Economic Impacts of Increased Forest Conservation in Europe: A Forest Sector Model Analysis

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Outline of the presentation

- Goals
- Method: EFI-GTM model
- Scenarios
- Results: focus on WE
- Summary
The goal of the study was

- To assess the magnitude of the economic impacts of potential forest conservation in Europe on
  - forestry
  - forest industry

- To compare these impacts under the case of wider forest conservation internationally

The tool of analysis: EFI-GTM

- Global Forest Sector Model
- Partial equilibrium model
- Several regional agents maximize their profit/welfare under perfect competition
- Recursive model
- Dimensions
  - 36 products (6 wood, 4 rec.paper, 26 forest industry products)
  - 61 regions (31 in Europe)
  - 1–3 existing production technologies + new technologies from investments
Some background

- Need to safeguard and increase biodiversity (RIO 1992, 4th Ministerial Conference in Vienna 2003)
- Finland and Sweden: conservation skewed towards northern low productivity forests
- Norway: recommendations to conserve at least 4.6% of area instead of present 1%
- Europe: mostly boreal forests conserved, while biodiversity status of temperate zones much more eroded.

Scenarios of forest conservation

**ADDITIONAL CONSERVATION , % OF THE PRODUCTIVE STOCK**

- **BASE** 0%
- **PROT3** 3% in WE and EU
- **PROT5** 5% in WE and EU
- **PROT5-E** 5% in all Europe (inc.Eur.Russia)
- **PROT5-ENA** 5% all Europe and North Am.
Aggregate average changes for Western Europe in 2010-2020
PROT5 compared to BASE

- Production
- Consumption
- Prices
- Net imports

Solidwood industry in WE

- Affected most negatively
  - Expanding in all scenarios, but least in WE
  - Conservation makes the production to increase less than that in BASE
- Two adaptation mechanisms
  - Investments shift to European Russia and CEEC
  - Increased use of imported wood
Paper industry in WE

- Not much affected
  - high capital costs: investments are not very sensitive to wood prices
  - ongoing substitution of primary fibre with recycled fibre in Europe
  - pulp transferable

Roundwood markets

- Wood prices increase
- which compensates harvests decline

⇒ If forest owners adequately compensated, their income is not affected by the forest biodiversity conservation.

Results rather insensitive to supply elasticity
Conclusions for Western Europe

- Forest owners income not much affected
- Solidwood product industry most hurt
- Paper industry largely unaffected
- Employment effects in harvesting and solidwood sectors; less new jobs than in the base case
- Part of the forest industry investments directed to other sectors.
- Conservation in NA does not influence WE
- Conservation in Eur.Russia does not really make the WE better off economically

Factors exogenous to our analysis

E.g.,
- Forest management options not considered
- Land use changes
- Choice of protected regions
- Increased use of bioenergy
- Changes in consumers attitude towards wood