Temporal Dynamics of Production Technology and Final Demand: Evaluating New Yorkâ€™s Forest Sector Output Contribution along its Supply Chain and Value Chain.

Topic:
Author: Basanta Lamsal
Co-Authors: John Wagner Eric, Mariela Cavo

This study examines the trend of economic contribution of the NYS Forest Sector over a 22-year period, focusing on how the sector has influenced the state's economy through its supply and value chains. Utilizing the Input-Output framework, the analysis looks into the sector's role in supporting local industries by providing inputs and purchasing outputs and how shifts in production technology and final demand have impacted its economic contributions over time. The total output change was decomposed over time to analyze the changes in the sector's economic contribution attributed to the changes in Production Technology and the changes in Final Demand. Further, the column space expansion of these changes was carried out by diagonalizing the final demand vector, allowing us to examine the detailed study of trend analysis along the supply and value chains of the sector. The developed model was used to study the dynamics of production technology and the final demand of New York Stateâ€™s Forest Sector.
The study reveals a significant decline in the New York Forest Sector's output, attributable to reduced demand and external economic pressures, including the impacts of the 2008-2009 Great Recession and the COVID-19 pandemic. Despite an increase in local input usage, which contributed to a 4.2% rise in output due to technological advancements, the overwhelming decrease in final demand led to a substantial fall in overall sector output. In fact, over the 22 years, the sector experienced a notable downturn, with a 33.3% decrease in production along its supply chain. The study further identifies a declining demand for forest products within the sector's value chain. Over 22 years, the NY Forest Sectorâ€™s total gross output decreased by about 34%, of which 30% was attributed to the change in final demand and 4% was attributed to technological change. However, a modest recovery observed in 2022 indicates a potential shift towards more localized supply chains, suggesting a growing preference for intra-state trade, which could provide long-term benefits to the sector. Further, despite the reduction in total output contribution, the NY Forest Sector exhibited signs of resilience and potential for recovery, particularly in the years following the great recession and up until the onset of the pandemic. The findings highlight the importance of understanding sector-specific dynamics and the need for targeted policy interventions to support the forest sector's resilience and growth.