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2007 Indiana Forest products Price Report and Trend Analysis

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2007 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 list is maintained in cooperation with the Forest Products Utilization & Marketing Program, Indiana Division of Forestry. The prices reported are for logs delivered to the log yards of the reporting mills. Approximate stumpage prices can be obtained by subtracting logging and hauling costs, Table 4, from the delivered sawlog and veneer log prices; however, see **Caution** below.

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 6 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 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 sub-sample of non-respondents and enumerators of the Indiana Agriculture Statistics Service contacted these mills. Purdue's Department of Forestry and Natural Resources pays for this assistance using funds from its John S. Wright Endowment.

The number of mills contributing price data for each product is shown in the fourth column in Tables 2 to 5. Sixty-nine mills reported their 2006 total board foot production, compared with 71 reporting 2005 production. Forty mills reported producing 500,000 board feet (MBF) or less, Figure 1. Total production for the reporting mills was 205 million board feet, 5 million more than in 2005. The largest mill responding reported 20 million board feet of output in 2006.

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.
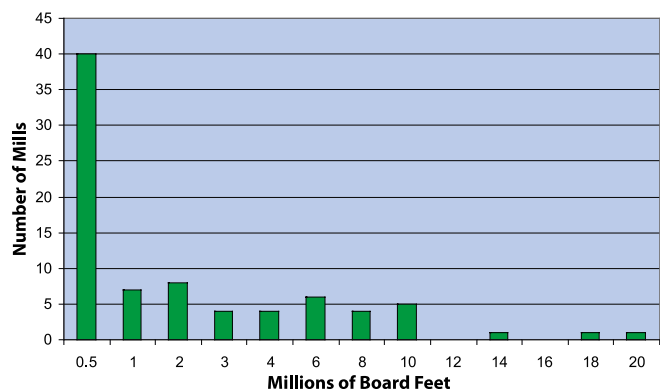

Figure 1. *Distribution of the 69 mills reporting 2006 level of production*

Caution

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 from delivered log prices by deducting the average logging and hauling costs must be used with extreme caution.

Hardwood Lumber Prices

What Allen Greenspan, Chairman of the Federal Reserve Board at the time, referred to as irrational exuberance in reference to the run-up in the stock market, occurred in the housing market until about nine month ago when the bottom dropped out in many regions. Housing's downturn hasn't driven the overall economy into recession, but has certainly led to major adjustments in many sectors of the economy, including the hardwood industry. But even here there are a few bright spots. Hardwoods have so many different end uses that it's rare for all species and grades to decline at the same time. But, overall hardwood markets are down at this time.

Hardwood lumber prices over the last four years are given in Table 1. The prices reported reflect regional conditions, not conditions at any one location. This explains why ash lumber prices haven't been driven down to the cost of production or lower. In regions struck by the emerald ash borer (EAB), ash has little if any value locally and restrictions in the movement of ash products out of these restricted counties are a strong discouragement for producers to deal with ash. This reluctance reduces supply from restricted areas, helping to hold price levels.

Because industrial production remains strong, the demand for industrial products such as railroad ties, pallets, blocking, and planks for temporary heavy equipment roads has remained strong. Thus, the prices of species such as beech, elm, and sycamore have not declined. Because different grades of lumber are used for different end products, there are differences in price direction within a species. The top lumber grade of red oak is down because it's used for millwork and other products used in residential and commercial construction. The middle and lower grades are used for cabinets, flooring, and other products that are less

dependent on new construction. Cottonwood prices are unchanged because this species is affordable, and easily processed into a wide variety of end uses with custom finishes. Cherry prices have softened because of reduced household furniture production and the substitution of tropical species such as rubberwood in the Asian furniture manufacturing plants. A similar explanation applies to hard maple. Although softer over the last several months, the run-up in soft maple prices during 2005 and 2006 provided an unusual marketing opportunity for this species.

The U.S. dollar is about equal to the Canadian dollar, making it more affordable for Canadian importers to buy U.S. hardwood products. The same applies to European and Japanese buyers. This explains in large part the price increases for white oak and black walnut lumber.

Sawlog Prices

Sawlog prices, Table 2, were down significantly with the exception of the upper grades of white oak and black walnut. Thus, the globalization of hardwood markets is responsible for the only bright spots in this year's report. On the other hand, globalization is responsible in part for the downturn in the price of other species. Red oak and hard maple prices declined in the 10 to 30 percent range. Black cherry sawlog prices were steady, reflecting the demand for this species in high-quality furniture, a category that is somewhat less susceptible to downturns in housing construction. Despite EAB problems, ash log prices haven't dropped to the level of the beech, cottonwood, and other "industrial species." Hickory held steady or was up slightly, most likely reflecting demand from the cabinet industry. Soft maple also held steady or was up slightly, unlike its "hard cousin" which was down in the 10 to 30 percent range. The two upper grades of white oak were up 15 to 30 percent, but low grade was steady to down. The red oak family was down in the upper grades, but less so in the lower grades. This reflects a back-up of high-grade lumber in the supply chain, but steady demand for No. 1C and lower grades of lumber processed into dimension parts and flooring. Tulip poplar and gum were unchanged while sycamore was down. The revival of black walnut continued with modest price gains, especially for the lowest grade.

Softwood Logs

Reported prices for pine sawlogs was down by about 13 percent, reflecting reduced demand for locally produced dimension lumber for construction of barns, out buildings, and cabins. The niche market for red cedar remained strong, however, increasing by about 4 percent.

Veneer Log Prices

Veneer log prices, Table 3, followed the direction of sawlogs of the same species. But the small number of responses casts doubt on some of the changes shown. Prime black walnut veneer logs were up for the smaller size categories, but down for the larger sizes. Select prices were up dramatically, but based on very few responses. White oak prices were mixed, but strongest for smallest prime logs and all but the two largest select sizes.

Black cherry veneer log prices were solicited for the first time. The response indicates little market for small select logs, but prices similar to black walnut for prime logs. Note: No mills reported a price for the smallest prime size category. This indicates that mills have not had to resort to slicing very small cheery logs.

Red oak prices were down by 25 to 50 percent, again reflecting changes in consumer preferences. Hard maple and yellow poplar veneer log prices were also down substantially. No response was received for select logs.

Implications

Changes in log prices of course reflect trends in the lumber market. There may be loggers and mills stuck with high price stumpage under contract, but there have been no reports of timber buyers asking to cancel or renegotiate contracts. Some states have enacted legislation allowing buyers of state owned timber out of their contracts. But this is primarily in areas hit by declines in the demand for pulpwood. After declaring for decades that Indiana needs a better market for small timber, I believe we're now seeing that landowners and hardwood processors are better off concentrating on quality hardwoods complemented with good markets for industrial hardwood products.

It's not possible with the data available to draw conclusions regarding the margins mills are working on between logs and lumber, but generally log prices decrease proportionally less than lumber prices. Inventories of slow moving species and grades have built up, reflected in the differences in log price changes by grades within a species. Thus, timber buyers may be making offers based on unusual conditions, that is, not offering top dollar for the very best timber. More consideration than usual will be given by some buyers to the volume of non-prime species and lower grades stands put up for sale. And, as with previous cycles the advantage of having a good mix of species is apparent.

Is this a bad time for timber owners to put timber on the market? Of course it depends on what they have to sell and how badly they need the timber revenue. Obviously it's a good time to put up black walnut and white oak. It's also a good time to put up what I'll call "common woods," that is woods that haven't been managed for species and quality. It is a good time to make improvement cuts, that is harvests focused on freeing up crop trees of selected species with the potential for high quality. The rare woods that's heavy to red oaks may be best left until later for a harvest, if that's an option given the owner's financial situation.

Based on newspaper articles and the trade press, it's obvious that the hardwood industry is going through a period of adjustment driven from the demand side. The biggest driver is the movement of a major segment of the furniture industry to Asia and Mexico, and the use of lower cost species hardwood species from Asian forests and plantations. It's too early in the restructuring process to make a call on the volume of temperate hardwood production that can be supported by the demand from producers of higher-end furniture, cabinets, and mill work. However, further downward adjustment of timber and log prices for many species should be expected. The long-standing competitive advantage of Indiana producers should continue.

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 2004	July 2004	Jan 2005	July 2005	Jan 2006	July 2006	Jan 2007	July 2007	Sep 2007
Ash	FAS + Prem.	780	800	815	795	760	750	750	750	750
	No. 1C	580	630	650	630	575	525	455	455	455
	No. 2A	370	415	435	390	325	300	270	260	260
Basswood	FAS + Prem.	745	760	760	760	775	775	775	755	740
	No. 1C	405	415	415	415	415	415	415	385	370
	No. 2A	210	210	210	210	210	210	210	200	200
Beech	FAS	465	465	465	485	500	500	500	500	500
	No. 1C	405	405	405	425	435	435	435	435	435
	No. 2A	330	330	330	345	345	345	345	345	345
Cottonwood (Southern)	FAS	600	600	600	600	600	600	600	600	600
	No. 1C	400	400	400	400	400	400	400	400	400
	No. 2A	220	220	220	220	220	220	220	220	220
Cherry (North Central)	FAS + Prem.	2575	2590	2565	2385	2330	2470	2470	2320	2320
	No. 1C	1530	1575	1575	1370	1320	1415	1445	1275	1275
	No. 2A	720	775	775	670	625	700	715	680	680
Hickory	FAS + Prem.	865	825	800	760	770	770	755	735	735
	No. 1C	630	610	610	620	650	650	660	650	640
	No. 2A	350	330	330	370	405	435	450	450	425
Hard Maple (unselected)	FAS + Prem.	1415	1445	1445	1655	1655	1625	1535	1240	1240
	No. 1C	1030	1115	1140	1270	1270	1205	1180	940	940
	NO. 2A	505	565	600	670	670	620	610	530	500
Soft Maple	FAS + Prem.	1255	1345	1375	1465	1450	1385	1400	1310	1295
	No. 1C	630	750	770	885	845	770	700	585	570
	No. 2A	310	385	405	435	385	300	290	275	275
White Oak (plain)	FAS + Prem.	1110	1155	1180	1165	1165	1230	1335	1390	1390
	No. 1C	700	730	740	660	590	580	610	640	640
	No. 2A	555	565	515	385	415	410	440	440	440
Red Oak (plain)	FAS + Prem.	1280	1310	1290	1215	1155	1090	935	850	850
	No. 1C	845	865	835	675	665	625	625	625	625
	No. 2A	635	635	580	480	510	500	510	510	510
Yellow Poplar	FAS + Prem.	705	690	670	690	730	800	800	775	750
	No. 1C	395	395	395	405	410	410	400	380	360
	No. 2A	310	310	310	305	305	305	295	295	290
Sycamore (Southern plain)	FAS	455	455	455	460	455	455	455	455	455
	No. 1C	435	435	435	440	435	435	435	435	435
	No. 2A	375	375	375	375	375	375	375	375	375
Black Walnut (steamed)	FAS	1885	1915	1965	2040	2040	2055	2100	2180	2180
	No. 1C	930	950	980	1005	1030	1100	1210	1300	1300
	No. 2A	505	520	580	625	670	760	885	940	940

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Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 2006 and May 2007.

Species/ Grade	2007 Range	No. Response.		Mean (s.e.)[1]		Median		Change (%)	
		2006	2007	2006	2007	2006	2007	Mean	Median
	($/MBF)			($/MBF)		($/MBF)			
White Ash									
Prime	300-850	32	21	433 (11.82)	430 (29.96)	440	400	-0.7	-9.1
No. 1	200-400	35	23	350 (11.60)	313 (12.94)	350	300	-10.7	-14.3
No. 2	150-300	34	24	266 (8.63)	241 (9.59)	250	235	-9.2	-6.0
No. 3	100-300	29	23	209 (9.56)	200 (9.50)	200	200	-4.0	0.0
Basswood									
Prime	120-450	21	16	327 (22.36)	318 (21.51)	300	325	-2.8	8.3
No. 1	120-450	24	17	283 (16.37)	262 (17.61)	265	250	-7.3	-5.7
No. 2	120-300	21	16	241 (12.78)	219 (13.12)	250	200	-9.0	-20.0
No. 3	75-250	23	16	205 (11.63)	182 (14.71)	200	175	-11.1	-12.5
Beech									
Prime	200-350	19	14	247 (12.75)	251 (11.11)	250	250	1.6	0.0
No. 1	120-300	23	15	229 (12.36)	219 (12.09)	250	220	-4.5	-12.0
No. 2	120-300	20	15	208 (9.05)	206 (12.68)	200	200	-1.0	0.0
No. 3	110-250	19	15	213 (9.67)	189 (12.40)	200	200	-9.6	0.0
Cottonwood									
Prime	100-240	10	11	188 (8.41)	175 (14.48)	200	200	-7.2	0.0
No. 1	100-220	13	11	181 (10.09)	166 (13.02)	180	150	-8.0	-16.7
No. 2	100-220	10	10	178 (12.00)	168 (14.28)	180	175	-5.6	-2.8
No. 3	100-240	14	11	180 (11.25)	168 (14.76)	200	150	-6.4	-25.0
Cherry									
Prime	750-2000	36	27	1222 (58.64)	1217 (61.99)	1200	1200	-0.4	0.0
No. 1	600-1500	39	29	937 (45.03)	969 (46.52)	900	950	3.4	5.6
No. 2	300-1000	34	29	654 (39.96)	574 (39.05)	600	500	-12.3	-16.7
No. 3	200-600	34	25	357 (32.05)	307 (18.44)	300	300	-14.1	0.0
Elm									
Prime	120-300	11	13	217 (13.89)	208 (15.82)	200	200	-4.4	0.0
No. 1	120-250	12	12	205 (11.38)	188 (12.44)	200	200	-8.5	0.0
No. 2	120-250	11	11	205 (10.48)	186 (13.57)	200	200	-9.3	0.0
No. 3	120-250	14	13	205 (9.71)	195 (12.94)	200	200	-4.7	0.0
S. Hickory									
Prime	250-600	24	17	386 (15.32)	422 (23.08)	400	410	6.6	2.5
No. 1	250-500	30	20	350 (14.75)	355 (16.94)	350	350	1.2	0.0
No. 2	200-400	28	21	270 (12.48)	270 (12.37)	250	275	0.2	10.0
No. 3	100-300	25	19	214 (10.91)	200 (11.23)	200	200	-6.7	0.0
Hard Maple									
Prime	400-1200	32	18	963 (44.22)	772 (46.83)	900	800	-19.8	-11.1
No. 1	350-935	36	21	745 (34.82)	587 (32.69)	750	575	21.1	-23.3
No. 2	240-750	33	22	524 (32.83)	368 (27.35)	525	350	-29.8	-33.3
No. 3	100-300	31	22	291 (27.96)	222 (14.81)	240	200	-23.7	-16.7
Soft Maple									
Prime	250-600	26	17	402 (20.45)	426 (26.12)	375	400	6.2	6.7
No. 1	250-450	32	20	333 (15.79)	330 (12.81)	300	300	-1.0	0.0
No. 2	200-340	30	21	263 (14.47)	250 (10.31)	250	245	-5.1	-2.0
No. 3	100-325	25	20	206 (10.94)	194 (13.05)	200	200	-5.9	0.0

[1] *Standard error of the mean is given in parentheses*   *(Continued)*

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 2006 and May 2007. *(continued)*

Species/ Grade	2007 Range	No. Response.		Mean (s.e.)[1]		Median		Change (%)	
		2006	2007	2006	2007	2006	2007	Mean	Median
	($/MBF)			($/MBF)		($/MBF)			
White Oak									
Prime	420-1300	34	22	741 (31.56)	851 (54.60)	700	800	14.8	14.3
No. 1	310-900	37	25	557 (25.09)	614 (32.18)	500	650	10.3	30.0
No. 2	200-700	38	25	401 (22.56)	374 (23.89)	350	350	-6.8	0.0
No. 3	100-500	35	23	269 (18.57)	243 (18.91)	250	240	-9.4	-4.0
Red Oak									
Prime	375-1000	37	26	701 (18.87)	605 (25.21)	700	600	-13.6	-14.3
No. 1	300-750	37	28	535 (18.24)	461 (20.05)	500	450	-13.9	-10.0
No. 2	200-500	36	28	379 (13.35)	326 (13.85)	375	300	-14.	-20.0
No. 3	100-400	34	28	255 (13.80)	235 (14.67)	250	243	-7.9	-2.8
Black Oak									
Prime	300-700	31	21	631 (27.40)	546 (24.30)	650	550	-13.5	-15.4
No. 1	200-700	33	25	477 (24.87)	417 (21.74)	500	400	-12.6	-20.0
No. 2	100-500	32	27	335 (18.58)	294 (16.06)	300	300	-12.1	0.0
No. 3	100-400	29	25	238 (14.70)	233 (14.21)	200	240	-1.9	20.0
Tulip Poplar									
Prime	300-550	36	24	433 (11.47)	436 (15.55)	450	425	0.5	-5.6
No. 1	200-470	36	24	357 (11.46)	338 (13.54)	350	350	-5.3	0.0
No. 2	100-309	35	24	269 (9.87)	248 (9.52)	250	250	-7.6	0.0
No. 3	100-316	32	21	213 (9.74)	199 (11.76)	200	200	-6.7	0.0
Sycamore									
Prime	120-250	17	13	250 (14.73)	203 (12.98)	250	210	-18.8	-16.0
No. 1	120-250	21	12	228 (12.39)	194 (14.17)	220	200	-14.9	-9.1
No. 2	120-250	19	15	220 (12.33)	193 (11.57)	200	200	-12.4	0.0
No. 3	120-250	22	12	204 (8.49)	182 (12.42)	200	200	-10.4	0.0
Sweetgum									
Prime	120-300	12	13	226 (23.34)	211 (15.99)	200	210	-6.7	5.0
No. 1	120-250	15	12	213 (18.97)	185 (13.29)	200	200	-13.3	0.0
No. 2	120-250	14	12	204 (11.84)	191 (13.17)	200	200	-6.3	0.0
No. 3	120-250	15	11	214 (10.55)	188 (14.13)	200	200	-12.2	0.0
Black Walnut									
Prime	800-2500	35	23	1189 (49.42)	1400 (78.52)	1200	1300	17.7	8.3
No. 1	700-2000	36	25	976 (43.16)	1148 (65.35)	1000	1075	17.6	7.5
No. 2	300-1500	33	26	723 (39.77)	756 (58.92)	750	750	4.5	0.0
No. 3	200-1100	32	25	408 (40.34)	437 (44.84)	335	375	7.2	11.98
Softwood									
Pine	150-300	8	8	268 (16.45)	233 (19.34)	255	245	-12.9	-3.9
Red cedar	400-500	8	5	428 (34.86)	455 (20.00)	460	450	4.3	-5.3

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

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Table 3. Prices paid for delivered veneer logs by Indiana mills, May 2006 and May 2007.

Species/Grade/ Log Dia.	2007 Range	No. Response.		Mean (s.e.)[1]		Median		Change (%)	
		2006	2007	2006	2007	2006	2007	Mean	Median
	($/MBF)			($/MBF)		($/MBF)			
Black Walnut									
Prime									
12-13	2000-3500	10	3	2158 (270.17)	2500 (500.00)	2000	2000	15.9	0.0
14-15	3000-4500	11	3	2914 (319.16)	3625 (375.00)	3000	3500	24.4	16.7
16-17	2000-5000	11	5	3378 (407.55)	3700 (529.15)	3250	3750	9.5	15.4
18-20	3000-7000	10	4	4581 (432.97)	4750 (1030.78)	4805	4500	3.7	-6.3
21-23	3000-8000	9	4	5676 (647.21)	5500 (1190.24)	7000	5500	-3.1	-21.4
24-28	3000-10000	9	3	6467 (553.46)	7333 (2185.81)	6750	9000	13.4	33.8
>28	3000-10000	6	2	7170 (955.62)	6500 (3500.00)	8000	6500	-9.3	-18.8
Select									
12-13	2500-3000	5	2	1420 (180.0)	2750 (250.00)	1400	2750	93.7	96.4
14-15	4000	6	1	2167 (306.23)	4000 (n.a.)	2500	4000	84.6	60.0
16-17	4000	5	1	2690 (293.43)	4000 (n.a.)	2875	4000	48.7	39.1
18-20	4000	5	1	3300 (300.00)	4000 (n.a.)	3500	4000	21.2	14.3
21-23	4000	4	1	3625 (239.36)	4000 (n.a.)	4000	4000	10.3	0.0
24-28	5000	5	1	4000 (316.23)	5000 (n.a.)	4000	5000	25.0	25.0
>28	5000	3	1	4667 (666.67)	5000 (n.a.)	4000	5000	7.1	25.0
White Oak									
Prime									
13-14	1700-2500	9	3	1385 (125.98)	2067 (233.33)	1500	2000	49.2	33.3
15-17	1000-2500	10	5	1947 (116.64)	1800 (254.95)	2050	2000	-7.6	-2.9
18-20	1200-2500	10	5	2427 (140.61)	2000 (221.36)	2510	2000	-17.6	-20.3
21-23	1750-3250	9	5	2705 (151.92)	2500 (285.04)	2900	2500	-7.6	-13.8
24-28	2000-2500	8	2	2987 (253.22)	2250 (250.00)	3000	2250	-24.7	-25.00
>28	2000-2500	5	2	3800 (586.52)	2250 (250.00)	3100	2250	-40.8	-27.4
Select									
13-14	1200	2	1	1000 (200.00)	1200	800	1200	20.0	50.0
15-17	1500	3	1	1433 (233.33)	1500	1400	1500	4.7	7.1
18-20	1700	4	1	1550 (206.16)	1700	1200	1700	9.7	41.7
21-23	2000	3	1	1900 (378.59)	2000	1600	2000	5.3	25.0
24-28	2000	3	1	2167 (440.96)	2000	1750	2000	-7.7	14.3
>28	2000	3	1	2833 (1092.91)	2000	1750	2000	-29.4	14.3

[1] *Standard error of the mean is given in parentheses* *(Continued)*

Table 3. Prices paid for delivered veneer logs by Indiana mills, May 2006 and May 2007. *(continued)*

Species/Grade/ Log Dia.	2007 Range	No. Response.		Mean (s.e.)[1]		Median		Change (%)	
		2006	2007	2006	2007	2006	2007	Mean	Median
	($/MBF)			($/MBF)		($/MBF)			
Black Cherry									
Prime									
12-13		n.a.	0	n.a.		n.a.		n.a.	n.a.
14-15	3000-4000	n.a.	2	n.a.	3500 (500.00)	n.a.	3500	n.a.	n.a.
16-17	1200-5000	n.a.	4	n.a.	2750 (838.15)	n.a.	2400	n.a.	n.a.
18-20	3000-6000	n.a.	2	n.a.	4500 (1500.00)	n.a.	4500	n.a.	n.a.
21-23	3000-7000	n.a.	2	n.a.	5000 (2000.00)	n.a.	5000	n.a.	n.a.
24-28	3000-9000	n.a.	2	n.a.	6000 (3000.00)	n.a.	6000	n.a.	n.a.
>28	3000	n.a.	1	n.a.	3000	n.a.	3000	n.a.	n.a.
Select									
12-13		n.a.	0	n.a.		n.a.		n.a.	n.a.
14-15		n.a.	0	n.a.		n.a.		n.a.	n.a.
16-17		n.a.	0	n.a.		n.a.		n.a.	n.a.
18-20	1750	n.a.	1	n.a.	1750	n.a.	1750	n.a.	n.a.
21-23	1750	n.a.	1	n.a.	1750	n.a.	1750	n.a.	n.a.
24-28	1750	n.a.	1	n.a.	1750	n.a.	1750	n.a.	n.a.
>28	1750	n.a.	1	n.a.	1750	n.a.	1750	n.a.	n.a.
Red Oak									
Prime									
16-17	900-1000	9	3	1317 (111.84)	967 (33.33)	1350	1000	-26.6	-25.9
18-20	900-1200	8	2	1419 (93.56)	1050 (150.00)	1500	1050	-26.0	-30.0
21-23	900	7	1	1469 (98.13)	900	1500	900	-38.8	-40.0
24-28	900	5	1	1598 (141.15)	900	1600	900	-43.7	-43.6
>28	800	2	1	1950 (50.00)	900	1900	900	-53.8	-52.6
Select									
16-17	800	4	1	1100 (129.1)	800	1000	800	-27.3	-20.0
18-20	650	4	1	1138 (128.09)	650	1000	650	-42.9	-35.0
21-23	650	4	1	1200 (147.20)	650	1000	650	-45.8	-35.0
24-28		3	0	1317 (192.21)		1175			
>28		2	0	1600 (200.00)		1400			
Hard Maple									
Prime									
16-20	1000-3000	9	4	2876 (323.57)	1875 (426.96)	3383	1750	-34.8	-48.3
>20	1000-2000	8	2	3431 (396.97)	1500 (500.00)	3900	1500	-56.3	-61.5
Select									
16-20		4	0	2000 (408.25)		2000			
>20		4	0	2425 (415.08)		2200			
Yellow Poplar									
Prime									
16-20	550	6	1	633 (64.12)	550	600	550	-13.2	-8.3
>20	550	5	1	670 (64.42)	550	650	550	-17.9	-15.4
Select									
16-20		3	0	517 (92.80)		425			
>20		3	0	567 (66.67)		500			

Custom Costs

The average cost reported for custom sawing was $250 per MBF in 2007, down $6 from 2006, Table 4. The mills reporting are primarily small "local" mills, many portable. Two mills reported their cost per hour. The average was $60 unchanged from 2006. Average logging cost was $110 per MBF, down $16 from 2006. The reported cost of hauling decreased, but with only three responses this change shouldn't be given credence. The average was $53 per MBF compared to $73 in 2006. The calculated cost per MBF per mile decreased to $1.05, about where it was in 2005, but down substantially from 2006.

The average logging cost of $110 per MBF and a hauling cost of $53 per MBF for a 50 mile haul give a cost of $163 to put a thousand board feet of logs on a mill deck, compared to $198 per MBF in 2006. This result is not consistent with increased costs, and estimates of stumpage value should use a cost of at least $160. It's possible that loggers are getting more efficient, but there is no evidence of this available.

Miscellaneous Products

The average price paid for cant logs, i.e., logs sawn for pallet lumber and railroad ties, was $239, up from $226 last year, Table 5. The price per ton was essentially unchanged at $32. Pulp chip prices stayed at $20 per ton, while pulpwood was up from $28 to $33 per ton. There is still an excellent market for bark for mulch.

The interest in biomass for energy production continues to increase with frequent inquiries coming to Purdue and IDNR for information on availability and cost. The inquiries are in regard to cellulosic ethanol, direct combustion, and as an additive to coal to reduce SOx and NOx emissions. The costs of material handling and transportation are being dealt with, but handling small volumes of green material still limits residue markets available to many mills. The wood pellet industry is now well established in Indiana and is expected to grow further.

The real issue from the forestry perspective is the extent to which demand reaches the price point where processors can enter woodlands for whole tree

Table 4. Custom costs reported by Indiana mills, May 2006 and May 2007

	No. Responses	2007 Range	Mean		Median	
			2006	2007	2006	2007
Sawing ($/MBF)	42	100-625	256	250	250	250
Sawing ($/Hour)	2	60	61	60	55	60
Logging ($/MBF)	5	80-150	126	110	150	100
Hauling ($/MBF)	3	50-55	73	53	50	53
Distance (Miles)	7	25-75	43	46	30	40
$/MBF/Mile	2	0.85-1.25	1.43	1.05	1.48	1.05
$/Mile	1	3.75	2.75	3.75	3.5	3.75

Table 5. Prices of miscellaneous products reported by Indiana mills, May 2006 and May 2007, fob the producing mill.

	No. Responses	2007 Range	Mean		Median	
			2006	2007	2006	2007
Pallet logs, $/MBF	28	100-375	226	239	220	250
Pallet logs, $/ton	3	28-36	34	32	34	32
Pulpwood, $/ton	5	30-45	28	33	32	30
Pulp Chips, $/ton	17	10-30	20	20	20	20
Sawdust, $/ton	6	1-40	12	13	10	8.5
Sawdust, $/cu.yd.	13	1-10	4	5	3	3.75
Bark, $/ton	1	15	18	15	18	15
Bark, $/cu.yd.	25	2.5-40	7	9	6	6
Mixed, $/ton	0		11		11	
Mixed, $/cu. yd.	3	3-5.85	2	5	1.75	4.43

harvesting, clearing stands of relatively small diameter timber, regardless of the species. Selective processing of small trees from stands of larger average diameter is further off in the future, but a possibility that needs to be watched closely. It's more likely that marginal farmland will be converted to wood energy plantations. However, changes in crop technology and farming practices make it profitable to crop less fertile land. Given the large direct and indirect subsidies for row crops and ethanol, and total lack of subsidies for timber production other than favorable tax treatment, land use decisions will favor increased row crop production.

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 2007 was 745.7 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. It's this real price trend that is important for long-term investments like timber.

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, August this year. You'll see from this series that inflation this year is still running at about 5 percent.

Average Stand

The nominal weighted average price decreased substantially from $448.3 per MBF in 2006 to $414.7 in 2007 for the average stand, Table 8, column 3. Remember that this series is based on delivered log prices, not stumpage prices. This is a 7.5 percent decrease, Figure 3. The deflated or real price decreased from $279.5 per MBF to 10.5 percent decrease, Figure 3. This decrease is still not significant enough to substantially pull down the trend line.

The new equation for the trend line for the 1957 to 2007 period is,

$$\text{Avg. Stand Real Price} = 168.19 + 2.51 \times T,$$
$$\text{where,}$$
$$T=1 \text{ for } 1957, 2 \text{ for } 1958, \text{ etc.}$$

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 stayed at about 1.1 percent per annum. Thus, the purchasing power of hardwood timber assets in the long-run continues to exceed the rate of inflation by over 1 percent.

Quality Stand

The nominal weighted average price for the quality stand decreased by 13.0 percent from $643.6 in 2006 to $560.1 in 2007, Table 8, column 6, and Figure 4. The average real price series for the quality stand decreased from $401.2 per MBF in 2006 to $337.8 in 2006, a 15.8 percent decrease.

The average annual compound rate of increase for the trend line declined to 1.38 percent per annum, Figure 4. The equation for the trend line is,

$$\text{Quality Stand Real Price} = 200.92 + 4.16 \times T$$

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
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
Non-veneer 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 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

Table 8. Weighted average actual price, price index, and deflated price for an average and quality stand of timber in Indiana, 1971 to 2007.

| 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	165.8	414.7	745.7	250.1	560.1	841.2	337.8
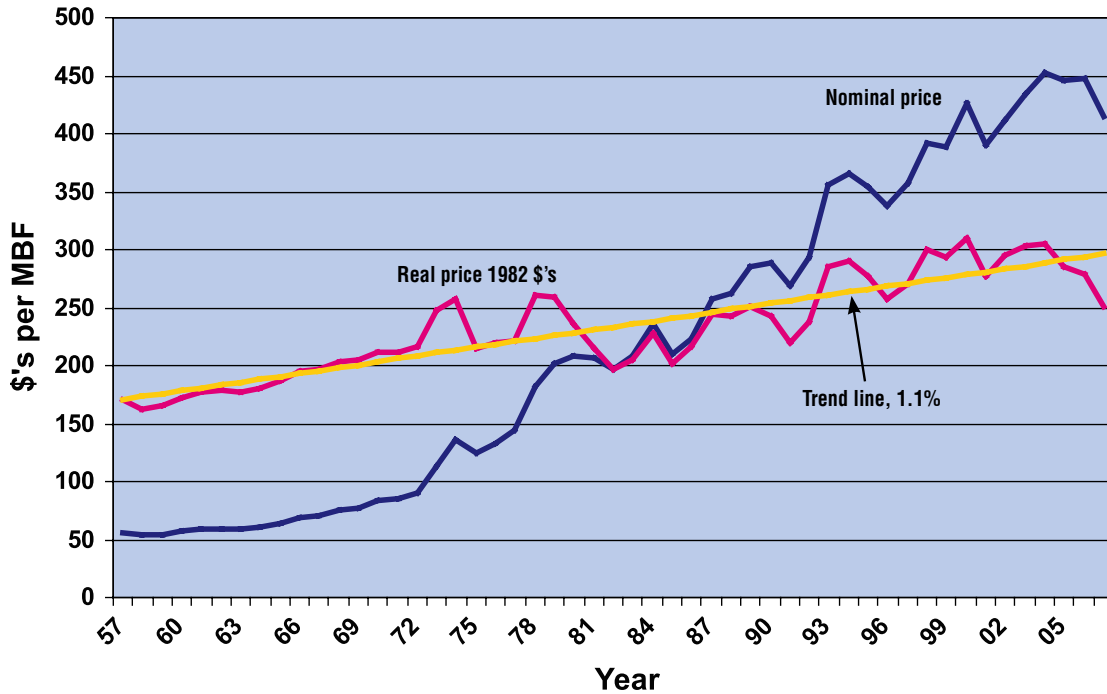
Figure 3. Average stand of timber, nominal, deflated, and trend line price series, 1957 to 2007
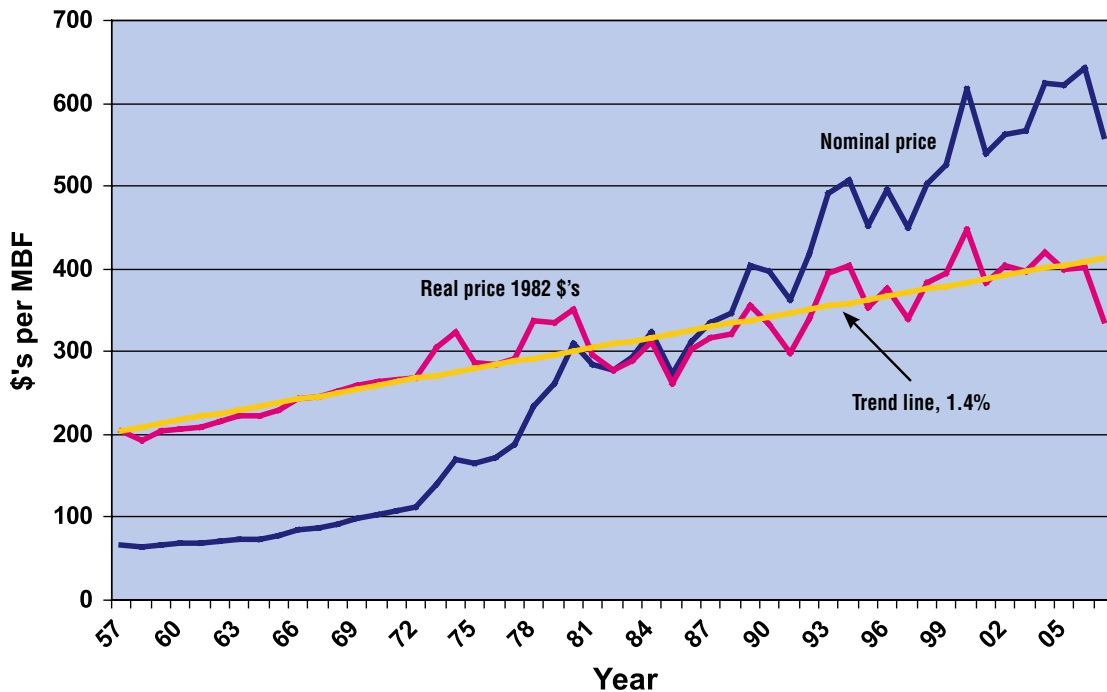

Figure 4. Quality stand of timber, nominal, deflated, and trend line price series 1957 to 2007

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