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Structural changes in forest products markets – implications for outlook studies

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Streamlining the next round of Forest Sector Outlook Studies in the UNECE region

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Outline

1. Structural changes in forest products markets
2. Implications for outlook study methods
3. Conclusions
Structural changes in the European forest products markets
“Creative destruction” (Joseph Schumpeter, 1940s)

Destructive trends

- Mature pulp & paper and sawnwood markets in Europe
- Record long economic downturn (8 years)
- Investments shifting to fast-growing markets in Asia, or low-cost production regions like South America

Creative trends

- Diversification
  - sawnwood to engineered wood products
  - Pulp & paper to biorefineries
- Diminishing industry boundaries
- Bioeconomy strategies & policies

Statistics are giving an increasingly misleading picture!
Mature markets – both *cyclical* and *structural* reasons

Consumption per capita in Europe (excl. Russia)
Outlook for European Paper and Paperboard Changing (excl. Russia)

EFSOS (2005, 2011) & Trend Projections to 2030

Data: FAOSTAT

Production

2006 =

Trend 2003-2013

million tons

EFSOS I

EFSOS II
Similar situation for wood products markets

Sawnwood Consumption in Europe (excl. Russia)

“Trend 1” refers to the trend from 1992–2012, and “Trend 2” refers to 2000–2012 trend

European energy wood production again increasing

European Wood Fuel Production 1961-2015

50% of wood fuel comes from wood residues, and most of the rest form logging residues, thinnings and coppice.

Growing wood residues consumption implies increasing resource-efficiency and cascading use.

Wood fuels = all types of biofuels originating from woody biomass, e.g., firewood, log wood, wood chips, wood pellets, wood briquettes (FAO def.). These come from forests, plantations (coppice), urban forests, by-products (chips, bark, etc.), post-consumer wood.

Data: FAOSTAT
Emerging products

Cross Laminated Timber (CLT)
> 15% average annual growth rate since 2007, despite the economic downturn!
> Clear sign of different life cycle stage compared to sawnwood!

Dissolving pulp
> Pöyry (2015) expects the global demand to double by 2030

Hetemäki & Hurmekoski (2016)
3 categories of “new forest products”

1. Old products with newly increasing demand due to changes in the operating environment: e.g. dissolving pulp for textiles

2. Old products with incremental improvements (lighter weight or reduced costs): e.g., paper and packaging products

3. Novel products: e.g. based on nanocellulose - fibers exhibit new properties in nano scale, such as transparency and high absorptive capacity
Implications for outlook studies
Validity of methods depends on the research questions

Important viewpoints typically considered in the forest sector include:

- The *availability / sufficiency of wood* resources
- What can be *technically* produced from wood
- Short-term *business cycles*

However, there are questions of equal importance, yet receiving less emphasis:

- The *demand* for goods and services
- Prospects for *employment, value creation*, etc.
- Long-term *structural changes*
Global changes in forest products markets

1. Shifting economic power (*GDP*, *competitiveness*)

2. Environmental issues and climate and environmental policies (*externalities*)

3. Creative destruction (*substitution, new products*)
   1. Declining paper markets in OECD countries (and China)
   2. New markets (biofuels, construction solutions, etc.)

- Typical way of determining demand for forest products: $D = f(p, \text{GDP})$
- Is the dominant evidence-based methodology able to consider these aspects?
Product life cycle – S-curve

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Integration of approaches

Based on Fortes et al. (2015)
Conclusions
EU forest biomass demand in 2030 likely to be overestimated in previous studies

1. **Structural changes:** Likely to decrease demand for industrial wood in EU, rather than increase, by 2030

2. **Market adjustments:** International trade and prices clear potential gaps for forest biomass
   - A gap between supply and demand is not possible!

3. EU and global climate and energy policies are one of the key uncertainties

→ Points 1. and 2. will significantly reduce forest biomass demand
How to better capture structural changes and explore the uncertainties?

1. Update income elasticities and add omitted variables in demand equations

2. Introduce complementary research approaches – e.g., agent-based modelling and purely qualitative methods

➢ Need for a critical mass of researchers and funding!
Thank you!

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