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William L. Hoover
Purdue University

Greg Preston

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2011 Indiana Forest Products Price Report and Trend Analysis

William L. Hoover, Professor of Forestry, Department of Forestry and Natural Resources, Purdue University, and Greg Preston, State Statistician, Indiana Agricultural Statistics Service, West Lafayette, Indiana

Survey Procedures and Response

This report is intended to be used as an indication of price trends, not for the appraisal of logs or standing timber (stumpage). Data is collected once a year, but log prices are constantly changing. Standard appraisal techniques by those familiar with local market conditions 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 interpreted with caution.

Data for this survey was obtained by a direct mail survey of all known sawmills, veneer mills, concentration yards, loggers and firms producing wood chips, sawdust, etc., as a byproduct. Only firms operating in Indiana were included. The survey was conducted by the Indiana Agricultural Statistics Service and analyzed by professor Hoover. The prices reported are for logs delivered to the log yards of the reporting mills and concentration yards. Thus, prices reported may include logs shipped in from other states (e.g., black cherry veneer logs from Pennsylvania and New York).

The survey was mailed to 295 firms. There was an initial mailing and one reminder postcard sent to non-respondents. At least one call was made to all non-respondents that received the long form. The phone calls were made by enumerators of the Indiana Agricultural 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.

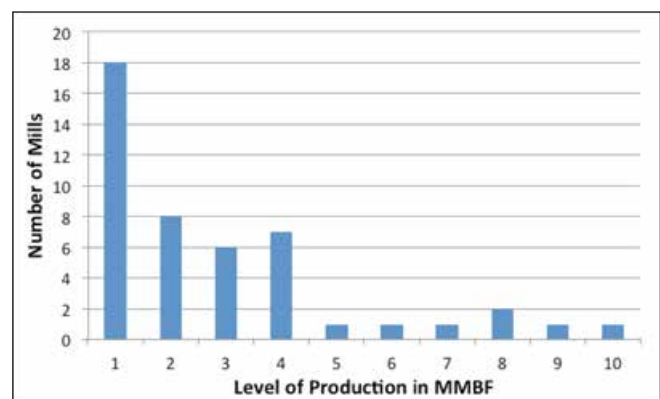


Figure 1. Distribution of the 46 mills reporting 2010 level of production

An abbreviated survey form was used for the 113 firms that do not buy logs. The long form with the tables for prices paid for sawlogs and veneer logs went to 182 firms.

Fifty-six mills reported some useful data, compared to 62 in 2010, 73 in 2009 and 88 in 2008. Seventeen mills were dropped because their phones were disconnected, or they reported being out of business.

The number of mills contributing price data for each product is shown in the second and third columns in Tables 2 and 3, and in the second column in Tables 4 and 5. Forty-six mills reported their 2010 board foot production. Eighteen mills reported producing 1 million board feet (MMBF) or less (Figure 1). Seven mills reported production of 5 MMBF or greater. Total production reported was 103 MMBF, down from the 120 MMBF in 2009, 157 MMBF in 2008, 175 MMBF in 2007, and 205 MMBF in 2006. The largest single mill production reported was 10 MMBF, compared to 15 MMBF in 2009 and 20 MMBF in 2008. These annual

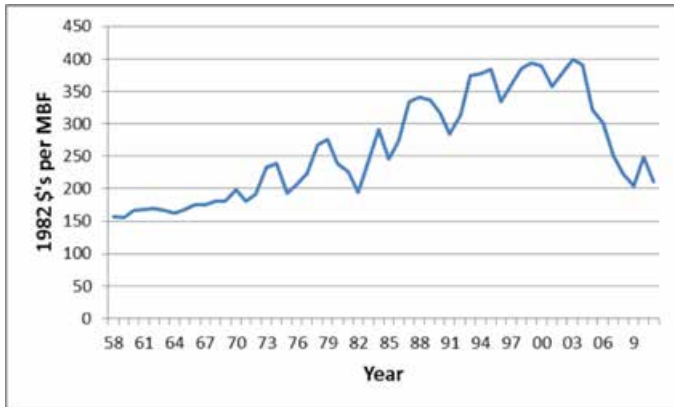


Figure 2. Average price of red oak sawlogs in 1982 dollars.

levels are not comparable since they do not represent a statistical estimate of total production. This year the survey did, however, compare the production levels for the 12 mills that reported in 2008, 2009 and 2010. Their total output was 58 MMBF in 2008, 56 MMBF in 2009 and 61 MMBF in 2010.

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-grade logs. They are, however, the primary source of data on the cost of custom sawing and pallet logs. The custom sawing costs reported in Table 4 do not reflect the operating cost of large mills.

Hardwood Lumber Prices

If you ever wondered what would happen to the hardwood industry if production declined by more than 30 percent, you now know. It hasn't been fun for anyone in the industry, but having an exemplary free-market structure has allowed producers to adjust to this new reality. Inadequately capitalized and managed firms have closed. Survivors have increased the productivity of their capital (equipment) and labor, and further developed targeted marketing programs. The necessary decline in the inflation-adjusted cost of putting logs on the yard has occurred and still has a way to go. This is required for any raw material that is processed into finished products for which inflation-adjusted price does not increase in real terms. We noted in the past that the increases in the inflation-adjusted cost of logs were possible because of increased mill efficiency. Barring a new cost-effective technology not currently on the horizon, log prices will decline until a new equilibrium is established.

Table 1 shows that lumber price changes from January 2008 to July 2011 varied by species. The only species that increased slightly were cottonwood and black walnut. Beech, as usual, was constant in all grades. Ash stayed

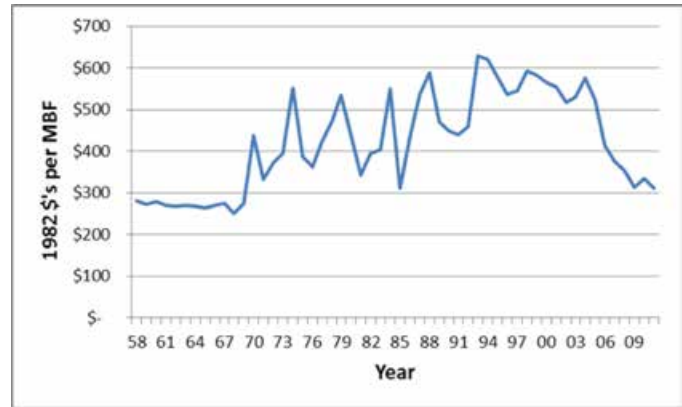


Figure 3. Price of No. 1C red oak lumber in 1982 dollars.



Figure 4. Average stand of timber: nominal, deflated, and trend-line price series, 1957-2011.

above the level in the 2008-09 period. Beech and sycamore, as usual, were unchanged. Cherry continued to decline because of consumer preferences and increased use of cherry veneer for furniture. Hickory was up from year-ago levels, reflecting continued demand from the cabinet and flooring industries. Soft maple continued to decline, as well, most likely from reduced export demand. White oak was down from 2008 levels. Red oak also continued to decline. Yellow (tulip) poplar was down because of major decline in millwork output brought on by drastically low housing starts.

Sawlog Prices

The number of mills reporting sawlog prices was about the same as last year (Table 2). Changes varied by species, with median prices showing less change than average price. This is because one out-of-range price changes the mean price more than the median price.

A good supply of ash logs resulted in a decline in log prices, despite a small increase in lumber price. The impact of the emerald ash borer is likely to reduce log

prices further. Steady niche markets for basswood and beech kept sawlog prices at about the same level. The small variation in the quality of cottonwood logs is reflected in insignificant differences among log grades. The 11 percent increase in price of No. 2 and 3 logs best reflects market conditions. A good supply of cottonwood is readily accessible as long as bottom lands can be accessed.

Black cherry log prices were not down as much as expected, based on lower lumber prices. Hard (sugar) maple was down significantly, reflecting lower lumber demand. Soft maple markets are similar to those of cottonwood — i.e., white wood that can be finished to imitate many other species. Soft maple also is a bottomland species.

White oak was stronger than would be expected from lumber markets. This is likely because of relatively stronger demand for quarter- and rift-sawn lumber used for high-end furniture lines. High-end markets for many products, including furniture, are stronger than mass consumer markets because of the much-ballyhooed differential between the “well-off” and blue-collar sectors.

Red oak was down much more than 10 percent and black oak by even more. Red oak sells in some of the same markets as white, but more in the upper end of the mass market. Feeble housing starts explained a decline in tulip poplar prices of more than 15 percent. Many millwork producers have closed down.

Black walnut demand is much better than all other species. The 16 percent increase in prime sawlogs is most likely because of the lack of a clear bright line between the upper end of sawlogs and the lower end of veneer logs.

Softwood Logs

Two fewer mills reported pine log prices (Table 2, bottom). The average for the five reporting was \$228, up slightly from 2010. This may reflect at least level demand from mills producing cants and lumber for pallets and other industrial materials. The average red cedar price was down but the median was unchanged. More mills reported this price. Eastern red cedar lumber and chip board go into higher end houses, the stronger end of the housing market.

Veneer Log Prices

Veneer log prices (Table 3) were down for most species and grades, even black walnut. Apparently mills were able to get adequate supplies, even with increased demand. This may be reflected in larger price declines for



Figure 5. Quality stand of timber: nominal, deflated, and trend-line price series 1957-2011.

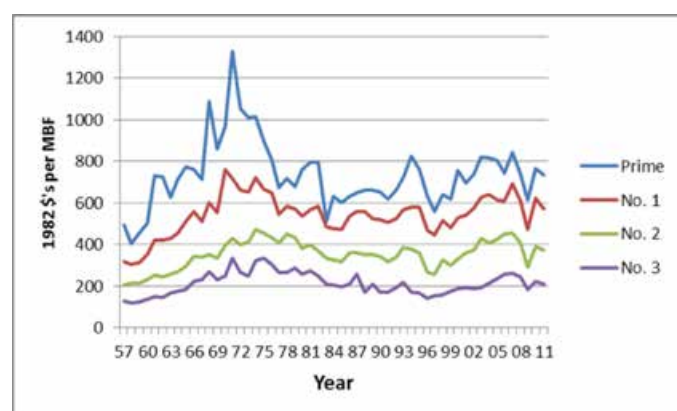


Figure 6. Price of the four grades of black walnut sawlogs in 1982 dollars.

small diameter logs. As over the last several years, fewer mills reported prices for the lower-quality veneer logs — the select grade. Prices reported for prime logs most likely clearly reflect prices for the very best logs, regardless of the complicated log grading system used. These log-grading systems make it harder to identify what is meant by a select-grade log.

About twice as many mills reported prime white oak prices compared to last year. This is assumed to result from increased interest in this species. Prices were down less than black walnut in percentage terms. Prime and select midsize logs, the largest segment of the market, actually increased. This species serves higher end domestic and export markets, especially for quarter-sliced veneer.

Black cherry veneer logs were down more than sawlogs. Because of gum pockets and other defects more common in Midwest cherry, the prices reported include logs shipped in from Pennsylvania and New York. Because of lower demand buyers don't have to buy small

logs, resulting in price declines of more than 50 percent. The strongest prices were for midsize select-grade logs.

Red oak veneer log prices were much stronger than would be expected, given the lower lumber prices. Apparently there remains a demand for “affordable” red oak furniture. Affordability is achieved by using veneered dimension parts.

There’s still a market for hard maple veneer logs, but not a strong one. Prices were down from 20 to 40 percent. Yellow poplar sap veneer still has a market for use over cores made of composite materials, such as medium density fiberboard and industrial particleboard. It is also used as a smoothing layer between composite materials and a higher quality face veneer.

Implications

Assuming that red oak is a benchmark species and that the price of No. 1C grade of red oak lumber represents the break-even price for mills, we project further price declines. Figure 2 shows that the average

cost of red oak logs in constant 1982 dollars from 1958-72 was in the \$150-\$190 per MBF range. In 2011 dollars this equates to \$285-\$360 per MBF (the conversion factor is about 1.9). Figure 3 shows the price of No. 1C red oak lumber in 1982 dollars. The price of lumber over the 1958-72 period was in the \$280-\$290 range in constant 1982 dollars. The upward cycle in lumber production started in the 1972-74 period, coinciding with increases in lumber and log prices. If we assume that the 1960s represents a period of market sustainability and will become the bottom of the current downward trend, then lumber prices will stabilize in the \$280-\$300 per MBF in 1982 dollars, and log prices will stabilize in the \$150-\$190 level. This would mean a further decline in the price of No. 1C red oak of about \$20, or \$38 in 2011 dollars. The commensurate decline in the average price of red oak logs would be at least \$30 per MBF in 1982 dollars and about \$55 per MBF in 2011 dollars.

Our interpretation of trends should not be used as justification for liquidating timber stocking or modifying

Table 1. Hardwood lumber prices, dollars per one thousand board feet (MBF), 1-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 2008	July 2008	Jan 2009	July 2009	Jan 2010	July 2010	Jan 2011	July 2011
Ash	FAS + Prem.	750	750	735	705	715	805	785	800
	No. 1C	455	465	455	425	470	580	575	575
	No. 2A	280	300	300	290	320	380	360	360
Basswood	FAS + Prem.	710	685	685	645	635	660	645	630
	No. 1C	360	340	330	300	300	335	335	345
	No. 2A	200	200	200	180	180	190	190	190
Beech	FAS	500	500	500	500	500	500	500	500
	No. 1C	435	420	420	420	420	420	420	420
	No. 2A	345	345	345	345	345	345	345	345
Cottonwood (Southern)	FAS	600	600	615	605	605	605	625	635
	No. 1C	400	400	415	405	405	405	425	435
	No. 2A	220	220	220	220	220	220	220	220
Cherry (North Central)	FAS + Prem.	2320	2145	1975	1630	1610	1610	1610	1525
	No. 1C	1230	1035	825	660	660	720	720	720
	No. 2A	635	535	455	350	350	375	375	375
Hickory	FAS + Prem.	735	690	650	615	615	640	640	655
	No. 1C	600	550	490	500	500	530	530	540
	No. 2A	425	390	350	350	350	405	405	405
Hard Maple (unselected)	FAS + Prem.	1240	1220	1220	1080	1080	1095	995	970
	No. 1C	900	845	815	655	655	710	710	705
	No. 2A	490	480	480	480	480	545	535	535
Soft Maple (unselected)	FAS + Prem.	1295	1215	980	880	880	895	835	805
	No. 1C	570	550	550	525	535	610	595	580
	No. 2A	275	275	275	275	275	320	320	320
White Oak (plain)	FAS + Prem.	1390	1390	1205	800	915	1165	1060	1035
	No. 1C	640	610	560	450	540	655	625	575
	No. 2A	450	450	420	325	365	500	500	450

Table 1. (continued)

	Lumber Grade	Jan 2008	July 2008	Jan 2009	July 2009	Jan 2010	July 2010	Jan 2011	July 2011
Red Oak (plain)	FAS + Prem.	850	835	800	705	825	1095	930	925
	No. 1C	625	605	570	500	560	665	615	580
	No. 2A	510	490	470	385	470	540	540	460
Yellow Poplar	FAS + Prem.	740	680	680	600	620	640	550	550
	No. 1C	350	330	370	340	420	470	350	360
	No. 2A	290	290	300	290	310	320	270	280
Sycamore (Southern plain)	FAS	455	455	455	455	455	455	455	455
	No. 1C	435	435	435	435	435	435	435	435
	No. 2A	375	375	375	375	375	375	375	375
Black Walnut	FAS	2180	2135	2010	1800	1800	1995	2105	2155
	No. 1C	1285	1225	1065	765	765	1040	1125	1160
	No. 2A	930	595	520	360	360	620	740	770

Table 2. Prices paid for delivered sawlogs by Indiana sawmills, May 2010 and May 2011.

Species/Grade	2011 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2010	2011	2010	2011	2010	2011	Mean	Median
				(\$/MBF)		(\$/MBF)			
White Ash									
Prime	300-600	15	12	457 (30.03)	418 (24.21)	450	400	-8.4	-11.1
No. 1	200-400	15	15	358 (21.50)	333 (12.85)	400	350	-7.1	-12.5
No. 2	175-300	16	15	273 (16.69)	254 (11.54)	275	250	-7.0	-9.1
No. 3	100-250	14	13	193 (15.0)	196 (12.89)	200	200	1.5	0.0
Basswood									
Prime	250-400	9	8	310 (27.69)	313 (24.55)	300	300	0.8	0.0
No. 1	200-350	8	9	251 (28.50)	263 (17.40)	250	250	4.8	0.0
No. 2	150-300	9	9	206 (18.33)	221 (16.17)	200	225	7.0	12.5
No. 3	100-240	10	9	196 (20.50)	187 (15.18)	200	200	-4.8	0.0
Beech									
Prime	200-350	9	8	262 (24.48)	258 (16.6)	250	250	-1.8	0.0
No. 1	200-250	8	9	246 (21.87)	228 (7.60)	250	240	-7.5	-4.0
No. 2	150-250	8	9	217 (18.35)	217 (10.93)	212.5	220	-0.1	3.5
No. 3	150-250	9	9	207 (19.58)	211 (10.2)	200	200	2.2	0.0
Cottonwood									
Prime	150-240	5	6	194 (30.59)	190 (14.14)	200	200	-2.1	0.0
No. 1	150-240	5	7	194 (30.59)	191 (12.04)	200	200	-1.3	0.0
No. 2	150-240	5	7	190 (30.56)	189 (12.04)	180	200	-0.8	11.1
No. 3	150-240	7	7	187 (22.22)	189 (12.04)	180	200	0.8	11.1
Cherry									
Prime	400-1200	15	13	827 (60.13)	782 (74.28)	800	750	-5.4	-6.3
No. 1	300-1000	16	16	613 (47.98)	613 (51.94)	600	550	0.0	-8.3
No. 2	200-600	17	16	359 (27.20)	373 (31.38)	300	325	4.0	8.3
No. 3	100-300	15	15	229 (21.12)	211 (17.04)	240	200	-7.8	-16.7
Elm									
Prime	150-250	6	6	243 (39.47)	210 (14.61)	220	210	-13.7	-4.5
No. 1	150-250	5	7	232 (41.16)	214 (13.07)	200	220	-7.6	10.0
No. 2	150-250	6	7	210 (26.58)	211 (13.88)	210	220	0.7	4.8
No. 3	150-250	8	7	200 (21.55)	211 (13.88)	195	220	5.7	12.8

Table 2. (continued)

Species/Grade	2011 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2010	2011	2010	2011	2010	2011	Mean	Median
				(\$/MBF)		(\$/MBF)			
Hickory									
Prime	200-850	10	12	398 (12.05)	423 (54.83)	400	400	6.4	0.0
No. 1	200-750	10	15	336 (12.77)	338 (32.66)	338	325	0.7	-3.7
No. 2	200-300	11	14	266 (15.76)	254 (11.26)	300	268	-4.8	-10.8
No. 3	100-250	10	12	191 (19.63)	200 (13.37)	200	200	4.7	0.0
Hard Maple									
Prime	250-1000	13	12	677 (50.20)	600 (61.55)	700	600	-11.4	-14.3
No. 1	250-750	14	15	541 (42.48)	477 (35.81)	525	500	-12.0	-4.8
No. 2	200-300	15	15	346 (28.63)	343 (11.26)	300	350	-0.6	16.7
No. 3	150-300	13	13	236 (18.23)	208 (16.71)	240	200	-11.7	-16.7
Soft Maple									
Prime	250-420	11	10	386 (27.04)	332 (22.15)	350	325	-14.4	-7.1
No. 1	200-350	11	13	291 (18.85)	275 (12.79)	300	250	-5.6	-16.7
No. 2	175-300	11	13	220 (17.06)	233 (10.69)	200	240	5.8	20.0
No. 3	150-250	10	11	194 (17.65)	209 (12.68)	190	220	7.8	15.8
White Oak									
Prime	400-1000	15	13	717 (59.50)	700 (50.64)	650	700	-2.3	7.7
No. 1	300-800	16	17	498 (41.99)	509 (31.28)	475	500	2.1	5.3
No. 2	200-500	16	17	334 (26.80)	345 (18.86)	313	350	3.3	12.0
No. 3	100-400	14	14	224 (22.72)	223 (20.71)	220	210	-0.3	-4.5
Red Oak									
Prime	300-700	15	13	617 (40.14)	550 (34.55)	600	550	-10.8	-8.3
No. 1	200-500	16	16	503 (33.06)	430 (20.57)	500	450	-14.6	-10.0
No. 2	175-400	16	16	358 (24.97)	339 (17.30)	350	350	-5.2	0.0
No. 3	100-350	14	15	247 (24.12)	225 (18.10)	250	220	-9.1	-12.0
Black Oak									
Prime	200-700	14	13	566 (41.24)	504 (35.90)	575	500	-11.0	-13.0
No. 1	200-500	15	15	455 (37.50)	373 (20.19)	450	350	-17.9	-22.2
No. 2	150-400	16	15	328 (26.16)	283 (17.28)	300	280	-13.7	-6.7
No. 3	100-300	14	13	239 (23.44)	205 (17.45)	235	200	-13.9	-14.9
Tulip Poplar									
Prime	150-400	14	13	405 (21.76)	338 (19.56)	400	350	-16.5	-12.5
No. 1	150-350	15	16	337 (19.88)	278 (14.51)	350	275	-17.7	-21.4
No. 2	100-300	16	16	254 (15.70)	219 (14.21)	250	210	-13.8	-16.0
No. 3	100-250	14	14	203 (19.45)	182 (13.18)	200	200	-10.2	0.0
Sycamore									
Prime	150-350	9	9	240 (29.72)	229 (20.24)	250	240	-4.6	-4.0
No. 1	150-300	8	10	221 (28.44)	220 (14.76)	225	230	-0.6	2.2
No. 2	150-250	9	10	201 (18.82)	215 (12.41)	200	230	6.9	15.0
No. 3	150-250	11	9	192 (19.01)	206 (12.26)	200	200	7.2	0.0
Sweetgum									
Prime	150-350	6	8	228 (44.38)	220 (22.68)	200	210	-3.6	5.0
No. 1	150-250	7	8	210 (32.07)	205 (14.27)	200	200	-2.4	0.0
No. 2	150-250	6	8	192 (28.22)	199 (13.29)	165	200	3.7	21.2
No. 3	150-250	8	8	189 (21.50)	199 (13.29)	165	200	5.3	21.2
Black Walnut									
Prime	800-2000	14	14	1373 (117.51)	1389 (85.83)	1250	1450	1.2	16.0
No. 1	650-1500	16	17	1122 (85.51)	1079 (61.99)	1000	1000	-3.8	0.0
No. 2	200-1200	17	17	703 (58.39)	709 (63.48)	700	700	0.8	0.0
No. 3	100-1000	16	15	398 (56.48)	393 (67.94)	325	350	-1.3	7.7
Softwood									
Pine	200-280	7	5	223 (22.01)	228	200	220	2.3	10.0
Red cedar	220-450	3	5	375 (38.19)	347	400	400	-7.5	0.0

Table 3. Prices paid for delivered veneer logs by Indiana mills, May 2010 and May 2011.

Species/Grade/ Log Dia.	2011 Range (\$/MBF)	No. Responses		Mean (s.e.) ¹		Median (\$/MBF)		Change (%)	
		2010	2011	2010	2011	2010	2011	Mean	Median
Black Walnut									
Prime									
12-13	1800-3050	5	7	2993 (630.29)	2500 (189.2)	3126	2500	-16.5	-20
14-15	2500-4400	6	9	4158 (776.25)	3346 (207.11)	4295	3200	-19.5	-25.5
16-17	3000-7600	8	10	4891 (820.56)	4189 (448.85)	5000	3750	-14.3	-25.0
18-20	3000-8000	7	10	5817 (905.07)	5223 (540.45)	7000	4750	-10.2	-32.1
21-23	3000-10000	8	10	5872 (869.09)	6145 (737.82)	6238	5500	4.7	-11.8
24-28	3000-14000	6	9	6417 (799.07)	6575 (1027.76)	7250	6000	2.5	-17.2
>28	4000-8000	4	7	6500 (1500.00)	6499 (646.24)	6000	7000	0.0	16.7
Select									
12-13	1400-2050	3	4	2083 (546.45)	1738 (167.55)	2500	1750	-16.6	-30.0
14-15	1400-3700	5	5	2594 (511.8)	2530 (399.87)	3270	2500	-2.5	-23.5
16-17	1400-4200	4	6	2938 (695.03)	2900 (365.38)	3000	3000	-1.3	0.0
18-20	1400-7000	2	6	3600 (400)	3775 (758.70)	3600	3750	4.9	4.2
21-23	1600-8500	2	6	4250 (250.00)	4380 (957.46)	4250	4250	1.4	0.0
24-28	1600-10500	2	4	4500 (500.0)	5650 (1834.17)	4500	5250	25.6	16.7
>28	1600-7000	2	3	6000 (2000.00)	4533 (1576.21)	6000	5000	-24.4	-16.7
White Oak									
Prime									
13-14	600-1700	3	8	1267 (120.19)	1262 (118.15)	1200	1225	-0.4	2.1
15-17	700-2000	4	8	1750 (144.35)	1638 (150.31)	1750	1775	-6.4	1.4
18-20	1000-2750	4	8	2000 (204.12)	2096 (177.70)	2000	2200	4.8	10.0
21-23	2000-3000	4	8	2500 (353.55)	2604 (112.02)	2750	2590	4.2	-5.8
24-28	2500-3800	4	8	2875 (515.39)	3067 (144.94)	3000	3000	6.7	0.0
>28	2500-4000	3	7	3167 (1013.79)	3290 (238.23)	3000	3500	3.9	16.7
Select									
13-14	650-1400	1	3	1200	1017 (216.67)	1200	1000	-15.3	-16.7
15-17	700-1600	2	3	1600 (200.0)	1167 (260.34)	1600	1200	-27.1	-25.0
18-20	1000-1800	3	3	1383 (360.94)	1533 (266.67)	1400	1800	10.8	28.6
21-23	1000-2500	3	3	1750 (520.42)	1833 (440.96)	2000	2000	4.8	0.0
24-28	1000-3000	3	3	2250 (803.64)	2267 (635.96)	2500	2800	0.7	12.0
>28	1000-3500	2	2	2625 (1875.00)	2250 (1250.00)	2625	2250	-14.3	-14.3
Black Cherry									
Prime									
12-13	1000-1200	4	2	3263 (785.09)	1100 (100.00)	3500	1100	-66.3	-68.6
14-15	1200-4000	4	6	3991 (879.81)	2292 (417.62)	4605	1900	-42.6	-58.7
16-17	1500-4500	5	7	4319 (867.50)	2550 (390.51)	4000	2000	-41.0	-50.0
18-20	2000-6500	6	7	4441 (767.89)	3100 (603.96)	3687	2500	-30.2	-32.2
21-23	2000-7200	5	7	4967 (845.69)	3586 (704.55)	4000	3000	-27.8	-25.0
24-28	2500-8000	3	5	4333 (333.33)	4500 (974.68)	4000	4000	3.8	0.0
>28	2500-5000	2	4	4500 (500.00)	3875 (657.49)	4500	4000	-13.9	-11.1
Select									
12-13	800	3	1	1930 (517.91)	800	2000	800	-58.5	-60.0
14-15	950-3500	4	3	2238 (430.78)	1817 (841.79)	2250	1000	-18.8	-55.6
16-17	1100-3800	3	3	2350 (453.69)	2033 (883.80)	2000	1200	-13.5	-40.0
18-20	1150-5500	4	3	2263 (410.98)	2883 (1331.14)	2250	2000	27.4	-11.1
21-23	1200-6200	3	3	2100 (493.29)	3300 (1497.78)	2000	2500	57.1	25.0
24-28	1250-3500	3	2	2267 (648.93)	2375 (1125.00)	2000	2375	4.8	18.8
>28	1250-4500	3	2	2600 (971.25)	2875 (1625.00)	2000	2875	10.6	43.8

Table 3. (continued)

Species/Grade/ Log Dia.	2011 Range	No. Responses		Mean (s.e.) ¹		Median		Change (%)	
		2010	2011	2010	2011	2010	2011	Mean	Median
	(\$/MBF)			(\$/MBF)		(\$/MBF)			
Red Oak									
Prime									
16-17	800-1600	8	8	1239 (136.30)	1166 (98.11)	1350	1100	-5.8	-18.5
18-20	900-1700	7	7	1316 (159.83)	1292 (112.08)	1200	1200	-1.9	0.0
21-23	1000-1800	7	7	1317 (160.07)	1401 (126.29)	1200	1500	6.4	25.0
24-28	1000-2000	6	7	1250 (172.24)	1450 (146.35)	1200	1500	16.0	25.00
>28	1100-2000	5	5	1140 (162.33)	1466 (157.30)	1200	1500	28.6	25.0
Select									
16-17	900-1000	2	3	900 (100.0)	967 (33.33)	900	1000	7.4	11.1
18-20	900-1200	3	3	1033 (88.19)	1033 (88.19)	1000	1000	0.0	0.0
21-23	900-1500	1	3	1000	1133 (185.59)	1000	1000	13.3	0.0
24-28	900-1800	1	3	1000	1233 (284.80)	1000	1000	23.3	0.0
>28	1000-1800	1	2	1000	1400 (400.00)	1000	1400	40.0	40.0
Hard Maple									
Prime									
16-20	1030-2500	4	7	2860 (860.00)	1854 (182.89)	2000	2000	-35.2	0.0
>20	900-3000	4	6	3295 (968.86)	1925 (294.32)	2500	2000	-41.6	-20.0
Select									
16-20	1000-2000	4	2	1958 (364.13)	1500 (500.00)	1650	1500	-23.4	-9.1
>20	1000-2500	3	2	1833 (166.67)	1750 (750.00)	2000	1750	-4.5	-12.5
Yellow Poplar									
Prime									
16-20	400-800	4	4	675 (116.37)	575 (85.39)	625	550	-14.8	-12.0
>20	400-800	3	4	683 (164.15)	600 (81.65)	600	600	-12.2	0.0
Select									
16-20	400	2	1	675 (125.00)	400	675	400	-40.7	-40.7
>20	600	2	1	675 (125.00)	600	675	600	-11.1	-11.1

management strategies. Investment options providing acceptable real rates of return are very limited at this time. Even if the trend line for real prices shifts down, we expect the slope to remain positive. On the upside, lower log costs will allow those mills still producing to have a chance at profitability.

Custom Costs

Based on a very low response rate, except for custom sawing, custom costs declined. The largest decline was for logging, but we see no justification for this, leading us to suspect the results.

Miscellaneous Products

Prices paid or received for most miscellaneous products were unchanged. Cant logs are sawn into cants, or pallet lumber. The price for sawn cants is within the range of the \$300 per MBF reported by the Hardwood Market Report (Memphis, TN). The \$21 per ton spread in the price received for bulk indicates that this continues

to be a local market with highest prices in the vicinity of mulch suppliers. We can't break out the impact of the demand for wood energy in southwestern Indiana.

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 prices 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 three and six in Table 8) is 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.

Table 4. Custom costs reported by Indiana mills, May 2010 and May 2011

	No. Responses	2011 Range	Mean		Median	
			2010	2011	2010	2011
Sawing (\$/MBF)	15	40-700	275	288	260	250
Sawing (\$/hour)	2	40-125	143	83	120	83
Logging (\$/MBF)	5	20-150	159	96	150	120
Hauling (\$/MBF)	2	50-70	35	60	50	60
Distance (miles)	9	20-75	34	45	30	45
\$/MBF/mile	1	3.5	–	3.5	–	3.5

Table 5. Prices of miscellaneous products reported by Indiana mills, May 2010 and May 2011, free on board the producing mill

	No. Responses	2011 Range	Mean		Median	
			2010	2011	2010	2011
Pallet logs, \$/MBF	24	150-400	238	250	250	250
Pallet logs, \$/ton	5	26-35	28	32	33	34
Sawn cants	2	300-320		310		310
Pulpwood, \$/ton	4	28-32	38	30	28	30
Pulp chips, \$/ton	11	14.5-38.9	38	27	28	28
Sawdust, \$/ton	9	2-26.6	6	12	5	9
Sawdust, \$/cu. yd.	12	.05-12.15	6	5	5	4.38
Bark, \$/ton	8	4-25	24	10	24	8.5
Bark, \$/cu. yd.	12	3-20.6	8	7	6	4.6
Mixed, \$/ton	1	12	13	12	13	12
Mixed, \$/cu. yd.	0	--	–	--	–	

For example, the average price in 2011 for the average stand was 698.6 percent of the 1957 price. This index was 826.6 for a quality 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 evaluating long-term investments like timber and the log input cost of mills. Receiving a rate of return less than the inflation rate means that the timber owner is losing purchasing power, a negative real rate of return.

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. The inflation rate increased by 5.6 percent from 2010 to June of this year.

Average Stand

The nominal weighted average price for a stand of average quality increased from \$412.5 per MBF in 2010 to

\$388.5 this year (Table 8, column three and Figure 4). This is a 5.6 percent increase, reversing the increase from 2009-10. Remember that this series is based on delivered log prices, not stumpage prices. Also, remember that the decline is also because of the large increase in the inflation rate.

The deflated, or real, price decreased from \$275.4 to \$204.7, a 25.0 percent decrease. This continues the trend since 2004 of dropping further below the historical trend line. As discussed in the "Implications" section, we expect further declines.

The new equation for the trend line for the 1957 - 2011 period is,

$$\text{Avg. Stand Real Price} = 177.52 + 1.99 \cdot T,$$

where,
 $T=1$ for 1957, 2 for 1958 . . . 55 for 2011

We usually say that this linear trend line should be used to project real prices of a commodity like hardwood logs. Serious consideration will be given in 2012 to revising the trend line.

Quality Stand

The nominal weighted average price for a high-quality stand decreased from \$584.1 last year to \$550.4 this year. (Table 8, column six and Figure 5). The average real price series for a high-quality stand decreased from \$324.9 per MBF last year to \$290.0 this year.

The average annual compound rate of increase for the trend line declined from 1.21 percent last year to 1.11 percent this year (Figure 5). The equation for the trend line is,

$$\text{Quality Stand Real Price} = 215.18 + 3.37 \cdot T,$$

where

$$T=1 \text{ for } 1957, 2 \text{ for } 1958 \dots 55 \text{ for } 2011$$

Implications

It's hard to find good news in the downward trends we've discussed for uneven aged natural stands. The impact on the timber supply will be minimal because most forest land is not held as an investment in timber production. Owners who are managing for an acceptable rate of return on their timber will need to reduce costs to the extent possible. But since the opportunity cost represented by the value of growing stock is the largest cost, the only significant option is to reduce growing stock. Expenditures for timber stand improvements (TSI) also should be examined closely and focused only on crop trees.

The outlook for black walnut is more positive, but realistic price projections should be used to estimate returns. Figure 6 shows sawlog prices in 1982 dollars. The trend lines, not shown, for Prime and No. 3 sawlogs are negative, but positive for No. 1 and No. 2. Controlling costs, as always, is critical.

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	7	0.0
Select	3	0.0	13	0.0
Sawlogs				
Prime	20	24	19	24
No. 1	26	26	21	26
No. 2	38	38	33	38
No. 3	12	12	7	12

Table 8. Weighted average actual price, price index and deflated price for an average and quality stand of timber in Indiana, 1973-2011.

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)
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	559.9	840.9	336.1
2008	177.1	433.7	779.8	244.9	643.2	966.0	363.2
2009	172.1	358.8	645.2	208.5	512.0	769.0	296.8
2010	179.8	412.5	741.7	275.4	584.1	877.3	324.9
2011	189.8	388.5	698.6	204.7	550.4	826.6	290.0

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