

EGU21-16050

<https://doi.org/10.5194/egusphere-egu21-16050>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



## Global Deforestation Revisited: The Role of Political and Institutional Factors

**Ianna Raissa Moreira Dantas** and Mareike Söder

Institute for the World Economy, Global Commons and Climate Policy, Kiel, Germany ([dantas.ianna@yahoo.com.br](mailto:dantas.ianna@yahoo.com.br))

In times of international agreements and efforts to mitigate climate change and meet sustainable development, ecosystem management and forest conservation deserve special attention to promote human and environmental sustenance. Tropical forests have been declining worldwide, and biodiversity is under constant threat. Understanding the future potential of environmental services requires analysis of the relationship of socioeconomic drivers and anthropogenic land use change (LUC). Population and economic growth, agricultural production, and human capital have a dual relationship of cause and consequence with LUC. Likewise, changing patterns of land use, through agriculture and silviculture activities, is directly associated to market and technical progress, but also to political, institutional, and socioeconomic development. Studying such relationships enhances the analyses on the ability of institutional factors to promote environmental conservation, economic growth, and social welfare. Studies on LUC are historically based on physical variables; however, institutional and political drivers have shown to be core to forest degradation. The present paper aims at investigating the role of physical and institutional factor on global deforestation. This paper draws from recent global remote sensing data on land use from ESA Climate Change Initiative (ESA/CCI) from 1992 and 2015. To assess drivers of deforestation, we employ a logit model regression accounting for a global spatially explicit dataset on land use, regressed with physical, economic, and socioeconomic variables. We make use of the suitability indicators calculated by IIASA for different agricultural crops within the Global Agro-Ecological Zones modelling. As institutional factors we consider areas under protection based on spatial datasets provided by UNEP and wetland international, and include the country level corruption index of Transparency International. Our preliminary analysis shows that institutional instability is significantly related to LUC. In areas where land should be under protection due to non-market ecosystem services, political instability is likely to stimulate land use. Likewise, insecurity in land tenure might lead to a short-term maximization of profits, through full deforestation and exploitation of the soil fertility, instead of a long-term sustainable use.