Timber Products Monitoring

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Background

• What is timber products monitoring?
  • Survey of primary wood using facilities to estimate roundwood volume received by:
    • County of origin (where wood came from)
    • Species/species group (what type of wood)
    • Primary roundwood product (what it was used for)
  • In cooperation with State partners, the USDA Forest Service FIA program has been collecting these data since 1948.
  • Historically implemented in a periodic fashion (e.g. NRS 3-5 year frequency implemented on a state basis)
Why is timber products monitoring important?

• Wood products markets:
  • drivers of forest investment and jobs
  • shape the composition and structure of future forests of the US

• Monitoring timber products output is key to understanding current demand for raw material to support markets

• TPO provides estimates of forest removals for timber products.
  • account for a majority of all forest removal volumes
  • more current than traditional FIA removal estimates

• Can’t we get this from FIA or remote sensing?
  • FIA and remote sensing can track harvest by forest type but not products
  • Remote sensing can provide location and time, but not volume by product
  • FIA can provide annual average removal volumes and forest structure but not by year
Why is timber products monitoring important continued?

• Your neighbors activities matter
• There is significant cross-State and cross-region movement of timber
• This suggests that the periodic way of doing things is problematic.
A National Annual Approach

Rationale

• Rapid technological change in forest products, dynamic housing cycles, and increasing demand for mill residues increases the need for timely, spatially-explicit mill consumption and production data.

• Emerging and hidden demands as well as market shifts cause spatial and temporal changes in timber product mixes.
Enhanced Timber Products Monitoring

- The 2014 Farm bill contained eleven provisions to enhance the FIA program. Provision 5 calls for the FIA program to “Improve the timeliness of the timber product output program and accessibility of the annualized information on that database”.

- FIA program hosted a TPO stakeholders meeting in FY2016

- Follow-up TPO stakeholders meeting in FY2017 on action items from 2016 and next steps

- Major effort on developing and implementing annual sample-based TPO
2018 User group recommendation: an update of documentation of estimation methods
Annual TPO

• Shift to a sample-based approach
• Base federal-sample 40%
• States have option to intensify in whole or in part (specific mill types/products)
• Stratified design that approximates PPS design
• Design captures ~90% of the volume at a ~40% sample
## Timing of annual design

<table>
<thead>
<tr>
<th>Activity</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Update sample frame</td>
<td>Oct</td>
</tr>
<tr>
<td>2. Select sample</td>
<td>Nov</td>
</tr>
<tr>
<td>3. Send out postcard to inform selected entities of upcoming survey</td>
<td>Dec</td>
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<tr>
<td>4. Send out questionnaires</td>
<td>Jan</td>
</tr>
<tr>
<td>5. Data entry in database</td>
<td>Feb</td>
</tr>
<tr>
<td>6. Follow-up on nonresponse</td>
<td>Mar</td>
</tr>
<tr>
<td>7. Data compilation and estimation</td>
<td>Apr</td>
</tr>
<tr>
<td>8. Estimate checking</td>
<td>May</td>
</tr>
<tr>
<td>9. Summary table and indicator development</td>
<td>Jun</td>
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*Note: The diagram visually represents the timing of each activity.*
Implementation – January Feb/Mar 2019

• Southern Region
  • Base 40% Federal sample
  • Texas 100%

• Northern Region
  • Base 40% sample
  • 4 states intensified to 100%

• California
  • Scheduled for pilot 2019.

• 95% of total US mill consumption in these areas

2018 User Group recommendations: more timely reporting and data access
Moving forward

• Change takes time and communication with lots of people
• Personnel shortages potential challenge in some States/regions
• Non-response remains a concern.
  • Working with regional forestry organizations and state partners
  • New statistical models
  • Design-based approaches for estimation under non-response.
2018 User Group Recommendations: TPO data and FIA plot data could be combined to provide additional information

Small area estimation of forest removals

- Motivation: 5 panel design provides average annual removals over a 10-year period.
- Q1: Can we improve precision of full panel estimates for survey units?
- Q2: Can we estimate unit removal based on single panels with same precision as full panel direct estimates?
- Q3: Can we increase precision of county level full panel estimates?
- Q4: Can we increase precision of county level single panel estimates?
- Q5: How are estimates affected?

- A1: Yes, on average SE was 50%-80% of direct estimate SE
- A2: Yes and no, SE typically 5%-10% higher than direct estimate SE but temporal precision increased.
- A3: Yes, on average SE was 40%-75% of direct estimate SE
- A4: Yes, but magnitude of SE remains problematic.
- A5:
  - Unit-level: small adjustments to full panel estimates. Slightly larger adjustments under single panel
  - County-level: moderate adjustment to full panel estimates. Large adjustments to single panel estimates particularly where no removals were recorded on the plots.
Some Closing Remarks

• Timber products monitoring can provide annual removals information, by product
  • Provides more timely information on the majority of removals than the annual inventory
  • Implementation of the annual design facilitates consistent product removals information across the country
  • TPO information can help increase precision of FIA estimates using SAE approaches

• Timber products monitoring is a partnership
  • Feds
  • States
  • Companies
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Thanks for listening

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