

# Economic Impact of the Texas Forest Sector, 2012



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**Sustainable Forestry Department**

**Texas A&M Forest Service**

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**TEXAS A&M**  

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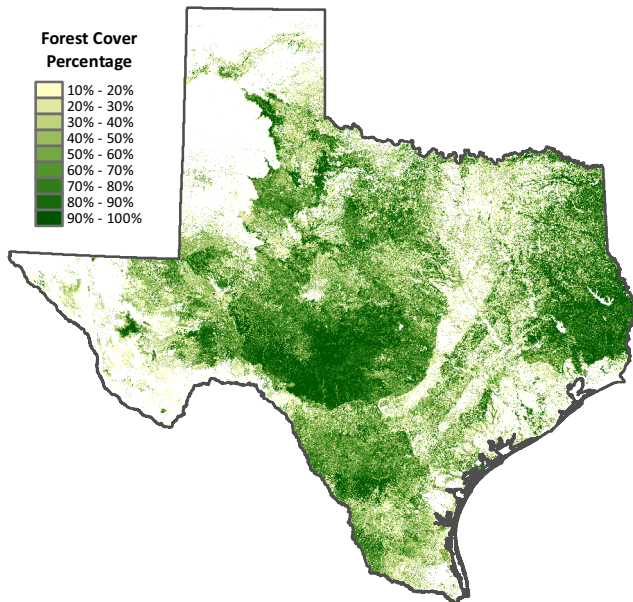


## HIGHLIGHTS 2012

- The Texas forest sector directly contributed \$17.8 billion of industry output to the Texas economy, employing over 59,400 people with a payroll of \$3.8 billion.
- Including direct, indirect, and induced effects, the Texas forest sector had a total economic impact of \$30.3 billion in industry output, supporting more than 130,600 jobs with \$7.9 billion in labor income.
- On average, every dollar generated in the Texas forest sector contributed an additional 70 cents to the rest of the Texas economy.
- Every job created in the forest sector resulted in another 1.20 jobs in the state.
- Texas forest landowners received estimated stumpage revenue of \$229.7 million.
- Secondary forest products manufacturing industries contributed over two-thirds of the Texas forest sector's total industry output and employed 72 percent of the forest sector workforce.
- The forest sector in East Texas directly produced \$5.7 billion worth of goods and services, supporting more than 18,900 jobs with \$1.4 billion in labor income.
- Seventy-one percent of the industry output from forestry, logging, and the primary solid wood products industries was from East Texas.
- Texas forest products firms exported \$1.8 billion worth of forest products to foreign countries in 2012.
- Compared to 2007, the 2012 Texas forest sector total industry output and employment decreased 22 percent and 21 percent, respectively.

## INTRODUCTION

Texas has 61.8 million acres of forestland — 12.1 million acres in East Texas and 49.7 million acres across the rest of the state (Miles, 2014). Of the 61.8 million acres, timberland accounts for 23 percent, or about 14.2 million acres, and the majority of it — around 83 percent — is located in East Texas. Figure 1 shows the forest coverage across the state.



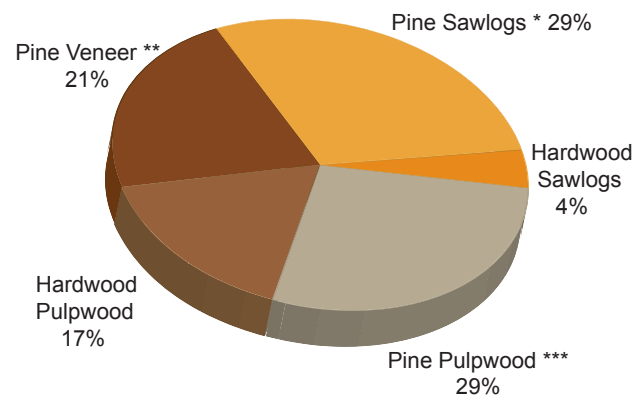
**Figure 1. Forest coverage percentage in Texas**

In East Texas slightly less than 92 percent of the timberland is privately owned. Family forest landowners are by far the largest group of private owners, accounting for about 54 percent of all timberland. In the past decade most timberland held by corporations that own wood processing facilities transferred to corporations such as TIMOs (Timberland Investment Management Organizations) and REITs (Real Estate Investment Trusts), which do not own wood processing facilities. TIMOs and REITs currently account for about 25 percent of timberland in East Texas. Other private ownership classes (i.e. nonindustrial corporate excluding TIMOs and REITs, unincorporated, Native American, and nongovernmental organizations) account for about 13 percent of all timberland. Slightly more than 8 percent of timberland is publicly owned. There is an estimated 17.5 billion cubic feet of volume on timberland in East Texas. Softwood species account for 57 percent and hardwoods account for 43 percent of the total volume (East Texas Forestlands, 2012).

Only 2.4 million of the 49.7 million acres (5 percent) of forestland outside of East Texas is considered productive timberland, having capacity of producing at least 20 cubic feet per acre per year. Mesquite is the most abundant forest type in Central and West Texas. Forest types juniper-pine, oak, and other hardwood are also abundant. Oak is a common type in the West Central and North Central regions (Central and West Texas Forestlands, 2011). Timber growing stock outside of East Texas is estimated to be 1.08 billion cubic feet in 2011, predominantly in hardwoods, which make up 86 percent of the total. Only 14 percent is from softwoods (Miles, 2014).

Total removals of growing stock in East Texas, including pine and hardwood, increased 8.8 percent from 2011 (Edgar et al. 2013). The total volume of growing stock removed from the 43-county region was 498.7 million cubic feet in 2012, compared to 458.5 million cubic feet a year earlier. Industrial roundwood harvest in Texas, the portion of total removals that was subsequently utilized in the manufacture of wood products, totaled 408.9 and 106.1 million cubic feet for pine and hardwood, respectively. Pine industrial roundwood harvest was up 4.1 percent, and hardwood roundwood harvest was up 35.0 percent from a year earlier. About one-half of the increase for hardwoods is attributed to improved survey methods. The combined harvest increased 9.3 percent to 515.0 million cubic feet.

In 2012, Texas mills produced 1.4 billion board feet of lumber, a decrease of 3.6 percent from a year earlier. Production of pine lumber declined 1.3 percent



\* includes chip-n-saw

\*\* includes panel roundwood

\*\*\* includes posts, poles and pilings

**Figure 2. Industrial roundwood harvest by product, 2012**



to 1.3 billion board feet and hardwood lumber production declined 23.1 percent to 118.8 million board feet. Production of structural panels, including plywood and OSB, was up 7.0 percent to 2.0 billion square feet (3/8-inch basis).

The forest sector makes considerable contributions to local and regional economies. In 2012, the wood-based industry continued to be one of the top 10 manufacturing sectors in the state. Texas was the leader of the thirteen southern states in terms of total employment, economic output, and labor income in the forest sector during 2007–2009 (Brandeis et al. 2012). The value of harvested timber ranked ninth in 2011 among Texas top agricultural commodities, behind cattle, cotton, milk, broilers, greenhouse and nursery, corn, wheat, and eggs. This study evaluates the Texas forest sector’s economic impacts on local economies in 2012, foreign exports, and the impacts of the recent recession on the sector. The impacts are further divided to capture variations across sub-industries and regions. The multipliers published in this study can be used to assess the economic impact an individual sub-industry in the forest sector may have on the local economy.

## DATA AND METHODS

The IMPLAN system, a computerized input-output modeling system, and associated 2012 databases from the Minnesota IMPLAN Group (MIG) were used in this study to estimate direct and total economic impacts of the Texas forest sector in 2012. The multipliers used in this study are Type SAM (Social Accounting Matrix) multipliers, which capture the total economic impact of economic sectors including direct, indirect, and induced effects. The databases used by the IMPLAN system were compiled by MIG based on data from various U.S. federal agencies such as Bureau of Economic Analysis, Bureau of Labor Statistics, Census Bureau, Department of Agriculture, and Geological Survey (MIG, Inc. 2000). All values estimated here unless stated otherwise are in 2014 constant dollars.

The Texas forest sector is divided into six sub-industries: forestry, logging, primary solid wood products, secondary solid wood products, primary paper and paperboard products, and secondary paper and paperboard products. Each sub-industry includes several IMPLAN sectors as defined by MIG (see Appen-

dix). Consistent with previous studies, IMPLAN sector 101 “Manufactured home (mobile home)” is excluded from the secondary solid wood products. All results are based on multi-industry contribution analysis.

## RESULTS

### STATEWIDE IMPACTS

The Texas forest sector directly produced \$17.8 billion of industry output in 2012 (Table 1). Value-added accounted for 32 percent, or \$5.7 billion, of the industry output. Note that value-added is the contribution of industries to the state’s output, also known as Gross State Product (GSP). It equals industrial output minus intermediate inputs.

Direct employment of the Texas forest sector was more than 59,400 workers with \$3.8 billion of wages, salaries, and benefits in 2012. The sector’s average labor income (including wages, benefits, taxes paid to the governments on behalf of employees, and proprietor income) was \$63,502 in 2012, 11 percent higher than the state average across all sectors.

The impacts of the forest sector are transferred to other sectors of the economy through purchasing inputs from other sectors in the state as well as household spending with subsequent rounds of additional spending. Including direct, indirect, and induced effects, the Texas forest sector contributed \$30.3 billion in industry output to the state economy in 2012. Value-added was \$12.9 billion, or more than 42 percent of the total industry output. The Texas forest sector generated 130,609 jobs and created \$7.9 billion in labor income. These impacts were estimated based on Type SAM multipliers for output, value-added, employment, and labor income in Table 1. On average, every dollar generated in the Texas forest sector contributed an additional 70 cents to the rest of the Texas economy. Every job created in the Texas forest sector resulted in another 1.20 jobs in the state economy.

### IMPACTS BY SUB-INDUSTRY

Economic contribution varied across sub-industries in the Texas forest sector. The secondary solid wood products and secondary paper and paperboard were the largest two sub-industries in the Texas forest

**Table 1. Direct and total economic impacts of the Texas forest sector, 2012**

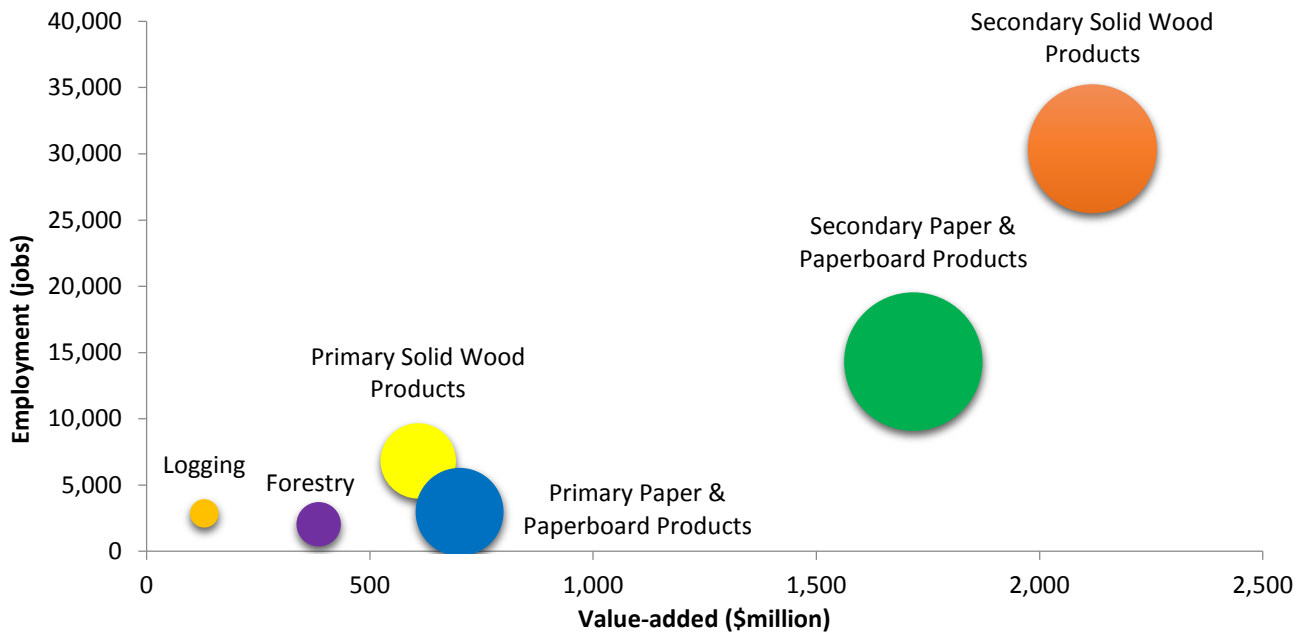
Sub-industry	Industry Output (million \$)	Value-Added (million \$)	Employment (jobs)	Labor Income (million \$)
<b>Direct Impact</b>				
Forestry	679.51	385.40	2,041	275.87
Logging	276.52	129.12	2,874	164.35
Primary Solid Wood Products	1,948.56	608.11	6,823	476.67
Secondary Solid Wood Products	5,694.00	2,118.74	30,384	1,420.80
Primary Paper & Paperboard Products	2,650.34	701.03	2,969	377.16
Secondary Paper & Paperboard Products	6,555.41	1,717.30	14,316	1,057.56
<b>Total</b>	<b>17,804.35</b>	<b>5,659.71</b>	<b>59,406</b>	<b>3,772.42</b>
<b>Total Impact</b>				
Forestry	1,069.89	618.33	4,621	408.05
Logging	459.28	243.20	4,125	228.79
Primary Solid Wood Products	3,130.78	1,298.43	13,791	868.41
Secondary Solid Wood Products	10,122.04	4,720.91	57,291	2,916.54
Primary Paper & Paperboard Products	4,804.54	1,924.34	14,098	1,063.99
Secondary Paper & Paperboard Products	10,738.25	4,046.93	36,683	2,373.11
<b>Total</b>	<b>30,324.78</b>	<b>12,852.14</b>	<b>130,609</b>	<b>7,858.90</b>
<b>SAM Multiplier</b>				
Forestry	1.57	1.60	2.26	1.48
Logging	1.66	1.88	1.44	1.39
Primary Solid Wood Products	1.61	2.14	2.02	1.82
Secondary Solid Wood Products	1.78	2.23	1.89	2.05
Primary Paper & Paperboard Products	1.81	2.75	4.75	2.82
Secondary Paper & Paperboard Products	1.64	2.36	2.56	2.24
<b>Total</b>	<b>1.70</b>	<b>2.27</b>	<b>2.20</b>	<b>2.08</b>

Numbers in columns may not sum to totals due to rounding.

sector (Table 1). The secondary paper and paperboard sub-industry produced the largest economic output while the secondary solid wood products produced the largest value-added, employed the most labor force, and generated the highest labor income in the forest sector. The majority (51%) of the forest sector workforce — 30,384 workers — was employed in the secondary solid wood products sub-industry. The secondary paper and paperboard sub-industry employed 14,316 workers, accounting for 24 percent of the total direct employment of the forest sector.

Primary wood products sub-industries (solid wood and paper and paperboard products) fell in the second tier. The forestry and logging sub-industries

together accounted for about 5 percent of the total industry output. Figure 3 shows the direct economic impacts of the forest sector by sub-industry. The size of the bubbles represents the magnitude of economic output. Overall, the primary paper and paperboard products sub-industry has the highest SAM multipliers in economic output, value-added, employment, and labor income indicating local economies benefited slightly more from this sub-industry than other sub-industries in the forest sector. Every dollar generated in the primary paper and paperboard products sub-industry contributed an additional 81 cents to the state economy in Texas. Every job in the primary paper and paperboard sub-industry created an additional 3.75 jobs in Texas.

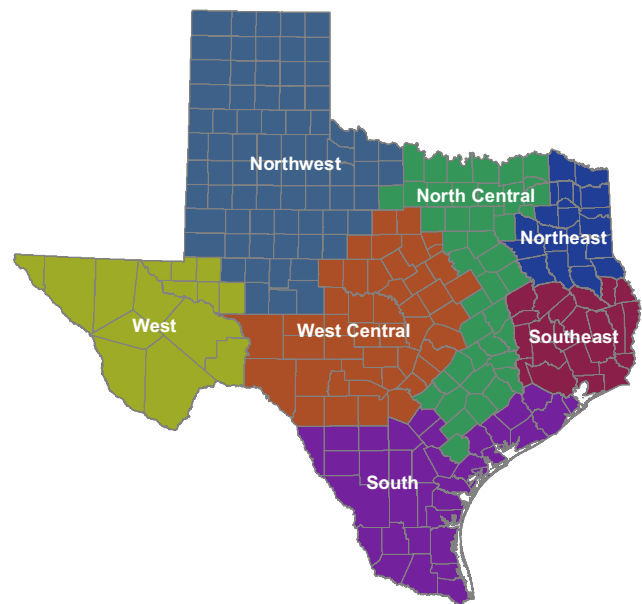


**Figure 3. Direct economic impacts of the Texas forest sector by sub-industry, 2012**

#### IMPACTS BY REGION

The economic impacts of the forest sector varied substantially across the state's seven regions: Northeast, Southeast, North Central, Northwest, South, West, and West Central (Figure 4). Table 2 shows the direct and total economic impacts of the Texas forest sector by region. In absolute terms, North Central Texas had the greatest direct economic impact in 2012. The forest sector in North Central Texas contributed 42 percent — \$7.4 billion — of industry output and employed 40 percent — 23,618 people — of total workers in the Texas forest sector. This is mainly due to the concentration of secondary forest products and primary paperboard firms in this region. Including direct, indirect, and induced impacts, the forest sector in this region had a total effect of approximately \$13.3 billion in industry output, \$5.8 billion in value-added, and 56,193 people employed.

East Texas had about 32 percent of direct industrial output (\$5.7 billion) and employed 32 percent (18,950) of total workers in the sector, mainly from the solid wood products and logging sub-industries in the region. Nearly three-quarters of all forestry and logging sub-industries and the great majority of the primary forest products sub-industries in Texas reside in East Texas. The direct output from the primary solid wood products in East Texas accounted for 73 percent of all primary solid wood products manufacturing in



**Figure 4. Regions in Texas**

Texas. The forest sector in East Texas had a total economic impact of \$9.5 billion in total industry output, \$4.1 billion in value-added, and 39,835 jobs on the local economy.

West Central Texas produced \$2.7 billion worth of direct goods and services from the forest sector in 2012. The region's share of the total Texas forest sector's industry output, employment, and value-added was around 15 percent. Most of the outputs in this region were from the secondary forest products sub-industries. The remaining three regions (Northwest,



Table 2. Direct and total impacts of the Texas forest sector by region, 2012

Region	Industry Output (million \$)	Value-Added (million \$)	Employment (jobs)	Labor Income (million \$)
<b>Direct Impact</b>				
Northeast	1,763.86	521.52	6,331	369.86
Southeast	3,916.37	1,362.50	12,620	992.26
North Central	7,400.31	2,394.69	23,618	1,526.12
Northwest	712.99	183.62	2,635	117.96
South	883.99	256.71	3,650	206.51
West	411.66	94.78	1,470	63.80
West Central	2,721.35	866.59	9,101	518.57
<b>Total</b>	<b>17,804.35</b>	<b>5,659.71</b>	<b>59,406</b>	<b>3,772.42</b>
<b>Total Impact</b>				
Northeast	2,751.83	1,057.44	12,500	644.27
Southeast	6,733.15	3,012.99	27,335	1,957.92
North Central	13,259.63	5,785.02	56,193	3,489.99
Northwest	1,086.38	383.21	4,983	221.93
South	1,343.89	500.75	6,717	333.91
West	634.39	213.44	2,832	124.58
West Central	4,515.51	1,899.29	20,050	1,086.30
<b>Total</b>	<b>30,324.78</b>	<b>12,852.14</b>	<b>130,609</b>	<b>7,858.90</b>
<b>SAM Multiplier</b>				
Northeast	1.56	2.03	1.97	1.74
Southeast	1.72	2.21	2.17	1.97
North Central	1.79	2.42	2.38	2.29
Northwest	1.52	2.09	1.89	1.88
South	1.52	1.95	1.84	1.62
West	1.54	2.25	1.93	1.95
West Central	1.66	2.19	2.20	2.09
<b>Total</b>	<b>1.70</b>	<b>2.27</b>	<b>2.20</b>	<b>2.08</b>

Numbers in columns may not sum to totals due to rounding.

South, and West) played minor roles in the Texas forest sector.

The forest sector plays an important role in local economies of some East Texas Counties. For example, the forest sector contributed more than 10% of total employment generated in Polk and Sabine Counties. Similarly, the forest sector contributed more than 20% of total economic output generated in Cass, Jasper, Polk, and Sabine Counties. The sector contributed more than 20% of total labor income in Sabine, Cass,

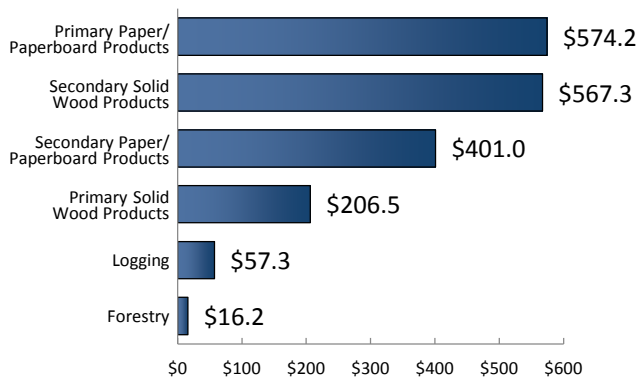
Jasper, and Polk Counties. Finally, the sector contributed more than 15% of total value-added in Sabine, Jasper, Cass, and Polk counties.

Harris, Jasper, Cass, Polk, and Orange were the top five East Texas counties in terms of direct output value of the forest sector in 2012. The top five counties with direct forest-related employment were Harris, Polk, Jasper, Cass, and Angelina. Likewise, Harris, Jasper, Angelina, Polk, and Cass counties provided the five highest direct labor-income opportunities. Finally,

Harris, Jasper, Polk, Cass, and Angelina ranked the top five among East Texas counties in terms of value-added impacts.

### FOREIGN EXPORTS OF THE TEXAS FOREST SECTOR

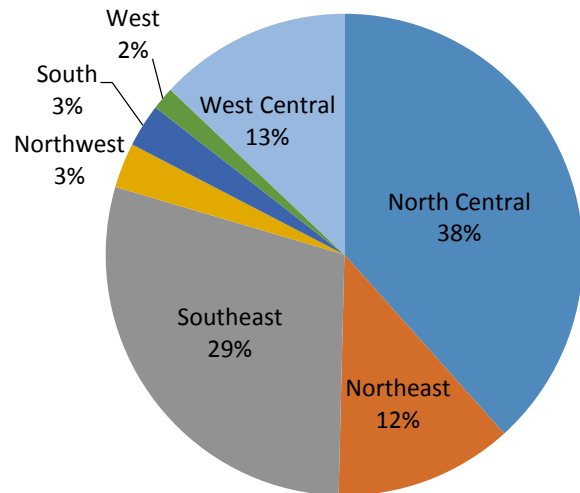
Texas forest products firms exported \$1.8 billion worth of forest products to foreign countries in 2012, about 10.2 percent of the forest sector's value of direct industry output. Primary paper and paperboard was the largest forest products export sub-industry, shipping \$574.2 million worth of products to foreign countries (Figure 5). The value of foreign exports by the secondary solid wood products sub-industry in Texas totaled \$567.3 million in 2012. The secondary paper and paperboard and the primary solid wood products sub-industries exported \$401.0 million and \$206.5 million, respectively. East Texas was the largest contributor to exports, accounting for about 42 percent of the total value of Texas forest products foreign exports in 2012 (Figure 6). North Central Texas was the second largest, exporting \$694.95 million worth of forest products internationally. These top two regions accounted for 80 percent of the total forest products exports of the state in 2012. West Central Texas was a distant third, accounting for 13 percent. The remaining three regions together contributed seven percent of the total forest products exports, or \$135.3 million.



**Figure 5. Value of Texas forest products foreign exports by sub-industry, 2012 (in millions)**

### RECESSION EFFECTS ON THE FOREST SECTOR IN TEXAS: A RETROSPECTIVE ANALYSIS

The economic recession began in December 2007, where goods-producing industries experienced



**Figure 6. Value of Texas forest products foreign exports by region, 2012**

declines in employment and economic output. The housing market collapse resulted in significant job losses in the forest industry across the South. Similar to the rest of the region, wood-related business dipped in Texas during the recession. Given the importance of forestry in the state economy, it is imperative to understand how the recession impacted the sector. This analysis evaluates the forest sector's direct and total economic impacts in recent years (2007–2012) and the recession effects in Texas forest industry. Unless stated otherwise, economic impacts for years 2007 and 2012 were used for a pre- and post-recession comparison analysis. The year 2011 constant dollars were used for this comparison analysis.

Texas forest industry felt the deleterious effects of recession in 2009 and was still far away from recovery as of 2012. The magnitude of recession effects, however, varied across sub-industries. In terms of percentage change, the logging sub-industry was the hardest hit, as its total economic output was down 73% from the pre-recession year 2007 (Figure 7). Secondary solid wood products, a major contributor among forest sub-industries, experienced the largest number of job losses. Compared to pre-recession levels, the sub-industry contributed 25% less in terms of total economic output and generated 28% fewer jobs in 2012. Total payroll of secondary solid wood products decreased by 25% during this period. In contrast, the forestry sub-industry, which consists of forest product and timber tracts, hunting and trapping in forestlands, and forestry support activities, performed better than pre-recession year 2007 in terms of total employment opportunities.

The paper and paper product sub-sector, which consisted of both primary and secondary paper and paperboard sub-industries, was among the least affected sub-sectors in Texas. There was just below a 14% decline in total economic output and 17% decline in employment in the paper and paper product-related sub-sector. Contribution analysis indicated that the economic recession substantially affected the Texas forest sector. The solid wood manufacturing sub-sector was severely affected given its strong dependence on the housing market. Due to lower economic activity, total volumes of timber harvests declined from 619.3 million cubic feet in 2007 to 498.7 million cubic feet in 2012.

The average weighted price of large pine saw-timber was down 42% during the period. Lower demand for timber stagnated production in the entire supply chain network of the forest sector. Apart from economic recession, structural changes in traditional forest sub-industries and substitution effects (lack of product demand due to availability of inexpensive substitutes) could have worsened the overall forest product output. For example, primary paper and paperboard outputs have declined as a result of significant adjustments prior to the recession. The furniture sub-

industry is facing increased competition from imported products. Employment opportunities in logging have declined in recent years. Overall, study results suggest that the economic downturn largely impacted the forest sector in Texas and it was still a ways from full recovery as of 2012.

## CONCLUSION

The Texas forest sector plays an important role in the state economy. During the past decade, the wood-based industry has remained one of the top 10 manufacturing sectors in the state. In 2012, the Texas forest sector (forestry, logging, primary and secondary solid wood products manufacturing, and primary and secondary paper and paperboard manufacturing) directly contributed \$17.8 billion in industry output and \$5.7 billion in value-added to the state economy and supported more than 59,400 jobs with a payroll of \$3.8 billion.

Impacts of the forest sector are transferred to other sectors of the economy through input purchases and spending. Including direct, indirect, and induced effects, the total economic impacts of the Texas forest sector in 2012 were \$30.3 billion in industry output,

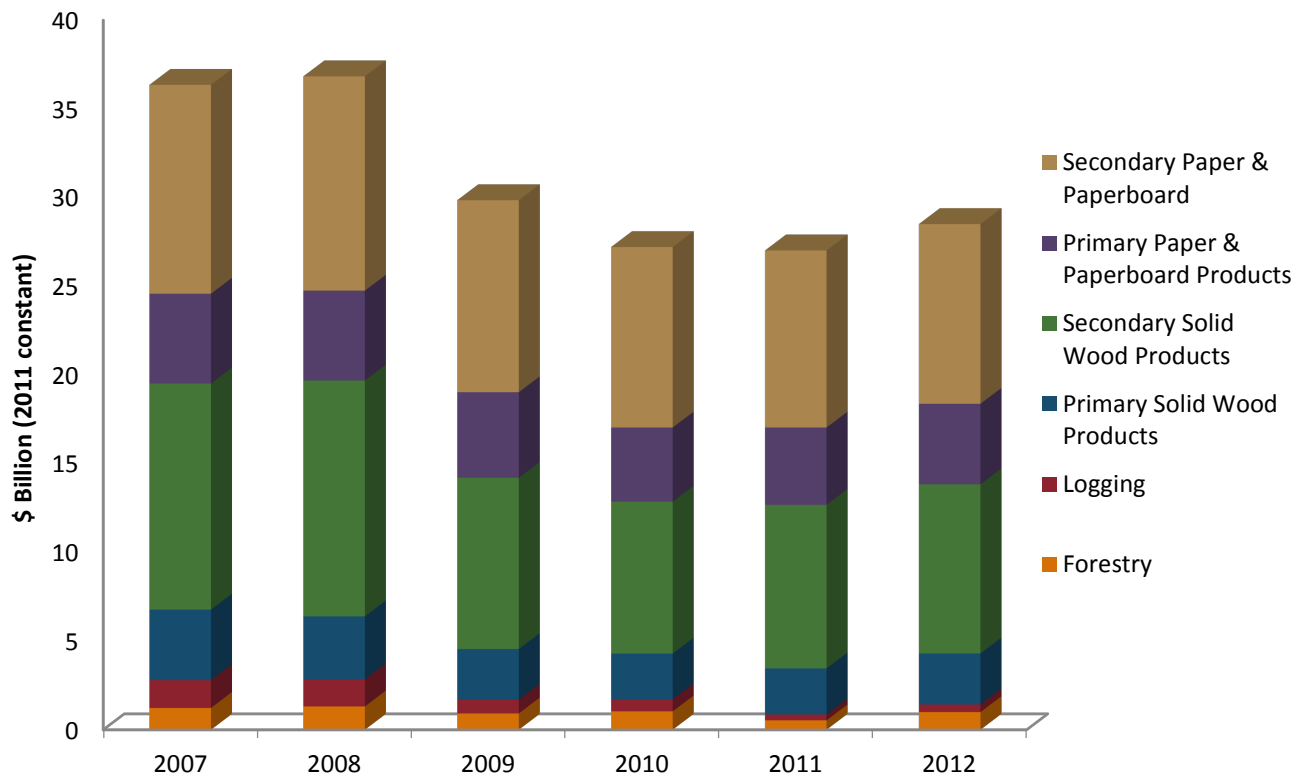


Figure 7. Total economic output of Texas forest sector by sub-industry, 2007–2012 (in billions)

\$12.9 billion in value-added, \$7.9 billion in labor income, and more than 130,600 jobs. On average, every dollar generated in the Texas forest sector contributed an additional 70 cents in other sectors of the state. Every job in the Texas forest sector created another 1.20 jobs in the state economy.

The largest share of industry outputs was from secondary forest products (wood windows/doors and mill work, wood container, wood buildings, other wood products, furniture, paperboard container, coated and treated paper and packaging materials, etc.). Nearly three-quarters of all forestry and logging sub-industries and the great majority of the primary forest products sub-industries in Texas reside in East Texas. Most of the secondary forest products manufacturing facilities in Texas are located outside of East Texas, mostly in North Central Texas.

The forest sector in East Texas directly produced \$5.7 billion worth of goods and services in 2012. It generated \$1.9 billion in value-added, more than 18,900 jobs, and \$1.4 billion in labor income.

Texas forest products firms exported more than 10 percent of their total industry output, or \$1.8 billion worth of forest products to foreign countries in 2012. Primary paper and paperboard was the largest forest products export sub-industry. East Texas was the largest contributor among all regions to the forest products foreign exports in 2012.

The recent U.S. recession had a profound adverse impact on the Texas forest sector. Compared to pre-recession levels, the secondary solid wood sub-in-

dustry contributed 25% less in terms of total economic output and generated 28% fewer jobs in 2012. Total payroll of secondary solid wood products decreased by 25% during this period. Perhaps a sign of recovery, the forestry sub-industry performed better than the pre-recession year 2007 in terms of total employment opportunities.

Note that the scope of this study is focused on the economic impacts of the forest sector. A recent study conducted by Texas A&M Forest Service estimated that Texas' more than 60 million acres of forestland provide at least \$93 billion worth of environmental goods and services such as regulating local climate, protecting water resources, improving wildlife habitats, species diversity and other non-material cultural benefits. Similarly, there are some emerging, non-traditional markets for forestry and forest products such as electricity or biofuel production using woody biomass, carbon credits, and other ecosystem benefits trading from sustainable forest management. These markets may provide opportunities for the Texas forest sector in the future.

Additional information on economic impacts of the Texas forest sector, statewide trend analysis, directory of forest products industries, timber supply analysis, county or region specific distribution of forest products, and economic values of the ecological goods and services provided by Texas forests are available through the online Texas Forest Information Portal ([TexasForestInfo.com](http://TexasForestInfo.com)) developed by Texas A&M Forest Service.

## REFERENCES

Brandeis, T.J., A.J. Hartsell, J.W. Bentley, and C. Brandeis. 2012. Economic dynamics of forests and forest industries in the southern United States. USDA Forest Service, e-General Technical Report. SRS-152, 77 p.

Central and West Texas Forestlands, 2011. Texas A&M Forest Service, College Station, TX.

East Texas Forestlands, 2012. Texas A&M Forest Service, College Station, TX.

Edgar, C., O. Joshi, and A.B. Carraway. 2013. Harvest trends 2012. Texas A&M Forest Service, College Station, TX.

MIG, Inc. 2000. IMPLAN professional version 2.0: User's guide, analysis guide, and data guide (2nd edition). Minnesota IMPLAN Group, Stillwater, MN.

Miles, P.D. 2014. Forest Inventory EVALIDator web-application version 1.6.0.00. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station. [Available only on internet: <http://apps.fs.fed.us/Evalidator/evalidator.jsp>]

## GLOSSARY

**Industry output** is the total value of production or service by industry for a given time period.

**Value-added** is the difference between an industry's total output and the cost of its intermediate inputs. It consists of four components: employee compensation, proprietor income, other property income, and indirect business tax.

**Employment** includes full-time and part-time employees and self-employed individuals.

**Labor income** includes wages, salary, and benefits of employees, taxes paid to the government on behalf of employees, and income for self-employed individuals.

**Direct effects** refer to the sector's own production, value-added, employment, and labor income.

**Indirect effects** refer to the economic activities in other sectors impacted by the forest sector's purchase of goods and services.

**Induced effects** are economic activities from consumption of goods and services using income generated from the direct and indirect effects.

**SAM** is the acronym for Social Accounting Matrices, a macro accounting system widely used by many countries for analyzing relationships of economic activities such as production, consumption, and trade between various economic entities.

**Direct economic impact** of a sector includes only direct effects.

**Total economic impact** of a sector includes all three types of effects generated by the sector.



## APPENDIX

Sub-Industry/IMPLAN Sector	IMPLAN Sector ID	1997 BEA Commodity	NAICS 2007
<b>Forestry</b>			
Forestry- forest products- and timber tracts	15	113A00	1131-2
Hunting and trapping on forestlands	18 (partial)	114200 (partial)	1142 (partial)
Forestry support activities	19 (partial)	115000 (partial)	115 (partial)
<b>Logging</b>			
Commercial logging	16	113300	1133
<b>Primary Solid Wood Products</b>			
Sawmills and wood preservation	95	321113-4	321113-4
Reconstituted wood product manufacturing	98	321219	321219
Veneer and plywood manufacturing	96	32121A	321211-2
<b>Secondary Solid Wood Products</b>			
Engineered wood member and truss manufacturing	97	32121B	321213-4
Wood windows and doors and millwork	99	321911	32191
Wood container and pallet manufacturing	100	321920	32192
Prefabricated wood building manufacturing	102	321992	321992
Miscellaneous wood product manufacturing	103	321999	321999
Wood kitchen cabinet and countertop manufacturing	295	337110	33711
Upholstered household furniture manufacturing	296	337121	337121
Nonupholstered wood household furniture	297	337122	337122
Wood television/radio/sewing machine cabinet	300	337129	337129
Institutional furniture manufacturing	299	337124-5,7,9	337127
Office furniture and custom architectural woodwork	301	337211-2	337211-2, 337214
Showcases, partitions, shelving, and lockers	302	337215	337215
<b>Primary Paper and Paperboard Products</b>			
Pulp mills	104	322110	32211
Paper mills	105	3221A0	32212
Paperboard mills	106	3221A0	32213
<b>Secondary Paper and Paperboard Products</b>			
Paperboard container manufacturing	107	322210	32221
Coated and laminated paper and packaging materials	108	32222A	322221-2
All other paper bag and coated and treated paper	109	32222B	322223-6
Stationery product manufacturing	110	322232-3	32223
Sanitary paper product manufacturing	111	322291	322291
All other converted paper product manufacturing	112	322299	322299

Source: Minnesota IMPLAN Group, 2012.



