

Differential Games in Environmental Economics

Aart de Zeeuw
TSC and CentER
Tilburg University
the Netherlands

Abstract

This tutorial will not try to give an overview of this by now quite extended area but it will instead focus on what seems to be some main lines of research. The interaction between equilibrium concepts and available techniques drives an important part of the research. This can be seen as part of the Nash programme with the purpose to design equilibria that support social welfare. The question arises: can social welfare result from cleverly designed non-cooperative equilibria or is a policy like taxation needed to correct for inefficiencies?

The tutorial will build on two vehicles: the international pollution control problem and the management of a non-linear ecological system (the lake model). In this way some main steps in the analyses can be explicitly given and illustrated. It will be shown that non-linear feedback equilibria may improve the outcome but do not always work and may yield worse results for non-linear systems. Taxation with the purpose to correct for inefficiencies, however, works better in case of feedback strategies.