Forests and Climate Change Mitigation

The Role of Markets

February 10, 2020
Climate change benefits of forests

Forest carbon sink
- Sequestering Atmospheric CO₂ in tree biomass and soils

Forest product benefits
- 1) Long-term storage of tree carbon in buildings
- 2) Renewable feedstocks for energy generation

Joint benefits
Forest Carbon Sink

Forests capture atmospheric carbon through photosynthesis...

Forests emit carbon through respiration, decay, wildfire...

In U.S. forests, capture has exceeded emissions for several decades...

Forest C is a growing asset...net expansion of 0.5% per year from 1990 to 2017

Forest C inventories currently store about 52 years of US greenhouse gas emissions at 2017 levels...

Forest Carbon Trends

Regional differences in ownership and structure

Source: US Forest Service, FIA national forest inventory.
Carbon storage in harvested wood products

Sources: Methods in Skog (2008), estimates from EPA National Greenhouse Gas Inventory Reports, 2011, 2019
Timber harvest levels in the US

- Production peaked in the 1990s
- Now about 25% below the peak
- Timber supplies have continued to expand

Forest Bioenergy: A strong potential for climate change mitigation

- Wood bioenergy now driven by European markets—pellet exports from US South to EU/UK
- Switching from coal to wood bioenergy in the US → substantial reductions in carbon emissions
  - Plus incentives to expand the forest carbon sink
Case study: forestry in the southeastern US

Forest products markets build the forest carbon sink

- Incentives to retain and add forests
- Incentives to expand productivity
- Revenues for forest fuel reductions
- Carbon storage and emission offsets
Growing climate change benefits of forests

- Expand forest area and enhance growth
- Increase the utilization of wood in building and energy
- Protect forest assets by reducing wildfire emissions
Thank you.

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