ELLIOT

Economic modelling of the international wood trade for an assessment of its economic and environmental impact: a new approach focused on Asia.

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Action(s) thématique(s) concernée(s) : WP4 - Forest Bioeconomy: Actors, Territories, Resources and Economic Sectors

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Context —
The trade of wood products is a complex web of global exchanges and local supplies and demands. The modeller's role is to try to understand how wood trade flows are organized on a global scale, in order to propose a simplified and understandable representation of these flows.

The models currently available to represent the global wood economy are the so-called "forest sector" models. These models represent the different segments of the forest sector and their interactions, but struggle to realistically represent wood flows. Based on this observation, the doctoral thesis co-financed by project ELLIOT seeks to answer the following question: how are the global wood flows organized and how can they be represented?

Objectives —
The objective of the thesis is to propose a model of the global wood economy assuming a strong link between the urban world and wood consumption. We assume that the Asian urban world, which is nowadays very dynamic, is a center of gravity of the global wood trade. The project seeks first to identify the determinants used in economics to model wood trade flows.

Approaches —
To date, we performed a meta-analysis on 499 publications in English and French about wood trade flow modeling, published between 1972 and 2022.

Key results — (presented as separated bullet points)
• Wood trade flow models use a narrow set of determinants: price determinants, interdependence determinants, political determinants, and quantity determinants.
• The majority of the literature rarely uses some of the determinants that are considered for other products or economic sectors, such as urbanization or finance.

Main conclusions including key points of discussion —
• Our results point out that, since the 1970s, and regardless of the applications, the current body of work on wood trade flow modelling has relied on a narrow set of determinants, neglecting other possible determinants which could have significant implications if taken in account. This is particularly true of urbanization.

Perspectives —
• Compared to the perception of what are the driving forces of the forest sector economics in recent decades, new issues that have risen require to integrate new categories of determinants.
• Other literature identifies cities as major wood consumers: urbanization is a determinant to be explored and tested.

Valorization —

• Scientific: Submission of a draft article to two conferences in economics, one international (European Association of Environmental and Resource Economics, EAERE), the other French (Association Française de Sciences Economiques, AFSE).

• Dissemination: Participation of the PhD student in several training and scientific mediation events (Experimentarium, Nuit Européenne des Chercheurs de Dijon 2021).

Leveraging effect of the project—

• Collaboration with the Master Sciences du Bois of the University of Montpellier: teaching in forest economics and carbon economics at a master level.

• Collaboration with CIRAD: co-direction of the thesis by Jean-Marc Roda, economist at CIRAD's UMR Forests and Societies in Malaysia-Indonesia.