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Carbon Storage and Bioenergy: Using Forests for Climate Mitigation

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NOTA DI LAVORO
Carbon Storage and Bioenergy: Using Forests for Climate Mitigation

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Carbon Storage and Bioenergy: Using Forests for Climate Mitigation  
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Summary  
The carbon mitigation literature has separately considered using forests to store carbon and as a source of bioenergy. In this paper, we look at both options to reach a 2°C mitigation target. This paper combines the global forest model, GTM, with the IAM WITCH model to study the optimal use of forestland to reach an aggressive global mitigation target. The analysis confirms that using both options is preferable to using either one alone. At first, while carbon prices are low, forest carbon storage dominates. However, when carbon prices pass $235/tCO2, wood bioenergy with CCS becomes increasingly important as a mechanism to remove CO2 from the atmosphere. The use of both mechanisms increases global forestland at the expense of marginal cropland. While the storage program dominates, natural forestland expands. But when the wood bioenergy program starts, natural forestland shrinks as more forests become managed for higher yields.  

Keywords: Climate Change, Woody Biomass, Carbon Sequestration, BECCS, Forestry, Carbon Mitigation, Integrated Assessment Model  

JEL Classification: Q23, Q42, Q54  

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