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2008 Indiana Forest Products Price Report and Trend Analysis

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Survey Procedures and Response

Data for this survey was obtained by a mail survey of all known mills in Indiana. The prices reported are for logs delivered to the log yards of the reporting mills. This report is intended to be used as an indication of price trends, not for the appraisal of logs or standing timber (stumpage). This data is collected only once a year and log prices are constantly changing. Proper appraisal techniques by those familiar with market conditions on a day-by-day basis should be used to obtain estimates of current market values for particular stands of timber or lots of logs. Because of the small number of mills reporting logging costs, “stumpage prices” estimated by deducting the average logging and hauling costs, Table 4, from delivered log prices must be used with extreme caution.

The survey was sent to 260 mills. Eighty-eight mills reported some useable data, compared to 102 last year. Another 31 sawmills responded that they went out of business, and six reported being inactive. Two veneer mills went out of business over the last several years. Eight respondents reported sawing for their own use only. Three mills reported specializing in ties, mine timbers, and blocking. Two mills reported sawing only logs from tree services and municipal “waste,” although one of these mills did pay something for these logs. This makes the overall response rate 54 percent, below last year’s 67 percent. There was an initial mailing and one reminder postcard sent to a subsample of non-respondents, and these mills were contacted by enumerators of the Indiana Agriculture Statistics Service. Purdue’s Department of Forestry and Natural Resources pays for this assistance using funds from its John S. Wright Endowment, not from public funds.

The number of mills contributing price data for each product is shown in the fourth column in Tables 2 to 5. Fifty-six mills reported their 2007 total board foot production, compared to sixty-nine mills in 2006. Fifteen mills reported producing 500 thousand board feet (MBF) or less, Figure 1, a substantial decline from 2007 due to the shutdown of many of the small part-time mills. Total production for the reporting mills was 175 million in 2007, compared to 205 million board feet in 2006. Again for 2007 the largest mill responding reported 20 million board feet of output in 2007.

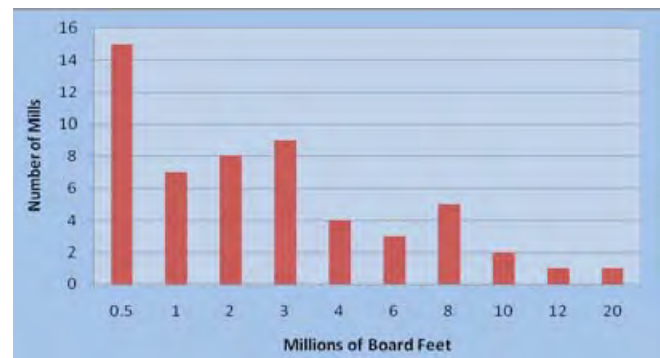


Figure 1. Distribution of the 56 mills reporting 2007 level of production

The price statistics by species and grade don’t include data from small custom mills because most do not buy logs, or they pay a set price for all species and grades of pallet logs. They are, however, the primary source of data on the cost of custom sawing. Thus, the custom sawing costs reported in Table 4 do not reflect the operating cost of large mills.

Hardwood Lumber Prices

Considering troubles in the financial markets resulting primarily from the housing bubble bursting

after a period of “irrational exuberance,” many analysts are surprised that the economy has not fallen further into recession. The hardwood industry has clearly been hit hard, but nationally, output has been declining since peaking in 1999, Figure 2. Export demand, due in large part to a very weak dollar, has reduced the impact of declines in domestic demand. Low-end markets continue to be buoyed by strong demand for railroad ties and, to a lesser extent, for timbers used in construction and shipping.

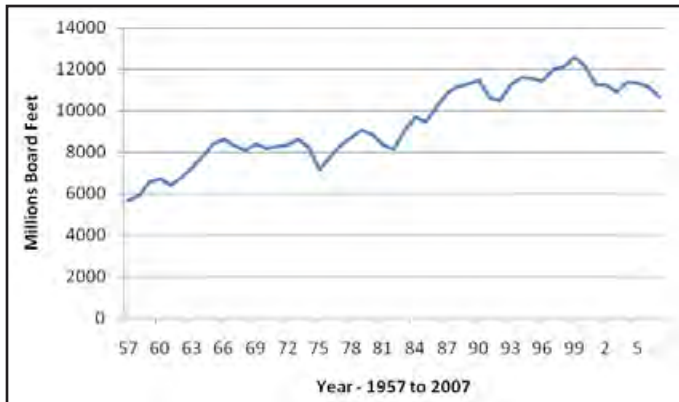


Figure 2. Total U.S. hardwood lumber production (Source: W. Luppold, U.S. Forest Service, Northern Research Station, Princeton, WV, personal contact)

The breadth and depth of the impacts from rising energy costs are just beginning to be understood. Price signals clearly work fast in a market economy on the demand side. The supply response is, of course, much slower, but clearly underway, especially natural gas exploration. The issue now is the extent to which the run-up in crude oil prices was one of the many commodity bubbles now adjusting to fundamental supply and demand conditions. Whatever the energy outlook, the margins of hardwood producers have been wiped out by rising costs and declining lumber price. There has also been an impact on the logging sector with increased reports of timber not finding its way to mills because of the decline in the number of loggers, frequently referred to as “producers” in the industry.

U.S. hardwood lumber production peaked in 1999 at about 12.6 billion board feet, Figure 2. As of 2007, production had declined over 15 percent from the peak and is expected to decline further this year. Prices for all the prime species declined over the last 12 months except white oak, Table 1. Black walnut declined very little over this period and is up compared to 2005–2006. Prices for the top grade of ash, beech, cottonwood, and sycamore lumber were unchanged, although the lower grades of ash increased slightly.

Red oak lumber price for the best grade, FAS plus the premium, was down 35 percent from January 2005 to July 2008, but based on the highly questionable U.S. Department of Commerce estimates of total lumber production and production by species, red oak output stayed at 20 percent of total output from 1999 to 2007.

White oak production declined only 8 percent from 1999 to 2007, but increased slightly (well within the margin of error) as a percent of total production, from 9.6 percent in 1999 to 10.4 percent in 2007. Demand for tight cooperage, rift and quartersawn lumber, and log and veneer exports are supporting these price levels.

Black walnut and beech are the smallest volume species broken out in the Department of Commerce reports, but while beech output declined by 45 percent from 1999 to 2007, black walnut increased by 74 percent over the period. The increase was from an estimated 43 million board feet in 1999 to 78 million in 2007.

Sawlog Prices

Sawlog prices, Table 2, were generally up, much to our surprise, after being down last year. The number of mills reporting in each species and grade category was down slightly, but not enough to suspect that the increases were due to changes in the mills’ reporting. Black cherry suffered the largest decline, 10 to 15 percent depending on log grade. Black walnut declined 2 to 6 percent, a surprise given increased production of this species. This is probably due to timber buyers focusing on this species and timber owners’ expectations of getting a good price for it. White oak was up 6 to 12 percent while red oak was down 3 to 5 percent. The largest increases were for the non-prime species—cottonwood, elm, sycamore and gum—and the lower grades of many species, because of the demand for tie and timber logs. A large portion of the supply of these logs, usually referred to as pallet logs, and lower grade lumber for pallets is typically a byproduct of grade lumber production. However, the decline in grade production has required pallet and tie and timber producers to find their own log supplies.

Softwood Logs

The average for the seven mills reporting pine sawlogs was up by about 2 percent, from \$233 to \$238 per MBF, perhaps reflecting continued demand for cabin logs. The niche market for red cedar logs remained viable with prices down about 5 percent. Many red cedar products are tied to housing construction.

Veneer Log Prices

As usual, veneer log prices, Table 3, followed the direction of sawlogs of the same species. Fortunately, the

number of mills reporting veneer log prices increased, providing more reliable results. Many of the price changes shown are highly questionable because of the small number of mills reporting in 2007. For black walnut and black cherry the prices of logs in the small diameter inside bark (dib) classes declined while prices for the larger logs increased. White oak was up in the 20 percent and higher range for all sizes but the smallest. Red oak was also up, compared to 2007 prices when only one to three mills reported.

Implications

There is a time lag between when timber buyers decide that it's necessary to reduce the prices they offer, and when timber sellers learn that demand is down. Last year's declines were likely due primarily to reduced demand. The lack of further major declines this year is likely due to a decline in the volume of timber that owners are willing to sell because of their perception of poor markets. If supply falls more than demand, price increases result. This pattern has been observed in past downturns in this industry. The time lag between changes in lumber production and log prices is not apparent in the available data, Figure 3. This figure compares the percentage change in U.S. lumber production with the percentage change in the nominal price of logs from the average stand of timber in Indiana, Table 8. Note in Figure 3 that prices change proportionately more than production on the upside, but not the downside.

The value of the dollar against all other major currencies has been increasing over the last month, and the European economies have been slowing down. This may result in declines in exports to European markets. There are also signs of slowdowns in Asia. Unless the domestic economy picks up in a hurry, further declines in demand in many hardwood markets are likely. The tie and timber market should remain strong, however, because of continued expansion and repair of rail lines. Rail use will continue to increase even if diesel fuel prices decrease another \$0.50 per gallon.

Offerings of "pallet timber" should remain more attractive than usual. Prices of beech, gum, cottonwood, and lower grades of oak tend to change slowly and less cyclically. There is no reason for would-be sellers to stay out of the market. The call on the premium species, especially of good quality, is hard to judge. Future prices could go up further if supply decreases more than the expected decrease in demand. The standard advice we give applies now more than ever. Timber owners should discuss their cash and timber management needs with market professionals who are on top of current

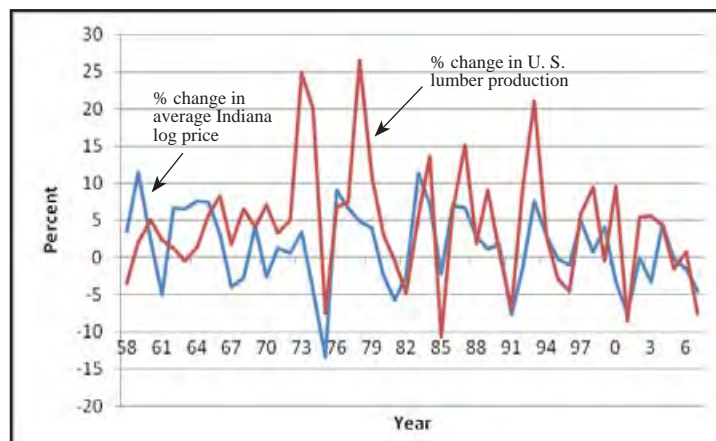


Figure 3. Comparison of percentage change in average Indiana nominal log price and percentage change in U. S. lumber production, 1957 to 2007

conditions in local markets. Fortunately there is no commodity bubble to burst in the hardwood timber market. This is due in part to the fact that timber buyers' only hedging option is to buy ahead of need with long-term contracts with no option to spread the risk in a futures market. Standing inventory hedges on the upside, but not the down. Standing inventories purchased a couple of years ago when prices were higher should have been worked off by now.

Custom Costs

The average cost reported for custom sawing in 2008 was \$274 per MBF, up from \$250 per MBF in 2007, Table 4. The mills reporting are primarily small "local" mills, many portable. Three mills reported their costs per hour. The average was \$62, up \$2 from 2007. Average logging cost was \$138 per MBF, up \$28 from 2007. The reported cost of hauling almost doubled going to \$100 per MBF from \$53 in 2007. The calculated cost per MBF per mile also almost doubled, going from \$1.05 in 2007 to \$1.98 in 2008.

The average logging cost of \$138 per MBF plus a hauling cost of \$1.98 per MBF per mile for the 45 mile average haul equals a cost of \$227 to put a thousand board feet of logs on a mill deck, compared to \$163 per MBF in 2007. With the average price of pallet logs at \$248, Table 5, the so-called "conversion surplus" is \$21 per MBF or 2¢ a foot. Thus, as has always been the case, recovering grade lumber from squaring up ties and cants is critical.

Miscellaneous Products

The average price paid for cant logs, i.e. logs sawn for pallet lumber and railroad ties, was \$248 per MBF, up from \$239 in 2007, Table 5. The price per ton increased

Table 1. Hardwood Lumber prices, \$s per thousand board feet (MBF), one-inch thick (4/4) Appalachian market area unless otherwise indicated. Source: *Hardwood Market Report*, P.O. Box 2633, Memphis, TN 38088-2633

	Lumber Grade	Jan 2005	July 2005	Jan 2006	July 2006	Jan 2007	July 2007	Jan 2008	July 2008
Ash	FAS + Prem.	815	795	760	750	750	750	750	750
	No. 1C	650	630	575	525	455	455	455	465
	No. 2A	435	390	325	300	270	260	280	300
Basswood	FAS + Prem.	760	760	775	775	775	755	710	685
	No. 1C	415	415	415	415	415	385	360	340
	No. 2A	210	210	210	210	210	200	200	200
Beech	FAS	465	485	500	500	500	500	500	500
	No. 1C	405	425	435	435	435	435	435	420
	No. 2A	330	345	345	345	345	345	345	345
Cottonwood (Southern)	FAS	600	600	600	600	600	600	600	600
	No. 1C	400	400	400	400	400	400	400	400
	No. 2A	220	220	220	220	220	220	220	220
Cherry (North Central)	FAS + Prem.	2565	2385	2330	2470	2470	2320	2320	2145
	No. 1C	1575	1370	1320	1415	1445	1275	1230	1035
	No. 2A	775	670	625	700	715	680	635	535
Hickory	FAS + Prem.	800	760	770	770	755	735	735	690
	No. 1C	610	620	650	650	660	650	600	550
	No. 2A	330	370	405	435	450	450	425	390
Hard Maple (unselected)	FAS + Prem.	1445	1655	1655	1625	1535	1240	1240	1220
	No. 1C	1140	1270	1270	1205	1180	940	900	845
	No. 2A	600	670	670	620	610	530	490	480
Soft Maple (unselected)	FAS + Prem.	1375	1465	1450	1385	1400	1310	1295	1215
	No. 1C	770	885	845	770	700	585	570	550
	No. 2A	405	435	385	300	290	275	275	275
White Oak (plain)	FAS + Prem.	1180	1165	1165	1230	1335	1390	1390	1390
	No. 1C	740	660	590	580	610	640	640	610
	No. 2A	515	385	415	410	440	440	450	450
Red Oak (plain)	FAS + Prem.	1290	1215	1155	1090	935	850	850	835
	No. 1C	835	675	665	625	625	625	625	605
	No. 2A	580	480	510	500	510	510	510	490
Yellow Poplar	FAS + Prem.	670	690	730	800	800	775	740	680
	No. 1C	395	405	410	410	400	380	350	330
	No. 2A	310	305	305	305	295	295	290	290
Sycamore (Southern plain)	FAS	455	460	455	455	455	455	455	455
	No. 1C	435	440	435	435	435	435	435	435
	No. 2A	375	375	375	375	375	375	375	375
Black Walnut (steamed)	FAS	1965	2040	2040	2055	2100	2180	2180	2135
	No. 1C	980	1005	1030	1100	1210	1300	1285	1225
	No. 2A	580	625	670	760	885	940	930	595

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 2007 and May 2008

Species/Grade	2008 Range	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2007	2008	2007	2008	2007	2008	Mean	Median
White Ash	(\$/MBF)			(\$/MBF)		(\$/MBF)			
Prime	300-750	21	20	430 (29.96)	442 (21.24)	400	440	2.7	10.0
No. 1	200-450	23	20	313 (12.94)	315 (14.22)	300	300	0.8	0.0
No. 2	150-350	24	18	241 (9.59)	257 (11.74)	235	250	6.4	6.4
No. 3	100-280	23	17	200 (9.50)	207 (10.46)	200	200	3.4	0.0
Basswood									
Prime	200-450	16	12	318 (21.51)	279 (25.72)	325	250	-12.2	-23.1
No. 1	175-350	17	15	262 (17.61)	246 (15.09)	250	240	-6.3	-4.0
No. 2	150-250	16	14	219 (13.12)	206 (8.62)	200	200	-5.9	0.0
No. 3	75-280	16	14	182 (14.71)	198 (15.09)	175	200	8.4	14.3
Beech									
Prime	200-350	14	11	251 (11.11)	245 (13.84)	250	250	-2.4	0.0
No. 1	200-300	15	11	219 (12.09)	235 (9.08)	220	240	7.5	9.1
No. 2	200-300	15	13	206 (12.68)	230 (8.47)	200	230	11.7	15.0
No. 3	150-280	15	14	189 (12.40)	217 (10.51)	200	210	14.7	5.0
Cottonwood									
Prime	150-250	11	9	175 (14.48)	203 (9.57)	200	200	16.5	0.0
No. 1	150-250	11	10	166 (13.02)	205 (8.72)	150	200	23.2	33.3
No. 2	150-250	10	11	168 (14.28)	200 (9.34)	175	200	19.0	14.3
No. 3	100-250	11	14	168 (14.76)	191 (11.55)	150	200	13.4	33.3
Cherry									
Prime	400-2000	27	23	1217 (61.99)	1089 (77.06)	1200	1000	-10.5	-16.7
No. 1	350-1300	29	24	969 (46.52)	813 (50.15)	950	825	-16.1	-13.2
No. 2	200-800	29	22	574 (39.05)	494 (39.75)	500	450	-13.9	-10.0
No. 3	100-600	25	22	307 (18.44)	267 (23.77)	300	238	-12.9	-20.8
Elm									
Prime	200-250	13	11	208 (15.82)	223 (7.15)	200	220	7.2	10.0
No. 1	200-250	12	11	188 (12.44)	220 (6.61)	200	220	17.3	10.0
No. 2	150-300	11	12	186 (13.57)	218 (11.73)	200	210	17.2	5.0
No. 3	150-280	13	14	195 (12.94)	214 (10.42)	200	200	9.7	0.0
S. Hickory									
Prime	250-500	17	14	422 (23.08)	404 (24.84)	410	400	-4.3	-2.4
No. 1	250-650	20	18	355 (16.94)	373 (23.62)	350	355	5.2	1.4
No. 2	200-450	21	17	270 (12.37)	274 (14.14)	275	270	1.1	-1.8
No. 3	100-280	19	17	200 (11.23)	216 (10.84)	200	220	8.4	10.0
Hard Maple									
Prime	400-1500	18	20	772 (46.83)	793 (57.84)	800	750	2.6	-6.3
No. 1	300-900	21	23	587 (32.69)	576 (31.57)	575	600	-1.9	4.3
No. 2	200-650	22	23	368 (27.35)	399 (22.58)	350	400	8.4	14.3
No. 3	100-400	22	18	222 (14.81)	240 (17.62)	200	210	8.1	5.0
Soft Maple									
Prime	230-850	17	14	426 (26.12)	399 (42.99)	400	375	-6.5	-6.3
No. 1	200-650	20	20	330 (12.81)	347 (24.15)	300	300	5.1	0.0
No. 2	150-400	21	19	250 (10.31)	267 (13.63)	245	250	6.7	2.0
No. 3	100-280	20	19	194 (13.05)	202 (10.22)	200	200	4.3	0.0

(Continued)

Table 2. (continued)

Species/Grade	2008 Range	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2007	2008	2007	2008	2007	2008	Mean	Median
White Oak	(\$/MBF)			(\$/MBF)		(\$/MBF)			
Prime	550-1250	22	22	851 (54.60)	902 (40.36)	800	925	6.0	15.6
No. 1	400-1000	25	23	614 (32.18)	666 (33.77)	650	700	8.4	7.7
No. 2	250-650	25	25	374 (23.89)	416 (22.68)	350	400	11.2	14.3
No. 3	100-400	23	20	243 (18.91)	274 (19.09)	240	250	12.4	4.2
Red Oak									
Prime	300-850	26	21	605 (25.21)	586 (25.41)	600	600	-3.2	0.0
No. 1	200-650	28	22	461 (20.05)	439 (22.02)	450	410	-4.7	-8.9
No. 2	150-420	28	23	326 (13.85)	315 (13.61)	300	300	-3.4	0.0
No. 3	100-400	28	20	235 (14.67)	258 (14.69)	243	250	9.8	2.9
Black Oak									
Prime	200-850	21	19	546 (24.30)	562 (29.90)	550	550	2.9	0.0
No. 1	150-650	25	19	417 (21.74)	394 (29.08)	400	400	-5.5	0.0
No. 2	100-420	27	21	294 (16.06)	289 (17.76)	300	300	-1.9	0.0
No. 3	100-400	25	17	233 (14.21)	248 (15.78)	240	250	6.2	4.2
Tulip Poplar									
Prime	200-850	24	20	436 (15.55)	459 (28.72)	425	435	5.4	2.4
No. 1	150-500	24	21	338 (13.54)	339 (16.11)	350	350	0.1	0.0
No. 2	100-325	24	19	248 (9.52)	252 (11.47)	250	250	1.6	0.0
No. 3	100-280	21	18	199 (11.76)	208 (9.52)	200	200	4.5	0.0
Sycamore									
Prime	150-300	13	13	203 (12.98)	225 (10.23)	210	230	11.0	9.5
No. 1	150-300	12	14	194 (14.17)	219 (9.4)	200	210	12.9	5.0
No. 2	150-300	15	15	193 (11.57)	225 (10.28)	200	220	16.6	10.0
No. 3	150-280	12	16	182 (12.42)	220 (8.22)	200	210	21.1	5.0
Sweetgum									
Prime	150-300	13	11	211 (15.99)	221 (11.63)	210	220	4.8	4.8
No. 1	150-250	12	11	185 (13.29)	212 (8.61)	200	200	14.5	0.0
No. 2	150-250	12	11	191 (13.17)	207 (7.76)	200	200	8.6	0.0
No. 3	150-280	11	13	188 (14.13)	208 (9.86)	200	200	10.8	0.0
Black Walnut									
Prime	600-2500	23	26	1400 (78.52)	1308 (89.77)	1300	1250	-6.6	-3.8
No. 1	500-2000	25	23	1148 (65.35)	1076 (71.31)	1075	1000	-6.3	-7.0
No. 2	300-1100	26	25	756 (58.92)	724 (47.09)	750	750	-4.2	0.0
No. 3	100-800	25	21	437 (44.84)	428 (42.63)	375	400	-2.1	6.7
Softwood									
Pine	170-300	8	7	233 (19.34)	238 (20.06)	245	220	2.0	-10.2
Red cedar	250-550	5	6	455 (20.00)	433 (42.65)	450	450	-4.8	0.0

¹ Standard error of the mean is given in parentheses

Table 3. Prices paid for delivered veneer logs by Indiana mills, May 2007 and May 2008

Species/Grade/ Log Dia.	2008 Range	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2007	2008	2007	2008	2007	2008	Mean	Median
Black Walnut	(\$/MBF)			(\$/MBF)		(\$/MBF)			
Prime									
12-13	1000-3500	3	11	2500 (500.00)	2391 (235.66)	2000	2500	-4.4	25.0
14-15	1500-5000	4	11	3625 (375.00)	3473 (359.06)	3500	3500	-4.2	0.0
16-17	2000-7000	5	11	3840 (624.98)	4209 (553.58)	4500	3500	9.6	-22.2
18-20	3000-13000	3	10	5333 (1201.85)	6820 (1085.85)	6000	7500	27.9	25.0
21-23	3600-1700	3	8	6333 (1201.85)	7700 (1562.05)	7000	7500	21.6	7.1
24-28	4500-20000	2	6	9500 (500.00)	9250 (2308.50)	9500	8000	-2.6	-15.8
>28	5000-20000	1	6	10000 (NA)	9500 (2217.36)	10000	8000	-5	-20
Select									
12-13	800-3000	2	6	2750 (250.00)	1900 (318.33)	2750	1800	-30.9	-34.5
14-15	1000-4000	1	6	4000 (NA)	2417 (454.91)	4000	2000	-39.6	-50.0
16-17	1200-4000	1	7	4000 (NA)	2529 (448.13)	4000	2500	-36.8	-37.5
18-20	2000-6000	1	5	4000 (NA)	4000 (707.11)	4000	4000	0.0	0.0
21-23	3000-12000	1	5	4000 (NA)	5440 (1677.38)	4000	4000	36.0	0.0
24-28	3000-14000	1	5	5000 (NA)	6000 (2024.38)	5000	4000	20.0	-20.0
>28	3000-14000	1	5	5000 (NA)	6200 (1984.94)	5000	5000	24.0	0.0
White Oak									
Prime									
13-14	600-2200	3	9	2067 (233.33)	1583 (178.34)	2000	1500	-23.4	-25.0
15-17	1000-3000	5	10	1800 (254.95)	2195 (209.29)	2000	2150	21.0	7.5
18-20	1200-3500	5	9	2000 (221.36)	2622 (230.02)	2000	3000	31.1	50.0
21-23	1750-4000	5	7	2500 (285.04)	3064 (262.02)	2500	3000	22.6	20.0
24-28	3000-4500	2	5	2250 (250.00)	3700 (300.00)	2250	4000	64.4	77.8
>28	3000-5000	2	5	2250 (250.00)	3800 (374.17)	2250	4000	68.9	77.8
Select									
13-14	600-1600	1	5	1200 (NA)	1220 (190.79)	1200	1300	1.7	8.3
15-17	1300-2000	1	5	1500 (NA)	1660 (143.53)	1500	1500	10.7	0.0
18-20	1500-2500	1	4	1700 (NA)	2000 (204.12)	1700	2000	17.6	17.6
21-23	1500-3000	1	5	2000 (NA)	2360 (273.13)	2000	2500	18.0	25.0
24-28	1500-3500	1	4	2000 (NA)	2625 (515.39)	2000	2750	31.3	37.5
>28	1500-4000	1	4	2000 (NA)	2750 (595.12)	2000	2750	37.5	37.5
Black Cherry									
Prime									
12-13	800-3000	0	7	NA	1729 (276.64)	NA	2000	NA	NA
14-15	1500-5000	2	9	3500 (500.00)	2478 (367.72)	3500	2000	-29.2	-42.9
16-17	1500-7000	4	8	2750 (838.15)	3375 (580.56)	2400	3250	22.7	35.4
18-20	3000-9000	2	6	4500 (1500.00)	4433 (922.56)	4500	3550	-1.5	-21.1
21-23	3500-10000	2	6	5000 (2000.00)	5000 (1024.70)	5000	4000	0.0	-20.0
24-28	3500-10000	2	5	6000 (3000.00)	5400 (1197.91)	6000	5000	-10.0	-16.7
>28	3500-10000	1	5	3000 (NA)	5400 (1197.91)	3000	5000	80.0	66.7
Select									
12-13	800-2000	0	4	NA	1500 (300.00)	NA	1600	NA	NA
14-15	800-2500	0	4	NA	1700 (362.86)	NA	1750	NA	NA
16-17	1350-2500	0	4	NA	1963 (311.83)	NA	2000	NA	NA
18-20	2500-3000	1	3	1750 (NA)	2833 (166.67)	1750	3000	61.9	71.4
21-23	2500-4000	1	3	1750 (NA)	3333 (440.96)	1750	3500	90.5	100.0
24-28	2500-4000	1	3	1750 (NA)	3500 (500.00)	1750	4000	100.0	128.6
>28	2500-4000	1	3	1750 (NA)	3500 (500.00)	1750	4000	100.0	128.6

(Continued)

Table 3. (continued)

Species/Grade/ Log Dia.	2008 Range	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2007	2008	2007	2008	2007	2008	Mean	Median
Red Oak	(\$/MBF)			(\$/MBF)		(\$/MBF)			
Prime									
16-17	500-1500	3	8	967 (33.33)	1094 (125.51)	1000	1200	13.1	20.0
18-20	650-1600	2	7	1050 (150.00)	1250 (126.77)	1050	1300	19.0	23.8
21-23	1000-2000	1	5	900 (NA)	1640 (172.05)	900	1800	82.2	100.0
24-28	1000-2200	1	5	900 (NA)	1720 (205.91)	900	1800	91.1	100.0
>28	1000-2400	1	5	900	1840 (263.82)	900	1800	104.4	100.0
Select									
16-17	500-1000	1	3	800 (NA)	717	800	650	-10.4	-18.8
18-20	1000-1200	1	2	650 (NA)	1100	650	1100	69.2	69.2
21-23	1500-1800	1	2	650 (NA)	1650	650	1650	153.8	153.8
24-28	1800-2000	0	2	NA	1900	NA	1900	192.3	NA
>28	2000-2200	0	2	NA	2100	NA	2100	223.1	NA
Hard Maple									
Prime									
16-20	1000-4000	4	8	1875 (426.96)	2150 (309.38)	1750	2000	14.7	14.3
>20	1000-5500	2	6	1500 (500.00)	2783 (622.05)	1500	2600	85.6	73.3
Select									
16-20	1000-2900	0	4	NA	1850 (405.17)	NA	1750	NA	NA
>20	2000-2500	0	2	NA	2250 (250.00)	NA	2250	NA	NA
Yellow Poplar									
Prime									
16-20	400-1000	1	6	550 (NA)	700 (86.60)	550	725	27.3	31.8
>20	400-1000	1	5	550 (NA)	720 (121.04)	550	650	30.9	18.2
Select									
16-20	400-600	0	2	NA	500 (100.00)	NA	500	NA	NA
>20	400-600	0	2	NA	500 (100.00)	NA	500	NA	NA

¹ Standard error of the mean is given in parentheses

from \$32 in 2007 to \$39 in 2008. Pulp chip prices increased \$6 per ton, while pulpwood was up \$3 per ton. There is still an excellent market for bark for mulch, although reported prices were down. Dry residue demand is expected to increase with at least two wood pellet plants in operation and more on the planning board. Ground has been broken for a cellulosic ethanol pilot plant in central Pennsylvania. This technology will come to Indiana over the next five years, increasing the demand for green wood residue.

Indiana Timber Price Index

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 information 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 6. The log quality weights used are presented in Table 7. These weights are based primarily on the 1967 Forest Survey of Indiana.

The nominal (not deflated) price, columns 3 and 6 of Table 8, 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 nominal prices divided by the price in 1957, the base year, multiplied by 100. Thus, the index is the percentage of the 1957 price. For example, the average price in 2008 was almost 780 percent of the price in 1957 for the average stand. The real prices, columns 5 and 8 are the nominal prices deflated by the producer price index for finished goods with 1982 as the base year, Table 8, column 2. The real price series represents the purchasing power of dollars based on a 1982 market basket of finished producer goods, Figure 4. It's this real price trend that is important for long-term investments like timber. Receiving a rate of return less

Table 4. Custom costs reported by Indiana mills, May 2007 and May 2008

	No. Responses	2008 Range	Mean		Median	
			2007	2008	2007	2008
Sawing (\$/MBF)	26	120-500	250	274	250	250
Sawing (\$/Hour)	3	60-65	60	62	60	60
Logging (\$/MBF)	5	90-175	110	138	100	150
Hauling (\$/MBF)	3	50-200	53	100	53	50
Distance (Miles)	9	20-100	46	43	40	35
\$/MBF/Mile	3	1.43-2.50	1.05	1.98	1.05	2.00
\$/Mile	1	4	3.75	4	3.75	4

Table 5. Prices of miscellaneous products reported by Indiana mills, May 2007 and May 2008, fob the producing mill

	No. Responses	2008 Range	Mean		Median	
			2007	2008	2007	2008
Cant logs, \$/MBF	30	150-400	239	248	250	245
Cant logs, \$/ton	2	38-40	32	39	32	39
Pulpwood, \$/ton	1	36	33	36	30	36
Pulp Chips, \$/ton	13	15-36	20	26	20	25
Sawdust, \$/ton	13	2-40	13	12	8.50	8.20
Sawdust, \$/cu.yd.	11	1.30-5	5	3.00	3.75	3.33
Bark, \$/ton	9	3.75-18	15	11	15	10.75
Bark, \$/cu.yd.	11	3.00-10	9	6	6	5.50
Mixed, \$/ton	1	12	NA	12	NA	12
Mixed, \$/cu. yd.	NA	NA	5	NA	4.43	NA

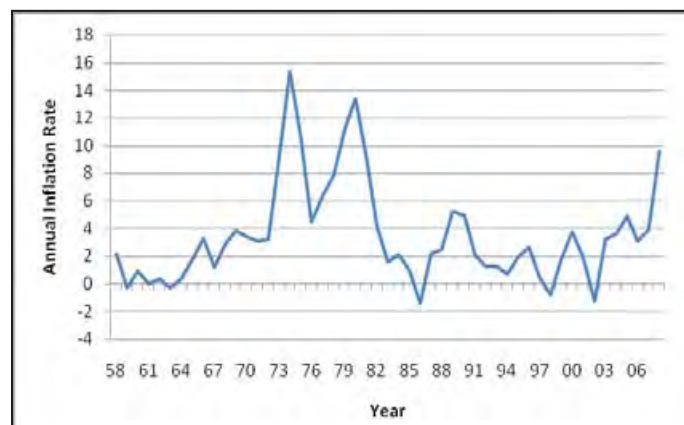


Figure 4. Annual inflation rate for all finished producer goods

than the inflation rate means that you are losing purchasing power.

Note that each year the previous year's number is recalculated using the producer price index for finished goods for the entire year. The price index used for the current year is the last one reported for the month when the analysis is conducted—July this year. Note that the inflation rate has increased substantially over the last two years, hitting over 9 percent based on the rate for the month of July of 2008.

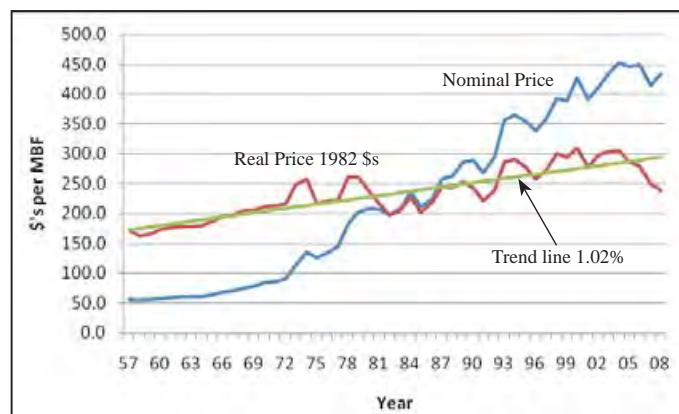


Figure 5. Average stand of timber, nominal, deflated, and trend line price series, 1957 to 2008

Average Stand

The nominal weighted average price for the average stand increased from \$414.7 per MBF in 2007 to \$433.7 per MBF in 2008, Table 8, column 3. Remember that this series is based on delivered log prices, not stumpage prices. This is a 4.7 percent increase, Figure 5. The deflated or real price decreased from \$248.6 per MBF to \$237.60, a 4.4 percent decrease. This decrease was enough to continue the slow decline in the trend line rate for the real price series.

The new equation for the trend line for the 1957 to 2008 period is,

$$\text{Avg. Stand Real Price} = 170.59 + 2.37 \times T,$$

where,
 T=1 for 1957, 2 for 1958 . . . 52 for 2008

A linear trend line should be used to project timber prices, as discussed in greater detail in Purdue University Station Bulletin No. 148. Although it's easier to simply plug the average annual compound rate of increase value into the compound interest formula (exponential rate of increase), projections much over 15 years give unrealistic results. Real prices can't increase exponentially for long periods of time. The market adjusts by using more substitutes for "real wood" and consumers being willing to accept substitutes.

The real price increase dropped to just over 1 percent at about 1.02 percent per annum. Thus, the purchasing power of hardwood timber assets in the long-run continues to exceed the rate of inflation by about 1 percent.

Quality Stand

The nominal weighted average price for the quality stand increased by 14.8 percent from \$560.1 in 2007 to \$643.2 in 2008, Table 8, column 6, and Figure 6. The average real price series for the quality stand also increased from \$336.1 per MBF in 2007 to \$352.4 in 2008, a 4.8 percent increase.

The average annual compound rate of increase for the trend line declined to 1.33 with 2008 included from 1.38 percent per annum for the trend through 2007, Figure 6. The equation for the trend line is,

$$\text{Quality Stand Real Price} = 203.48 + 4.016 \times T,$$

where
 T=1 for 1957, 2 for 1958 . . . 52 for 2008

Thus, the contribution of the real price increase to the total financial return on a quality stand continues to be higher than for the average stand of timber in Indiana.

Table 6. Species composition of the Indiana timber price index for an average and a quality stand

Species	Average Stand	Quality Stand
<i>Veneer species:</i>		
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
<i>Non-veneer species:</i>		
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 7. Log quality composition of the Indiana timber price index for an average and a quality stand.

Log Grade	Average Stand		Quality Stand	
	Veneer Species	Non-veneer Species	Veneer Species	Non-veneer 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

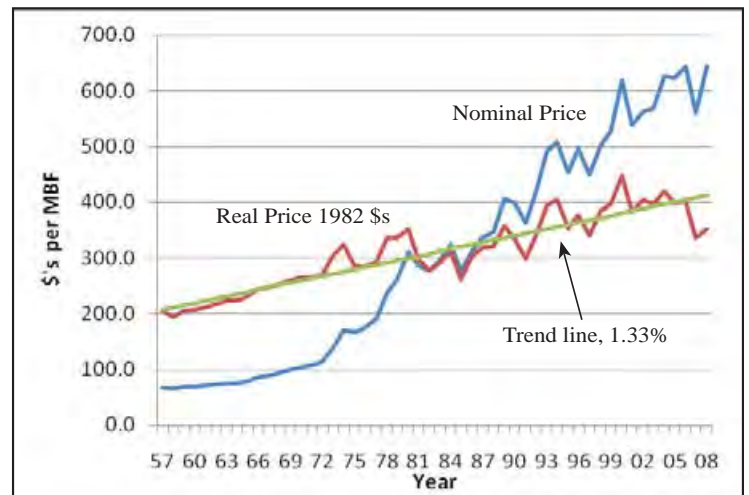


Figure 6. Quality stand of timber, nominal, deflated, and trend line price series 1957 to 2008

PURDUE EXTENSION

Table 8. Weighted average actual price, price index, and deflated price for an average and quality stand of timber in Indiana, 1971 to 2008

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)
1971	40.5	85.9	154.4	212.0	107.4	161.3	265.2
1972	41.8	90.2	162.2	215.8	112.2	168.5	268.4
1973	45.6	112.6	202.5	247.0	139.0	208.8	304.9
1974	52.6	135.3	243.3	257.3	170.2	255.7	323.7
1975	58.2	125.1	225.0	215.0	166.3	249.8	285.8
1976	60.8	133.6	240.2	219.7	172.7	259.4	284.1
1977	64.7	143.6	258.1	221.9	188.0	282.4	290.6
1978	69.8	181.7	326.1	260.3	234.9	352.9	336.6
1979	77.6	201.5	362.3	259.6	260.7	391.6	336.0
1980	88.0	207.8	373.6	236.1	309.3	464.5	351.5
1981	96.1	206.7	371.7	215.1	284.9	427.8	296.4
1982	100.0	196.8	353.8	196.8	277.3	416.5	277.3
1983	101.6	207.6	373.3	204.3	294.4	442.2	289.8
1984	103.7	235.8	424.0	227.4	322.7	484.6	311.2
1985	104.7	210.5	378.5	201.0	274.0	411.5	261.7
1986	103.2	223.6	402.0	216.6	312.2	468.9	302.5
1987	105.4	257.3	462.7	244.2	334.6	502.6	317.5
1988	108.0	262.1	471.3	242.7	345.9	519.6	320.3
1989	113.6	285.9	514.0	251.6	404.9	608.1	356.4
1990	119.2	288.3	518.3	241.8	397.9	597.6	333.8
1991	121.7	268.1	482.1	220.3	362.9	545.1	298.2
1992	123.2	293.4	527.6	238.2	417.6	627.1	338.9
1993	124.7	355.2	638.8	284.9	491.2	737.8	393.9
1994	125.5	364.8	655.9	290.6	507.4	762.1	404.3
1995	127.9	354.0	636.4	276.7	451.6	678.3	353.1
1996	131.3	337.7	607.1	257.2	495.4	744.0	377.3
1997	131.8	357.5	642.7	271.2	448.3	673.3	340.2
1998	130.7	391.1	703.3	299.3	501.7	753.5	383.9
1999	133.0	389.2	699.8	292.6	526.3	790.5	395.7
2000	138.0	426.5	766.9	309.1	617.6	927.5	447.5
2001	140.7	389.7	700.8	277.0	538.5	808.8	382.7
2002	138.9	410.7	738.4	295.7	561.2	842.9	404.0
2003	143.3	433.7	779.7	302.6	567.9	852.9	396.3
2004	148.5	452.2	813.1	304.5	625.1	938.9	421.0
2005	155.7	445.2	800.5	285.9	621.5	933.4	399.9
2006	160.4	448.3	806.0	279.5	643.6	966.6	401.2
2007	166.6	414.2	744.8	248.6	560.1	840.9	336.1
2008	182.5	433.7	779.8	237.6	643.2	966.0	352.4

¹ Nominal price deflated by producer price index for all finished goods.

PURDUE AGRICULTURE

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