Dipartimento di Scienze Economiche, Matematiche e Statistiche

Università degli Studi di Foggia

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Marta Biancardi e Giovanni Villani

Quaderno n. 04/2011

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Dipartimento di Scienze Economiche, Matematiche e Statistiche, Largo Papa Giovanni Paolo II, 1,
71121 Foggia (Italy), Phone +39 0881-75.37.30, Fax +39 0881-77.56.16

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Marta Biancardi, Giovanni Villani

Department of Economics, Mathematics and Statistics, University of Foggia,

Largo Papa Giovanni Paolo II,1,   71100 - Foggia, Italy;

m.biancardi@unifg.it, g.villani@unifg.it

Abstract

In this paper we study the formation and the stability of International Environmental Agreements (IEAs) in a pollution abatement model with a quadratic cost function. Countries play a two-stage game: in the first stage each country decides to join or not the coalition while, in the - second stage, the quantity of pollution abatement is chosen. To analyze the stability of coalition structures in a multiple coalition game, we use the notion of the Largest Consistent Set (LCS) which allows players to be farsighted.

In an abstract context, Chwe (1994) developed the concept of farsighted stability: an outcome is stable and it is in the LCS if and only if deviations from it or potential further deviations are not unanimously preferred to the original outcome by the coalition considering the deviations. Applying this notion of stability in the IEA context we assume that, when a country or a sub-coalition contemplate exiting or joining an agreement, it takes into account the reactions of other countries ignited by its own actions.

We identify what would be the resulting stable structures and the LCS, examining the indicator of countries' environmental awareness proposed by the model. A particular analysis is proposed about the Grand Coalition. Moreover, we present a handy Maple algorithm to compare the cost functions and to determine direct dominance.

Keywords: IEA; Farsightedness; Implementation.
JEL Codes: F50; C60.

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