ON THE STABILITY AND OPTIMALITY OF COALITIONS VOLUNTARILY PROVIDING IMPURE PUBLIC GOODS

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EXTENDED ABSTRACT

We consider a society whose members like both private and public goods, the public good being financed by the private contributions of these agents. The society need not stand as a whole and at any moment we may observe a partition of the society, which we call a coalition structure in this society, where each coalition produces its own public good and excludes the remaining agents from its consumption.

Our paper attempts to analyze the process of coalition forming via coalition structural games, as introduced by Sertel (1992) and analyzed by Eren (1993). Of course, whichever coalition structure is formed, each coalition confronts the problem of determining the level of public good to be produced, and of deciding how to share its cost among the agents. As one could expect, the answer to this last question directly affects the coalition structures that we would expect to see in the society.

We assume that any subcoalition of the society produces its public good by the voluntary contributions of its members[1] and ask which coalition structures would be stable under this rule. We say that a coalition structure is stable when individual moves from coalition to coalition are hindered by agents with legal blocking rights under a given code of membership property rights. So membership is a private property as in the worker-partnership model proposed by Sertel (1982) and a membership property rights code gives the list of agents who must be considered when an individual desires to end his membership in one coalition and be the member of a new coalition.[2]

Aşan and Sanver (2003) analyse the stability and optimality of coalition structures in a world of pure public goods. They show that in a world where agents are allowed to enter to and exit from coalitions without consulting anybody else, there exists a unique stable coalition structure, the grand coalition, which coincides with the unique efficient coalition structure. Tightening the membership property rights in the sense of requiring the consultation of more people for individual moves increases the number

[1] The voluntary contributions solution is analyzed in details by Bergstrom, Blume and Varian (1986).
[2] A detailed analysis of this concept can be found in Sertel (1998).

of stable coalition structures, hence leading the stability-efficiency equivalence to collapse.

Of course, these positive results are valid under the absence of a crowding effect. If the public good is impure, then the grand coalition need not be efficient anymore. In fact, there exists no coalition structure which guarantees efficiency and depending on the preferences of agents, any coalition structure may be efficient. Similarly for stability. None of the possible coalition structures guarantees or fails to be stable at every possible preference profile. Moreover under free exit and free entry, neither efficiency implies stability, nor stability implies efficiency. So we ask whether it is possible to obtain a stability-efficiency equivalence other different membership property rights. However this is not possible either as we can only tighten these which will increase the number of stable coalitions. So we design a mechanism with side payments which ensures the equivalence of stable and efficient coalition structures.

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