Multi-Species Forest Vintages and Carbon Sequestration
Multi-Species Forest Vintages and Carbon Sequestration

Clara Costa-Duarte, Maria A. Cunha-e-Sá, and Renato Rosa

The use of forests as carbon sinks is examined by introducing carbon sequestration benefits' accounting in a multi-vintage, multi-species land allocation model. Using the carbon flow accounting method, a full proof of long run optimality of steady state forest is provided. Based on sensitivity analysis with respect to each species' speed of growth, the carbon conversion factor and the amount of carbon that is stored in long-lived wood products among species, we conclude that they impact significantly on the optimal allocation of land to forest. In particular, when the fast growing species is also the one for which a lower fraction of wood is used in long-lived products, it may be optimal to allocate to the slow growing species a larger amount of land when compared to the case without carbon. Numerical simulations are performed, illustrating and confirming the results obtained.

Faculdade de Economia
Universidade Nova de Lisboa
mcunhasa@fe.unl.pt