Marginal Contributions and Externalities in the Value*

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Abstract

Our concern is the extension of the theory of the Shapley value to problems involving externalities. Using the standard axiom systems behind the Shapley value leads to the identification of bounds on players’ payoffs around an “externality-free” value. The approach determines the direction and maximum size of Pigouvian-like transfers among players, transfers based on the specific nature of externalities that are compatible with basic normative principles. Examples are provided to illustrate the approach and to draw comparisons with previous literature.

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1 Introduction

Since the path-breaking work of Shapley (1953), much effort has been devoted to the problem of “fair” distribution of the surplus generated by a collection of people that are willing to cooperate with one another. More recently, the same question has been posed in the realistic case where externalities across coalitions are present. This is the general problem to which this paper contributes. The presence of such externalities is an important feature in many applications. In an oligopolistic market, the profit of a cartel

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