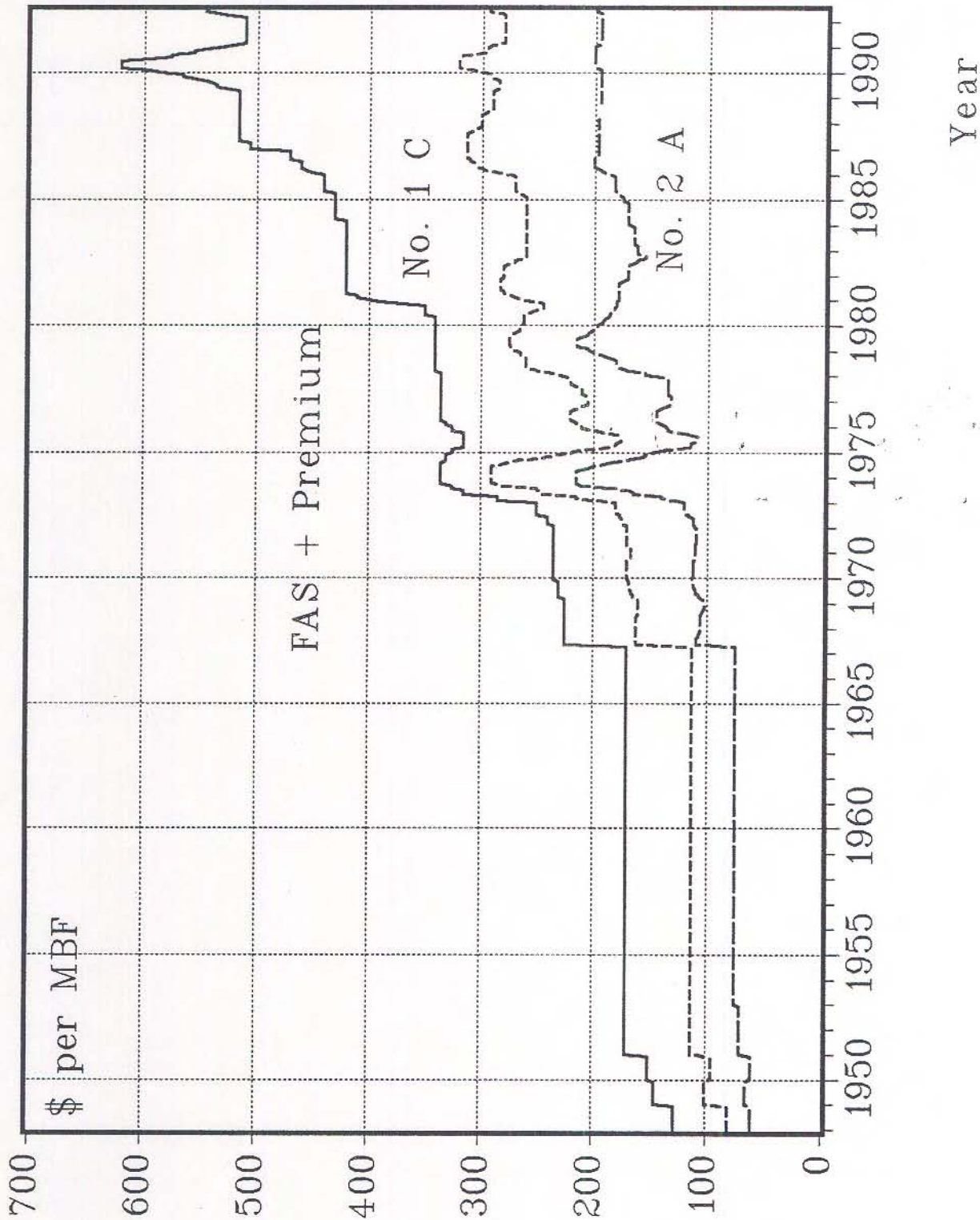
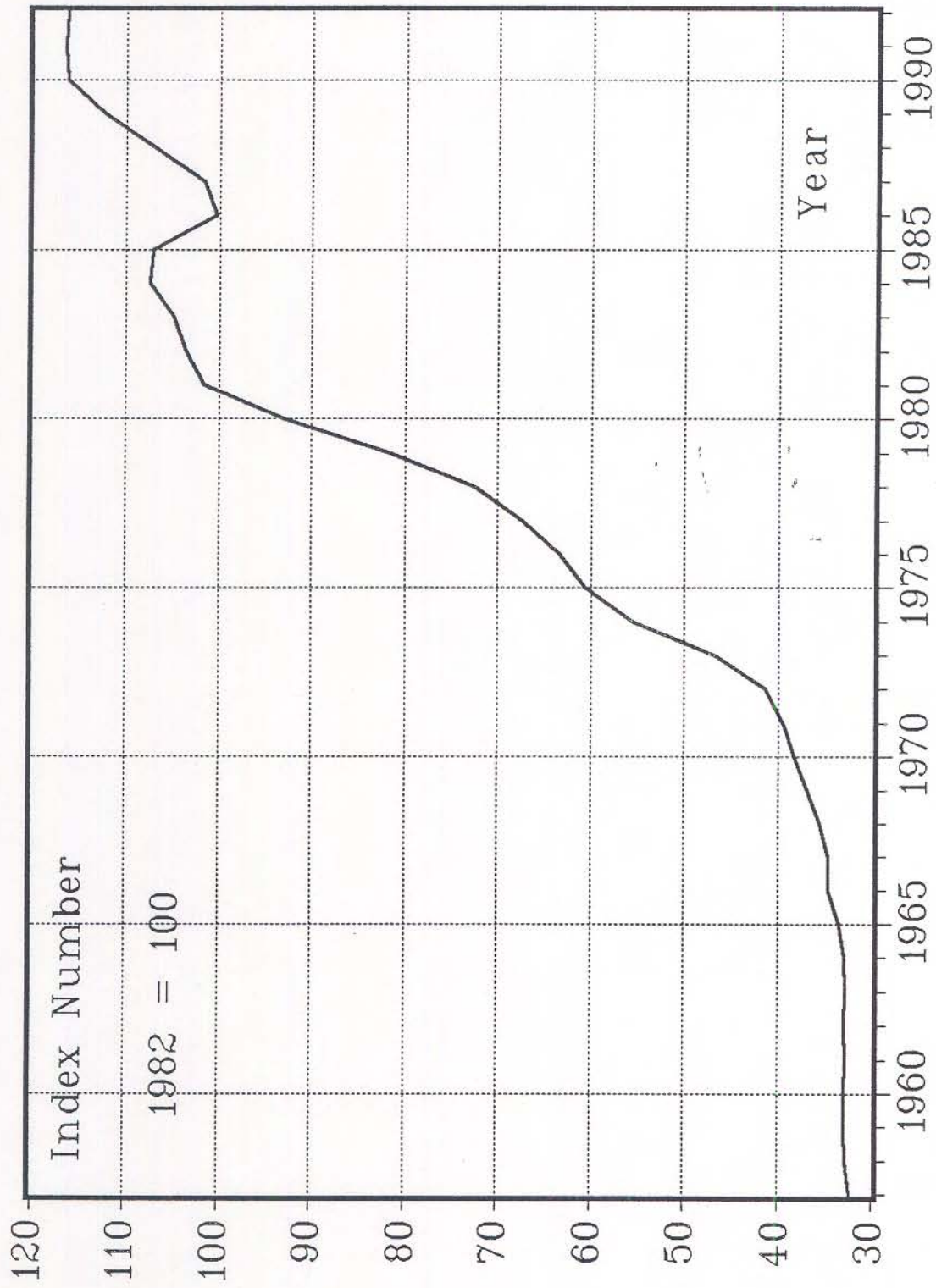Figure 10.  Producer price index for all com-
modities, Dept. Commerce.

Figure 11. Average stand, actual, deflated and trend line price series, 1957 to 1992

$ per MBF

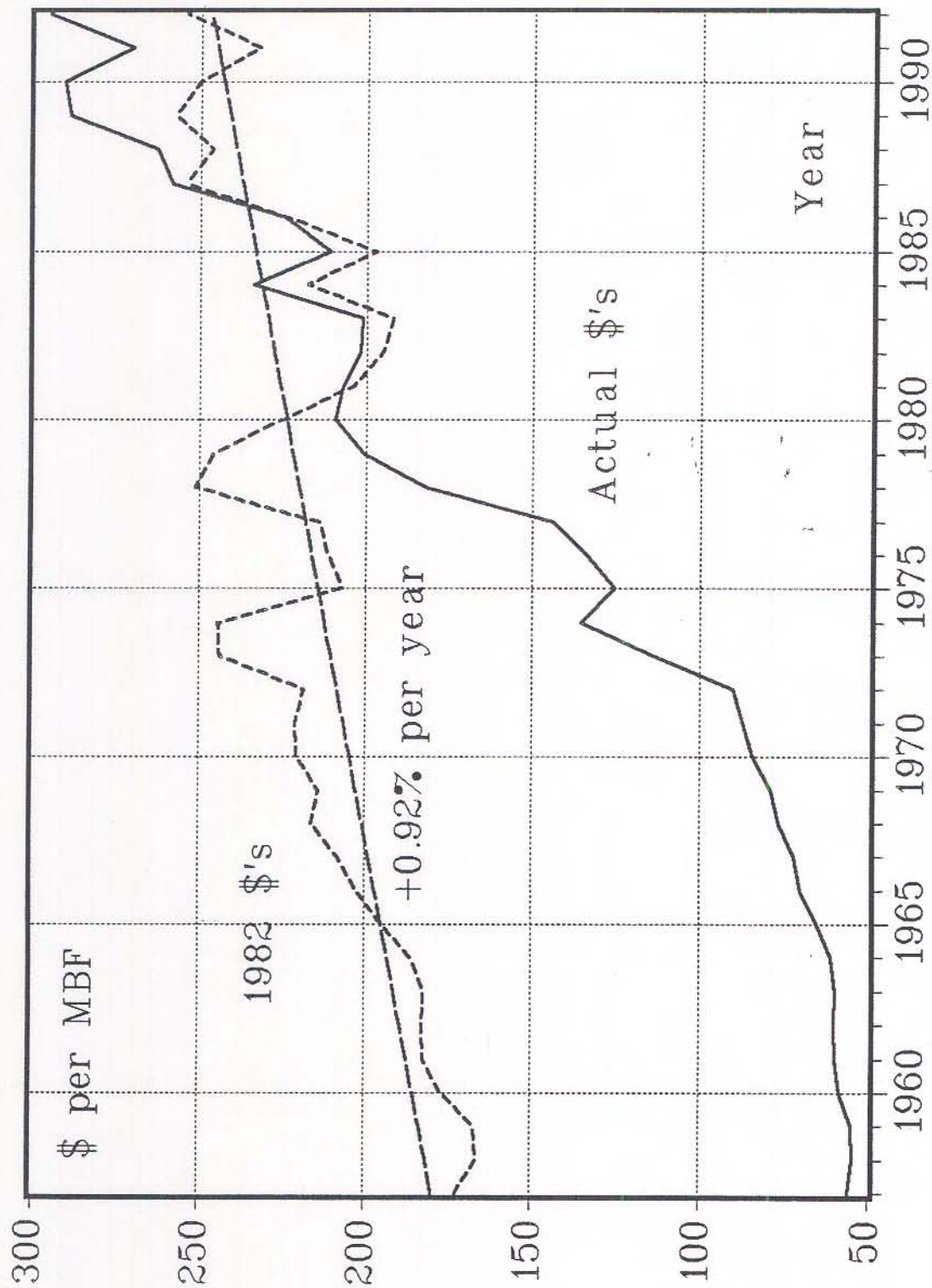1982 $'s

+0.92% per year

Actual $'s

Year

Figure 12. Quality stand, actual, deflated, and trend line price series, 1957 to 1992.