The Economic Impacts of Forest Industry in Virginia

Virginia Forestry Association,
Board of Directors Meeting
October 29, 2013

Center for Economic and Policy Studies
Outline

- Forest Industry Patterns and Trends
- Methodology
- Results
- Conclusion

Report is available at the Weldon Cooper Center for Public Service (http://www.coopercenter.org) and Virginia Department of Forestry websites.
PATTERNS AND TRENDS
Forest Land as Percentage of Total Land Area, 2008-2011

Source: U.S. Forest Service, Southern Research Station, Forestry Inventory Analysis System
Stumpage Value

Source: Virginia Department of Forestry
Total Stumpage Values

Source: Virginia Department of Forestry
Extractive Forestry Employment

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages
Virginia Forestry Related Manufacturing Employment

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages
Real GDP Growth, 2006 to Present

Source: Bureau of Economic Analysis

Source: Census Bureau and Global Insight
Import Share of U.S. Consumption of Furniture and Related Products

Source: International Trade Administration
METHODOLOGY
Methodology

- Use input output analysis to estimate the contribution of the forestry industries to Virginia
- Implement the general approach of last study
  - Start by defining the industry as those industries with strong forward (selling) linkages and distribution linkages (e.g., food processing)
  - Uses input-output model to measure magnitude of backward (purchasing) linkages and the ripple effects of household, business, and public sector spending and investing
Changes

- Addition of biomass power production.
- Estimate impacts for counties and independent cities.
- Estimate impacts of wood exports (e.g., roughwood, lumber, veneer, fiberboard, and wood chips).
Forest Industry Sectors

- Division into production, processing, distribution/power generation sectors
- Processing sectors are further divided into core and extended industries.
  - **Core (primary).** Heavily dependent on raw materials from the state.
  - **Extended (secondary).** Clearly identified with the sector but not necessarily dependent on Virginia raw materials.
An input-output table provides a picture of an economy. It shows flows of goods and services among industries, households, and government.

IMPLAN (IMpact analysis for PLANning)
- Software that implements input-output analysis
For a one dollar change in final demand for forest industry products, the total impact will include direct, indirect, and induced components:

- **Direct effect.** Initial injection of new economic activity or expenditure
- **Indirect effect.** Change in input purchases due to direct effect.
- **Induced effect.** Change in employee household, business and public sector expenditures due to direct and indirect effect.
Input Data

- Input data from 2011 for
  - Quarterly Census of Employment and Wages (VEC)
  - Harvest value and volume (Virginia Department of Forestry)
  - IMPLAN database (to adjust for self-employed in logging and other industries)
RESULTS
Economic Impacts Breakdown

Total industrial output impact of $17.2 billion

- Production: $0.8 Billion
- $8 Billion
- $8.4 Billion

Value-added Industries

Indirect and Induced Effects
# Total Impacts

<table>
<thead>
<tr>
<th></th>
<th>Output (Million $)</th>
<th>Employment</th>
<th>Value Added (Million $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>8,855</td>
<td>37,704</td>
<td>3,154</td>
</tr>
<tr>
<td>Indirect</td>
<td>2,231</td>
<td>14,010</td>
<td>1,407</td>
</tr>
<tr>
<td>Induced</td>
<td>6,131</td>
<td>52,133</td>
<td>4,187</td>
</tr>
<tr>
<td>Total</td>
<td>17,217</td>
<td>103,848</td>
<td>8,748</td>
</tr>
</tbody>
</table>
Employment Impacts

Every job results in another 1.75 jobs elsewhere
Value Added Impacts

Bulk of impact in forest primary manufacturing

One in 20 dollars

- Forestry Production: 98.0%
- Forestry Core: 2.0%
- Forestry Extended: 7%
- Forestry Distribution: 9%
- Other: 53%
## Forestry-Related Exports

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<th>Output (Million $)</th>
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<tr>
<td>Direct</td>
<td>789.3</td>
<td>2,723</td>
<td>275.0</td>
</tr>
<tr>
<td>Indirect</td>
<td>319.3</td>
<td>2,114</td>
<td>175.1</td>
</tr>
<tr>
<td>Induced</td>
<td>473.8</td>
<td>3,987</td>
<td>331.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,582.4</strong></td>
<td><strong>8,824</strong></td>
<td><strong>781.9</strong></td>
</tr>
</tbody>
</table>
What has changed since previous studies?

- Decline in logging and forest-related manufacturing due to collapse of housing market, deep recession, and continued global competition facing portions of industry.
## Forestry Direct Employment Changes, 2006 and 2011

<table>
<thead>
<tr>
<th>Sector</th>
<th>2006</th>
<th>2011</th>
<th>Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest (Prod)</td>
<td>6,931</td>
<td>5,931</td>
<td>-1,000</td>
<td>-14%</td>
</tr>
<tr>
<td>Forest (Core)</td>
<td>21,479</td>
<td>15,034</td>
<td>-6,445</td>
<td>-30%</td>
</tr>
<tr>
<td>Forest (Extended)</td>
<td>27,309</td>
<td>13,606</td>
<td>-13,703</td>
<td>-50%</td>
</tr>
<tr>
<td>Forest (Distribution)</td>
<td>4,528</td>
<td>3,133</td>
<td>-1,395</td>
<td>-31%</td>
</tr>
<tr>
<td>Forest Total</td>
<td>60,247</td>
<td>37,704</td>
<td>-22,543</td>
<td>-37%</td>
</tr>
</tbody>
</table>
Forestry Total Employment Impact Changes, 2006 and 2011

<table>
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<tbody>
<tr>
<td>Forest Total</td>
<td>144,380</td>
<td>103,848</td>
<td>-40,532</td>
<td>-28%</td>
</tr>
</tbody>
</table>
Forestry-related Industry Employment Impact by Locality
CONCLUSION
Takeaways

- Economic impacts are lower than last study because of erosion in forestry industry output and employment.
  - Housing market collapse
  - Recession and slow economic growth
  - Furniture and pulp and paper competition

- Forestry industry employment has stabilized in 2011-2012 and is poised for some growth, particularly with revival of housing and increased demand for wood products
Takeaways

- The forest industries still account for 2 percent of state output and employment.
- The forest industries are particularly important for some regions.
  - Sixty-eight localities have total employment impacts in excess of 1,000
  - Seven localities have employment impacts greater than 2,000 jobs
    - Alleghany/Covington, Henrico, Pittsylvania/Danville, Franklin, Richmond, Henry/Martinsville