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U.S. Forest Products Annual Market Review and Prospects, 2008–2012

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Abstract

This paper describes the current state of the U.S. economy and provides general and statistical information on forest products markets in terms of production, trade, consumption, and prices. Market developments are described for sawn softwood, sawn hardwood, softwood log trade, wood-based panels, paper and paperboard, fuelwood, forest product prices, and housing starts. Policy initiatives that can affect domestic markets and international trade in wood products are also discussed in some detail. Data are provided through the end of the year 2010 with estimates for 2011 and forecasts for 2012.

Keywords: production, trade, prices, forest products, roundwood equivalents, per capita consumption, wood products

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Contents

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U.S. Forest Products Annual Market Review and Prospects, 2008–2012

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Executive Summary

Somewhat unexpectedly, economic activity in the United States exhibited continued weakness during the third quarter of 2011, confirmed by the decline in the annual rate of real gross domestic product (GDP) to 2.2%. Economic activity during the fourth quarter of 2011 is projected to increase to an annual rate of 2.6%. Growth in U.S. economy will likely expand at a higher rate in the first half of 2012 than predicted earlier in the year by the 43 forecasters surveyed by the Federal Reserve Bank (FRB) of Philadelphia (2011). The higher rate of growth in the U.S. economy predicted for 2012 will depend on the Obama administration's economic job growth program being passed by Congress, which would extend current income tax rates for all Americans as well as a benefits program for the long-term unemployed. Growth in U.S. real output looks weaker and inflation lower over the near term compared with previous estimates. Forecasters had expected a slight decline in the 2011 unemployment rate, measured on an annual-average basis. Unemployment was expected to fall from 9.1% in the third quarter of 2011 to 9.0% in the fourth quarter of 2011, for an annual average unemployment rate of 9.0% for 2011. The unemployment rate was 9.6% at the end of 2010 because many unemployed simply stopped looking for work. The forecasters see prices rising in the third quarter of 2011 at a slightly lower rate than previously expected, and then declining in the fourth quarter of 2011, staying level into 2012. Exceedingly weak during the first 9 months of 2011, the housing recovery seems to be gaining a little momentum. While still remaining close to historic lows, new-home sales rose 5.7% in September with expectations for continued improvement into 2012. September's housing starts were also encouraging, jumping 15% to their highest level since April 2010. The increase came mostly from the volatile multi-family sector, so it may not be sustainable. Without a sustained housing sector recovery, some argue, the economy can't fully recover.

The decline in the housing sector had a negative effect on softwood lumber consumption until 2010. According to the Western Wood Products Association (WWPA), during the first 8 months of 2011, softwood lumber consumption increased 3.3% from the same period in 2010, and shipments of softwood lumber from western mills increased 8.2% during the first 8 months of 2011 compared with the same period in 2010. The South region continues to have the highest levels for production and shipments of softwood lumber at 9.2% for both.

Total structural panel production increased 1.3% from the second quarter 2011 and was just 0.3% lower in the third quarter than in the third quarter 2010 (APA 2011). For the first 9 months of 2011, structural panel production was about the same as last year, up about 14 thousand cubic meters. Structural panel consumption at the end of the third quarter of 2011 was 14.2 million cubic meters, or 0.8% below the first three quarters of 2010**.** Overall, structural panel consumption is expected to increase to 22.0 million cubic meters in 2011 (Adair 2011). Structural panel market shares were negatively affected by the current economic downturn.

Roundwood production for pulp and wood-based panel mills was 137 million cubic meters in 2010, up slightly from 2009. As expected, roundwood pulpwood consumption continued to increase during 2011. Pulpwood supplied from residue continued to decrease relative to roundwood. This is a result of declining residual production and competition for residuals for pellets and biomass and not the preference of pulp producers.

U.S. timber exports to China surged during the fourth quarter 2010, and during the first 6 months of 2011 were ahead of a year ago's results by 377%. Mills in the Pacific Northwest such as Weyerhaeuser and Plum Creek Timber are benefiting most. China's demand for wood is being fueled by demand for nonresidential construction.

The U.S. furniture industry, in retreat since 1999, continued declining in 2011 as low-cost furniture imports and the global economic recession continues to erode the domestic industry market share. Employment in the domestic furniture industry has fallen more than 50% since 1999.

General Economic and Major Market Trends

The U.S. economy grew at a slower rate during the third quarter of 2011 compared with the second quarter, and the expectations of a fourth quarter rebound are slim according to 37 forecasters surveyed by the Federal Reserve Bank of Philadelphia (August 12, 2011). The forecasters expect real gross domestic product (GDP) to grow at an annual rate

of 1.7% in 2011. The increased pessimism about the labor market accompanies the outlook for weaker output growth. Measured on an annual-average basis, unemployment is expected to average 9.1% in the third and fourth quarters of 2011 with the fourth quarter revised lower, for an average of 9.0% this year. Forecasters expect unemployment to improve to 8.6% in 2012. This decline in unemployment equates to nonfarm payroll employment growing at a rate of 105,300 jobs per month during the fourth quarter and 148,700 jobs per month next quarter. On an annual-average basis, the forecasters expect job gains of 111,500 per month in 2011 and 150,100 in 2012. During the Great Recession from 2007 to 2009, the impact on the job market was 8 million jobs lost in the worst economic downturn since the Great Depression of the 1930s. Almost every sector experienced job cuts: construction lost 2 million jobs, financial services lost 800,000 jobs, and the auto sector lost thousands of jobs. About 7 million adults were already looking for full-time employment before the recession hit in December 2007. The U.S. economy must create about 125,000 new jobs per month just to keep up with population growth and to prevent unemployment from rising. The strength of GDP growth will be the major determinant of when the U.S. economy reaches full employment. With strong GDP growth, full employment could be reached in 4 years. But if GDP growth is weak, reaching full employment could take up to 10 years.

Core inflation, as measured by the Price Index for personal consumption expenditures, is expected to average 1.6% in 2011 before rising to 1.7% in 2012. On an annual-average over annual-average basis, inflation in the core consumer Price Index is projected to remain around 1.9% in 2011 before rising to 2.0% in 2012 (FRB Philadelphia 2011).

New housing construction showed improvement during the third quarter of 2011 when 658,000 units were started in September at a seasonally adjusted rate (NAHB 2011a,b). However, the increase was due to volatile multi-family starts, which jumped to 233,000 units, up 51.3% from the August depressed rate of 154,000. September's single-family starts increased slightly 1.7% from 418,000 to 425,000. All four regions in the United States contributed to the volatility in the level of housing starts during the first half of 2011. After two months of decline, the Northeast and Midwest regions saw starts rise by 12.7% and 9.3%, respectively, in September. The South and West regions also experienced increases of 15.7% and 18.1%. Single-family building permits in September slipped slightly from 418,000 in August to 417,000, a 0.2% decline. The increase in starts reported in the Northeast and Midwest was followed up by a small increase in permits that increased by 4.9% and 1%, respectively. The South declined by 22,000 single-family permits while the West fell by 13,000 permits from August. New single-family units completed fell 11.6% in September, from 484,000 to 428,000 units. Total housing starts for 2010 were 587 thousand units and the expectations for 2011 are for little to no improvement.

In September 2011, the total value of all new construction in the United States was $787 billion, $29 billion below the annual 2010 value of $816 billion (DOC 2011a,b). The seasonally adjusted annual rate for the total value of new construction was below the 2010 annual rate for each month in 2011. Residential construction was $228 billion in September 2011, $14 billion below the $242 billion annual rate of residential construction in 2010. Nonresidential construction was $274 billion during September 2011, 3% above the $267 billion in 2010. Public construction in 2010 accounted for nearly 38% of all construction. In 2011, the National Association of Home Builders (NAHB) forecast calls for the housing sector to improve slightly in the fourth quarter, but starts and sales overall for 2011 will still end near 2010 levels.

With a large forest resource and high production and consumption of wood products, the United States continues to play an important role in world forest product markets. But for the past two or more years, the U.S. role on the world stage has diminished as a result of the contraction in the wood segment of America's economy, precipitated by the continued decline in residential construction and production of building materials. The United States is a world leader in the consumption of paper and paperboard (about 74 million metric tons in 2010), which is mostly supplied by domestic production and imports from Canada (AF&PA 2011). Domestic paper and paperboard production is about 3.8% below production for the first 9 months of 2011 compared with the same time period a year ago. The U.S. solid wood industry manufactured about 59 million cubic meters of lumber and 19 million cubic meters of structural panel products in 2010. For the first 8 months of 2011, softwood lumber production is 8.5% above 2010 production, and for the first 9 months of 2011 structural panel consumption is 2.4% below year-ago levels. The U.S. forest products industry's annual harvest was 358 million cubic meters in 2010, exceeding the 347 million cubic meters of harvest in 2009. Domestic roundwood timber harvest in 2011 that supports domestic consumption is expected to be above the 2010 harvest level.

Expenditures for residential repair and remodeling fell in 2009 to $140 billion, down 38% from the record high years of 2006 and 2007 before increasing to $142 billion in 2010. In 2007, the U.S. Department of Commerce stopped collecting residential repair and remodeling data. Estimates for 2009 and 2010 presented here are Forest Service estimates based on private residential construction expenditures (DOC 2011a,b). The NABH Remodeling Market Index declined to 41.7 in the third quarter from 43.9 in the second quarter of 2011. During this same period, new residential construction exhibited strengthening and continues to do so into the fourth quarter 2011. Since 2000, expenditures for maintenance and repairs to all existing residential properties have

Table 1—Selected U.S. economic indicators, 2008–2012

	Actual[a]			Estimate[b]	Forecast[c]
Indicator	2008	2009	2010	2011	2012
Gross Domestic Product (billion 2005 dollars)	13,312	14,119	14,662	15,286	15,757
New housing starts (million units)	0.9	0.56	0.59	0.61	0.63
Mobile home shipments (thousand units)	82	50	50	51	55
Total residential fixed investment (billion 2005 dollars)	451.1	346.6	346.2	324	340
Total nonresidential fixed investment (billion 2005 dollars)	1,569.7	1,290.8	1,362.6	1,411.0	1,503.0
Total industrial production (Index 2007 = 100)	96.7	87.7	92.5	93.5	96.5
Furniture and related products (Index 2002 = 100)	90.4	73.0	65.0	59.4	59.4
Paper products (Index 2002 = 100)	92.1	80.0	81.2	84.0	85.0

[a]Board of Governors of the Federal Reserve System 2011; Council of Economic Advisors 2011; NAHB 2011a; DOC 2011.
[b]U.S. Forest Service estimates based on 2010 actual data.
[c]NAHB 2011b and U.S. Forest Service estimates.

averaged about 25% of total expenditures, with the remaining 75% for improvements. Given the unprecedented levels of home foreclosures in the United States in recent years, residential improvements and repairs may be an even bigger part of the economy than usual. Many foreclosed homes need significant maintenance to become marketable. Expectations are for continued and growing investments in existing residential properties.

Two of the three major indicators of demand for wood products—furniture and related products, paper products output, and total industrial production—were higher during the first 6 months of 2011 relative to 2010. Total industrial output also fell from year-ago levels:

- Industrial production, an important demand determinant for pallet lumber, containerboard, and some grades of paper, increased 4.5% during the first 7 months of 2011 when compared with the annual level for 2010.
- Furniture and related products, a determinant of high-grade lumber production, was essentially flat during the first 6 months of 2011.
- Paper products output, a determinant of pulpwood and wood residue use, as well as recycled fiber availability and use, increased during the first 6 months of 2011 compared with the 2010 average. The index (2007 = 100) of paper products output for the first 6 months of 2010 was 1% ahead of the 2010 average for the comparable time period.

In summary, the housing sector remained weak during the first three quarters of 2011 before gaining strength into the third quarter, and this strength is expected to continue into fourth quarter 2011. Starts in 2011 will probably exceed year-ago levels, but not by much. With the slow rate of growth in GDP, most analysts predict that conditions favorable to the growth of timber markets won't occur until the second half of 2012. Selected U.S. economic indicators are shown in Table 1.

Timber Products Production, Trade, and Consumption

Statistics and Prospects

Prospects for wood and wood products are shown in Table 2. All volumes are reported in 1,000 cubic meters. Data for 2010 are preliminary estimates; data for 2011 are forecasts.

U.S. Wood Product Market Shares

Annual U.S. solid wood products production and foreign trade data are collected annually by governmental agencies and industry associations. This information provides an overview of how robust the wood using sectors of the U.S. economy are, and how their performance has changed over time (Howard, in review). But it does not provide detailed information specific to individual end-use markets needed to further evaluate changing patterns of consumption. End-use markets of interest include new single-family, multi-family, and mobile home construction, repair and remodeling of existing residential structures, low-rise nonresidential building and other types of nonresidential construction, furniture and other manufactured products production, and packaging and shipping. These end-use markets typically account for 80% to 90% of all solid wood products consumption. Market share estimates presented here are based on findings from

Table 2–Prospects and statistics for wood and wood products, 2010–2012[a]

Sawn softwood	2010	2011	2012
Production	42,163	43,436	44,019
Imports	22,344	22,617	22,809
Exports	3,178	3,233	3,309
Consumption	61,329	62,820	63,519

Oriented strandboard (OSB)	2010	2011	2012
Production	9,115	9,015	8,936
Imports	2,502	2,577	2,662
Exports	247	250	301
Consumption	11,370	11,342	11,297

Coniferous logs	2010	2011	2012
Production	94,344	92,987	92,987
Imports	1,444	1,409	1,409
Exports	6,476	6,399	6,399
Consumption	89,312	87,997	87,997

Particleboard	2010	2011	2012
Production	4,048	4,147	4,268
Imports	590	889	837
Exports	236	295	260
Consumption	4,402	4,741	4,845

Sawn hardwood	2010	2011	2012
Production	15,466	16,906	17,008
Imports	530	600	601
Exports	1,722	2,107	2,199
Consumption	14,274	15,399	15,410

Medium density fiberboard (MDF)	2010	2011	2012
Production	4,455	4,432	4,466
Imports	800	838	855
Exports	320	520	540
Consumption	4,935	4,750	4,781

Hardwood logs	2010	2011	2012
Production	32,577	32,804	32,804
Imports	109	122	122
Exports	2,200	2,209	2,209
Consumption	30,486	30,717	30,717

Insulation board	2010	2011	2012
Production	2,755	2,755	2,755
Imports	150	177	177
Exports	129	140	140
Consumption	2,776	2,792	2,792

Coniferous plywood	2010	2011	2012
Production	8,081	7,906	7,999
Imports	389	388	391
Exports	704	760	801
Consumption	7,766	7,534	7,589

Roundwood pulpwood	2010	2011	2012
Production	137,267	137,455	137,807
Imports	500	533	548
Exports	433	446	463
Consumption	137,334	137,542	137,892

Non-coniferous plywood	2010	2011	2012
Production	1,316	1,243	1,243
Imports	2,303	1,977	1,977
Exports	185	192	192
Consumption	3,434	3,028	3,028

Hardboard	2010	2011	2012
Production	802	790	766
Imports	330	355	378
Exports	273	280	285
Consumption	859	865	859

[a]All volumes are reported in 1,000 cubic meters. Figures for 2010 are U.S. Forest Service estimates, and figures for 2011 are U.S. Forest Service forecasts.

limited public and private research reports that were related to more readily available, annual economic indicator data specific to each end-use market. Consumption was then balanced over all end uses, and market shares were developed. These estimates provide a consistent, reliable look at solid wood products markets in the U.S. (McKeever and Howard 2011).

Table 3 presents annual balanced wood products consumption by end use for sawn wood, structural panels, and nonstructural panels for the period 2005 through 2010, with preliminary estimates for 2011 and forecasts for 2012. Figure 1 shows market shares for all solid wood products combined for the same time period.

Sawn Softwood

Housing and other construction markets started off weaker in 2011 before strengthening into the third quarter 2011. The housing market is likely to finish the year at a slightly higher level than that recorded a year ago. The decline in the housing sector, as evidenced by its overall falling market share, continues to have a negative effect on softwood lumber consumption (Fig. 1, Table 3). According to the WWPA, during the first 8 months of 2011, softwood lumber consumption increased 3.3% from the same period last year, and shipments of softwood lumber from western mills also increased 8.2% during the first 8 months of 2011 compared with the same period in 2010 (WWPA 2011). Production increased

Table 3—Wood product market shares in the United States, by end use, 2006–2012

Year	Residential construction: New housing: New single-family (%)	New housing: New multi-family (%)	New housing: Manufactured housing (%)	New housing: Total (%)	Residential construction: Repair and remodeling (%)	Residential construction: Total (%)	Nonresidential construction: Buildings (%)	Nonresidential construction: Other (%)	Nonresidential construction: Total (%)	Total construction (%)	Manufacturing: Furniture (%)	Manufacturing: Other mfg. (%)	Manufacturing: Total (%)	Packaging and shipping (%)	Total, all end uses (%)	Other (%)
Sawn softwood[a]																
2006	32	3	2	37	29	66	5	1	6	72	2	3	5	6	83	17
2007	26	3	2	31	34	64	7	1	8	73	2	3	6	7	86	14
2008	20	4	1	25	34	59	10	1	11	70	3	4	7	9	86	14
2009	18	2	1	21	35	57	11	2	13	69	3	6	9	10	89	11
2010	20	2	1	23	35	59	9	2	10	69	3	5	8	10	87	13
2011	24	2	1	27	36	63	8	2	10	73	3	5	8	9	90	10
2012	24	2	1	27	36	63	8	2	10	73	3	5	8	9	90	10
Sawn hardwood																
2006	7	1	0	8	8	17	4	8	12	29	12	10	22	36	87	13
2007	6	1	0	7	8	14	4	9	13	28	12	6	17	40	84	16
2008	4	1	0	4	5	9	5	9	14	23	13	6	18	44	85	15
2009	3	0	0	4	3	6	6	7	14	20	15	5	20	52	92	8
2010	4	0	0	4	3	7	5	7	12	18	14	5	19	50	87	13
2011	4	0	0	5	3	7	5	6	11	18	13	5	18	48	84	16
2012	4	0	0	5	3	7	5	6	11	18	13	5	18	48	84	16
Total sawnwood																
2006	28	3	2	32	25	58	5	2	7	65	4	4	8	11	83	17
2007	22	3	1	26	29	55	7	2	9	64	4	4	8	13	85	15
2008	16	3	1	21	28	48	9	3	12	60	5	5	9	16	86	14
2009	15	1	1	18	28	46	10	3	13	59	6	6	11	19	89	11
2010	17	1	1	19	29	48	8	3	11	58	5	5	11	18	87	13
2011	20	2	1	22	29	51	7	3	10	61	5	5	10	17	89	11
2012	20	2	1	22	29	51	7	3	10	61	5	5	10	17	89	11
Coniferous plywood																
2006	20	2	1	23	38	61	13	2	14	75	4	11	15	5	95	5
2007	15	2	1	18	41	59	12	2	14	73	4	12	16	6	95	5
2008	12	3	1	15	39	55	11	2	13	68	5	16	22	7	96	4
2009	10	1	0	12	38	50	13	2	15	65	6	20	26	8	98	2
2010	11	1	0	13	38	51	10	2	12	63	6	19	24	7	95	5
2011	13	1	1	15	39	54	9	2	12	65	5	18	23	7	95	5
2012	13	1	1	15	39	54	9	2	12	65	5	18	23	7	95	5
Oriented strandboard (OSB)																
2006	53	3	3	60	17	77	6	1	7	84	0	0	1	1	86	14
2007	45	4	3	51	20	71	10	1	11	83	0	0	1	2	86	14
2008	35	4	3	43	21	64	16	2	17	81	0	1	1	3	85	15
2009	34	2	2	39	22	61	20	2	22	83	0	1	1	3	88	12
2010	37	2	2	42	23	64	16	2	18	82	0	1	1	3	86	14
2011	44	2	3	49	23	71	15	2	17	88	0	1	1	3	92	8
2012	44	2	3	49	23	71	15	2	17	88	0	1	1	3	92	8
Total, structural panels																
2006	41	3	2	46	25	71	9	1	10	81	2	4	6	3	89	11
2007	34	3	2	39	28	67	11	2	12	79	2	5	7	4	89	11
2008	26	4	2	32	28	60	14	2	16	76	2	7	9	4	89	11
2009	24	2	2	27	29	56	17	2	19	76	3	9	11	5	92	8
2010	26	2	2	30	29	59	13	2	15	74	3	8	11	5	90	10
2011	31	2	2	35	29	64	13	2	15	79	2	8	10	5	94	6
2012	31	2	2	35	29	64	13	2	15	79	2	8	10	5	94	6
Nonstructural panels[b]																
2006	23	3	2	28	18	46	7	0	8	53	19	14	33	1	87	13
2007	17	3	1	21	21	42	9	0	9	51	19	16	35	1	87	13
2008	12	3	1	16	19	34	12	0	12	46	21	19	41	1	88	12
2009	10	1	1	12	18	29	11	0	12	41	24	22	46	2	89	11
2010	11	1	1	13	18	30	9	0	9	40	22	21	43	1	84	16
2011	12	1	1	15	18	33	8	0	9	41	21	20	41	1	84	16
2012	12	1	1	15	18	33	8	0	9	41	21	20	41	1	84	16

[a]Includes laminated veneer lumber.
[b]Includes particleboard, medium-density fiberboard, insulation board, hardboard, and non-coniferous plywood.

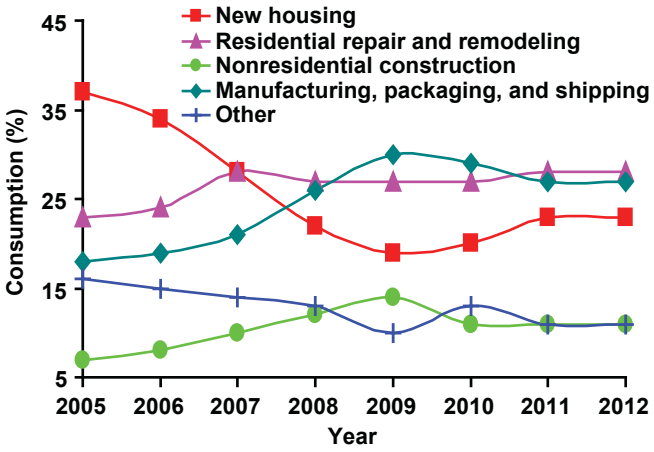

Figure 1—Solidwood timber products consumption market shares, 2005–2012.

during this period in the South by 9.2%. Apparent consumption for the first 8 months of 2011 was 39 million cubic meters, 3.3% above the 38 million cubic meters for the first 8 months of 2010. As predicted, the U.S. housing construction industry declined over the first half of 2011. Timber production, as a result of a strong export market, continued to increase in 2011 slightly above the 2010 timber growth level. Softwood production through the first 8 months of 2011 was 30.6 million cubic meters, which was up 8.5% when compared with the first 8 months of 2010 when 31.6 million cubic meters of sawn softwood were produced. Production of sawn softwood for 2011 is forecast to exceed 2010 levels and then rebound with a gradual increase in 2012.

Sawn softwood imports decreased 6.8% during the first 8 months of 2011 relative to the same time period a year ago. The volume of Canadian imports, which constituted 90% of all sawn softwood imports, fell by 7.1% over this period. Total sawn softwood imports were 11 million cubic meters in 2010.

During the first 8 months of 2011, U.S. sawn softwood exports increased 30.2% compared with exports for the same period in 2010. Exports to Canada decreased by 13.1%, whereas exports to China increased 313.9 % and exports to Mexico increased 14.0%.

Sawn Hardwood

Sawn hardwood production is expected to increase to 16.9 million cubic meters in 2011. Imports in 2011 are expected to increase from 1 year earlier. Given the increase in U.S. production, volatile trade figures, and a strengthening housing market, apparent consumption for 2011 is forecast to exceed the 2010 volume.

Softwood Log Trade

Softwood log exports to China continued strong over the first 8 months of 2011 when compared with exports in the same period of 2010, increasing by 157.5%. Softwood log exports to Canada decreased by 11.5% in the same period. Softwood log exports to all other countries decreased by 6.4% during the first 8 months of 2011 when compared with the same time period of 1 year ago. The number of exports to China fueled the surge in softwood log exports, especially during the third quarter of 2011. Most of the surge has been centered in the Pacific Northwest. Overall, the number of U.S. logs shipped to China shot up more than 10 times, from 256,000 cubic meters in 2007 to an estimated 2.4 million in 2010, or about 7% of the region's total log production. Softwood log imports decreased by 5.4% over the first 8 months of 2011 compared with a year earlier. During 2010, timber harvest increased over a year ago and the 2011 forecast calls for continued rise in harvest.

Hardwood Log Trade

Hardwood log exports increased by 19.6% and imports increased by 86.7% during 2010 compared with 2009. Exports decreased by 5.9% and imports decreased 16.3% compared with this period in 2008. Canada traditionally provides about 95% of U.S. imports. Hardwood log exports were up by 22.53% through the first 6 months of 2010 when compared with 2009; hardwood log imports were down 36.72% through the first 6 months of 2010 when compared with 2009.

Pulpwood

Roundwood production for pulp and wood-based panel mills was 137 million cubic meters in 2010, up slightly from 2009. Roundwood pulpwood consumption is expected to decrease during 2011 as indicated by a 3.8% decline in paper and paperboard production over the first 9 months of 2011. Pulpwood supplied from residue continued to decrease relative to roundwood. This is a result of declining residual production and competition for residuals for pellets and biomass and not out of preference on the part of pulp producers. The residue portion of pulpwood was 59.4 million cubic meters in 2010, a 2% decrease from 2009 (Howard, in review). Trade patterns have continued to have a significant impact on paper and paperboard production and have affected pulpwood use, but the significant decline in U.S. paper and board production and consumption that occurred over the past decade was largely due to a downturn in consumer spending associated with the United States and global recession. Exports of paper, paperboard, and converted products increased by 8.0% to 14.2 million metric tons, while imports of paper and paperboard decreased by 3.5% to 12.5 million metric tons in 2010. Paper and paperboard production increased by 6.0% in 2010, rising to 75.2 million metric tons. The production of paper and paperboard in 2011 is forecast to be 2.0% below 2011 production as reflected in the annual year-to-date rate for September 2011 of 55.7 million metric tons, which is down 1.6% from 2010 when paper and paperboard was produced at a level of 56.6 million metric

tons. Paper and paperboard imports were at an annual rate in September of 9.0 million metric tons, which is down 3.5% from last year.

Structural Panels

Structural panel production in 2010 was 6.7% above that of 2009, while consumption was 3.4% above consumption in 2009 (APA 2011). Structural panel production at the end of the third quarter of 2011 was 184 million cubic meters below the first three quarters of 2010. Overall, structural panel production is expected to decrease to 19.0 million cubic meters in 2011 (Adair 2011). Structural panel market shares were negatively affected by the current economic downturn. New residential construction, which in 2006 captured 46% of all structural panel consumption, fell to 35% in 2011, and is expected to fall further in 2012 (Table 3).

In 2010, 9.1 million cubic meters of oriented strandboard (OSB) were produced (Table 2). OSB consumption totaled 11.4 million cubic meters in 2010 and constituted 60% of the structural panel market (Table 3). This represented a 4% share decrease from 2008. Consumption is expected to further decline in 2011. At the end of the third quarter 2011, consumption was 6.7 million cubic meters, 1.7% below the first three quarters of 2010. The weak economic recovery and flat residential construction is expected to keep OSB consumption in 2011 to near 9 million cubic meters.

Softwood plywood production was 8.1 million cubic meters in 2010 (Table 2) (APA 2011). This level of production was 6.1% above 2009. Softwood plywood production at the end of the third quarter in 2011 was 72 million cubic meters below when compared with the numbers at the end of the third quarter in 2011. The volume of softwood plywood production fell throughout the 1990s, and the decline has continued into 2011. Softwood plywood imports decreased in 2010 by 28.7% compared with 2009 data, while softwood plywood exports decreased in 2010 by 73%. Plywood exports to Canada decreased by 9% during the first 9 months in 2011 compared with a year earlier, and plywood imports from Canada decreased 19%. Softwood plywood consumption was 5.9 million cubic meters at the end of the third quarter 2011, which was slightly above last year. Apparent consumption of softwood plywood is expected to increase in 2011 and 2012.

Hardwood Plywood

Hardwood plywood production, including core material such as softwood plywood and OSB, was estimated at 1.3 million cubic meters in 2010, down from 2009 production. Hardwood plywood imports increased 22% in 2010, climbing to 2.3 million cubic meters when compared with 2009. Hardwood plywood exports rose in 2010, increasing 43.2% to 185 thousand cubic meters. Production and consumption of hardwood plywood in 2010 and 2011 is forecasted to steadily fall to 2008 levels (Table 2). These declines are a result of falling total industrial production and furniture and related products indexes (Table 1), coupled with the U.S. housing market collapse.

Particleboard and Medium Density Fiberboard

Information from the Composite Panel Association (CPA 2011) indicates that particleboard and medium density fiberboard (MDF) production increased during 2010. Particleboard production was 4.0 million cubic meters, a decrease of 4.2%, and MDF production was 4.6 million cubic meters, an increase of 52.3% (Table 2). During 2010, particleboard and MDF imports combined were relatively unchanged on a volume basis, compared with 2009. Particleboard and MDF exports were also relatively unchanged. Consumption for Particleboard and Medium Density Fiberboard is forecast to vary indirectly in 2011 with OSB consumption increasing and particleboard consumption declining. Consumption of both MDF and particleboard is forecast to increase in 2012. Particleboard and MDF account for well over one-half of all nonstructural panels consumed in the United States. Although they aren't a large component in residential construction, their market share fell by nearly half between 2006 and 2010 (Table 3). All end uses increased their market shares for nonstructural panels during this time period.

Hardboard

Based on data from the Composite Panel Association (CPA 2011), 802 thousand cubic meters of hardboard were produced in 2010; this level of production is expected to decline slightly in 2011. Hardboard imports and exports are expected to remain flat over the next 2 years.

Insulation Board

Information from the American Forest & Paper Association (AF&PA 2011) showed that 2.7 million cubic meters of insulation board was produced in 2010, unchanged from 2009. Production of insulation board has been flat for several years, resulting in a stable level of apparent annual consumption of about 3.0 million cubic meters.

Fuelwood

Using data from a 2009 Department of Energy survey (DOE 2011) and adjusting for the 2009 winter weather and an increasing trend in fuelwood use per household, fuelwood consumption was estimated to be 39.6 million cubic meters in 2010, a decrease of 3.4% from 2009. Households use most fuelwood for heating and aesthetic enjoyment. Industry uses mill residue rather than roundwood for fuel. A small portion of roundwood fuelwood is used for electric power production. Use for electric power is limited by the low cost of coal and natural gas alternatives. Fuelwood consumption for 2010 was below the level for 2009, and the forecast calls for decreased fuelwood consumption through 2010. Renewable Fuel Standards and other biomass-related energy policies are unlikely to increase the growth rate for fuelwood but likely to increase other forms of wood energy use such as pellets (DOE 2011).

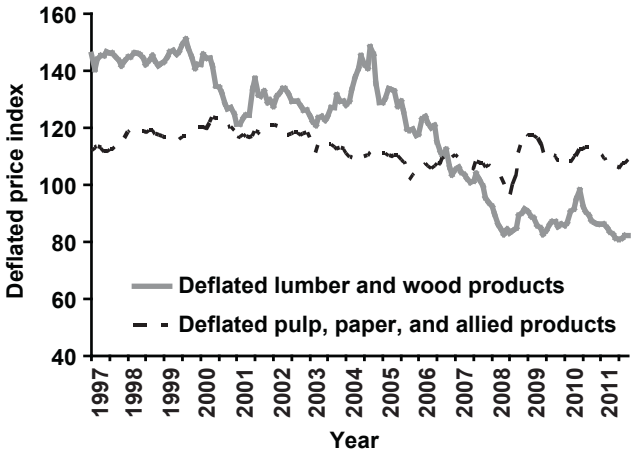

Figure 2—Wholesale prices of forest products, 1997–2011.

Forest Products Prices

Trends in the wholesale price of forest products are different across two broad categories: lumber and wood products (such as lumber and wood-based panels) and pulp and paper products (Fig. 2). Throughout the late 1990s, the producer price of lumber and wood products as reflected by the Producer Price Index (PPI) continued to fluctuate around a level reached by the mid-1990s before peaking during the second half of 1999. The PPI for lumber and wood products continued to decrease during the first quarter of 2008, but rose and peaked in the third quarter, and then declined again in the fourth quarter. The PPI for lumber was down 7.3 points in 2009 from 2008. Changes in the price of softwood lumber and a depressed lumber market accounted for much of this change and most of the volatility in the index. In 1999, the deflated composite price index reached an all-time high (at a level more than 50% higher than that of the base year, 1982), followed immediately by a sustained decline that continued throughout 2000 and into 2011. The PPI reached its lowest level in 5 years during this period. Because of these sustained low prices, U.S. demand for lumber and wood products during 2000 and into 2005 remained at near record levels. But the current situation in the housing market has caused record low price levels during the current downturn. In contrast, the PPI of prices in the pulp and paper sector has exhibited considerably less short-term volatility. In deflated terms, the composite index began 2008 with a flat to declining trend, before undergoing an upturn in the third quarter of 2008. This upturn became flat in the first quarter of 2009 before fluctuating throughout 2011.

Policy Initiatives

Wood Energy

The wood energy market in the United States is composed of four major sectors: industrial (68%), residential (20%), electricity (9%), and commercial (3%). The industrial sector represents wood products and the pulp and paper industry. The amount of wood energy it consumes has been mainly linked to wood product output rather than public policies. The other three sectors have been where public policy is focused at the state and federal level. Historically, public policy was focused on promoting the use of biomass for electricity; however, in recent years, there has been a shift to greater support for liquid fuels for transport.

The most effective federal incentives introduced since 2004 according to recent publications appear to be (a) the Renewable Energy Production Tax Credits, (b) Clean Renewable Energy Bonds, (c) Qualified Energy Conservation Bonds, (d) Investment Tax Credits (Aguilar and others 2011). All these incentives are tailored to the electricity generation sector. Recent publications also suggest that the eligibility of open-loop biomass plants (i.e., not relying on bioenergy dedicated crops, but instead on material harvested from working forest and industry co-products) for renewable energy production tax credits have favored the greater use of woody materials, especially in the electricity sector.

Biomass Crop Assistance Program (BCAP) implementation guidelines (U.S. Public Law 110–140, section 9.4.1.2) have been recently updated. BCAP, a policy established to help meet U.S. Federal Renewable Fuel Standards, mandates increased national biofuel use to reach 136 billion liters a year by 2022, with 79.5 billion liters per year (21 billion gallons) from advanced biofuels (U.S. Public Law 110-140).

Biomass Energy

Although the electricity sector has been a major beneficiary of Federal public policy support, it has recently been facing increased scrutiny because of greenhouse gas (GHG) emissions. Whether power generation using woody feedstock is considered a GHG carbon-neutral option is undergoing debate. On January 12, 2011, the U.S. Environmental Protection Agency (EPA) announced its plan to defer for 3 years the requirement for GHG permits for CO_2 emissions from biomass-fired and other biogenic sources (EPA 2011a,b).

EPA has been developing guidelines to restrict emissions from certain stationary sources, such as electric power plants. EPA has suggested the possibility that emissions from biomass might be treated on the same terms as emissions from fossil fuels. At the same time, it recognized the uncertainty about the carbon offset benefits of wood and other biomass sources (EPA 2010). Biogenic CO_2 emissions being reviewed include diverse sources such as those derived from combustion of biological material, including all types of wood and wood co-products, forest residue, and agricultural material (EPA 2011a).

Summary of Timber Products and Energy Policy

The past year has been a volatile one for U.S. wood and energy markets, with oil prices rising throughout 2011 and

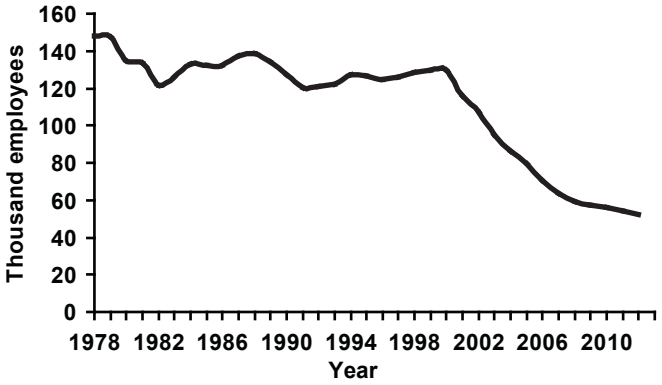

Figure 3—Employment in wood household furniture industry, 1978–2011.

wood markets in a continued decline. Economic activity in the United States slowed in 2010 and continued to show weakness during the first three quarters of 2011, as evidenced by the decline in real GDP growth to an expected 2.3% in the third quarter 2011, signaling continued weakness in major sectors of the economy. With weak GDP growth during the second half of 2011, resulting partly from the weakness in the housing sector as reflected in building permit decline, increasing unemployment, and anxieties about the financial system, there is very little reason to expect better economic conditions over the next few months. Also, with more home refinancing instead of new home purchases and weak GDP growth, which is an indicator of employment growth, the recovery of the U.S. economy is months away. Inflationary pressures are in decline but sustained high unemployment adds to the current U.S. economic woes. The future strength for other domestic and foreign trade sectors of the wood products industry also depends on the general economy, future lumber prices (which were stronger in 2010), the flat housing sector, and the value of the dollar. U.S. timber exports to China are surging, especially in the Pacific Northwest. Chinese buyers as a result of increased tariffs on wood exports in 2007 from Russia have turned to the United States for wood amid the country's construction boom. If the surge in exports to China is sustained and if the housing market rebounds somewhat, 2011 could be a good year for the U.S. wood industry.

The United States furniture industry, in retreat since 1999, continued declining in 2011 as low-cost furniture imports and the global economic recession continue to erode the domestic industry market share. Employment in the domestic furniture industry has fallen more than 50% since 1999 (Fig. 3). The projections for 2012 show the furniture industry in continued decline but at a slower rate.

The downturn in the world economy has had a significant impact on wood and energy demand, but the near-term future of U.S. wood and energy markets is tied to the United States domestic downturn's uncertain depth and persistence. The growing concern about greenhouse gas (GHG) emissions and its effect on energy investment decisions, the increasing use of renewable fuels, the increasing production of unconventional natural gas, the shift in the transportation fleet to more efficient vehicles, and improved efficiency seen in end-use appliances are the result of U.S. energy concerns. The recovery of the world's financial markets is especially important for the wood and energy supply outlook, because the capital-intensive nature of most large projects makes access to financing a critical necessity.

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