Multiple International Environmental Agreements

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The present study is designed to enrich the existing literature on International Environmental Agreements (IEAs) with a notion of global Multiple International Environmental Agreements (MIEAs). The principal objective of this research is to develop a conceptual model of MIEA.

Because many environmental issues are global in nature, countries have increasingly recognized the importance of worldwide cooperation to develop common solutions to the problem. That has led to the signature of numerous IEAs such as Montreal Protocol (1987), Kyoto Protocol (1997), the Paris Agreement (2015). It is unfortunate that little has been done in compliance with the requirements of the above mentioned agreements to achieve desired targets due to free-ride incentives of members and the complexity of the agreements themselves. The early MIEAs focused primarily on transboundary pollution. In the last decade, they emerged as an alternative approach to address global environmental issues. Among the well-known MIEAs are North American Agreement on Environmental Cooperation (NAAEC), European Union Multilateral Environmental Agreements between its Member States and non-EU Member countries such the Seventh Environment Action Programme (7th EAP), Asia-Pacific Partnership on Clean Development and Climate (APP).

In spite of the widespread agreement on the importance of IEAs there were no attempts in the literature to carry the analysis on MIEAs outside the cases of transboundary pollution. The majority of literature has been content to analyze one IEA as Grand Coalition and examine two concepts of stability, internal and external (Barret 1994, Carraro et al. 1994, Hoel 1992, Diamantoudi 2006), efficiency and inefficiency of an agreement (Diamantoudi et al. 2007) and its farsightedness (Ray and Vohra 2001, Diamantoudi et al. 2015).

My thesis consists of three essays. In the first essay I will introduce the model of global Multiple International Environmental Agreements, employing concepts from game theory. Based on quadratic welfare function the equilibrium size of coalitions will be evaluated. Two standard notions of stability will be examined. I will investigate the features of both, symmetric and asymmetric coalitions within the framework. In my second and third essays the new concept of stability will be explored. Here profitable deviations across coalitions would be allowed. In the end, the properties of MIEAs will be examined and a new solution concept tailored specifically for Multiple International Environmental Agreements will be presented.

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