

QUANTITATIVE ANALYSIS OF THE EFFECTIVENESS OF INTERNATIONAL ENVIRONMENTAL AGREEMENTS

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The rapid increase in trans-boundary environmental problems has created a need for greater role of global cooperation among nations. Scholars' interest in the effectiveness of international environment agreements (IEAs) has increased in line with the significant increase of IEAs since 1970s. IEAs are the one of the representative international institutional instruments for coping with global environmental degradation. Therefore, analyzing and evaluating the effectiveness of IEAs is needed for the further sustainable development. However, there are not yet sufficient studies using quantitative analysis, and discussions about the practical effectiveness of IEAs is still controversial.

Previous studies have primarily been case studies, due to diversity of characteristic of IEAs and difficulties of collecting data and evaluating the effectiveness of IEAs. However, in line with an increasing number of IEAs and building databases of IEAs, quantitative studies have been conducted utilizing various methodologies. Quantitative approaches can make up for the weaknesses of qualitative approaches, so quantitative methodologists researching IEAs try to grasp causal relationships in IEAs by analyzing numerical data (Mitchell and Bernauer 1998).

Also, the majority of previous studies have been utilized the data from particular agreements, so they have a limited ability to grasp an overall characteristics of IEAs. Moreover, results from previous studies are also open to dispute. While some scholars insist that their results show positive effects of IEAs on environmental performances (Murdoch et al. 1997; Helm and Sprinz 2000; Aakvik and Tjøtta 2007), other studies have raised questions about the actual effectiveness of IEAs using empirical evidences (Ringquist and Kostadinova, 2005). Therefore, there are strong needs to broaden research subjects and models to comprehend the practical effectiveness of IEAs more clearly in order to establish the shape of effective international environmental cooperation.

This study attempts to answer the question: what kind of IEAs are effective on eliminating or reducing particular environmental problems? To answer this question, this presentation is organized as follows. The first section offers the review of previous studies which examine the effectiveness of IEAs through quantitative approaches. In the second section, each IEA's effectiveness and factors influencing the effectiveness of IEAs are examined by doing empirical analysis. In terms of methodology, panel data which contains not only particular IEAs, but various IEAs are used for regression analysis. The last section presents concluding remarks including suggestions for the further sustainable development from the viewpoint of international environmental governance.