Non Constant Sum and R+S Player Extensions of the Linear Programming Representation of Two Person Constant Sum Games

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ABSTRACT

This paper has two purposes. The first is to present theorems and results which show how the linear programming formulation of a two person noncooperative game can usefully be extended to include: i) resource constraints; ii) prior information concerning an opponent's potential choice of strategies; iii) explicit modelling of the play:don't play decision and; iv) ideas of strategic equivalence and of intervening duality which extend the linear programming approach to nonconstant sum and explicitly bargaining related cases. The second purpose of the paper is to extend all of these results further to include cases in which there are $R>1$ cooperating players on the primal side and $S>1$ cooperating opponents on the dual side. Throughout the paper ideas and results will be illustrated by using farmer and landowner and weather related examples.

Some relevant references

Ryan, M.J., 2000a, "Economies of Scale and Scope, Contestability, Windfall Profits and Regulatory Risk?., Manchester School, 68,6, 701-722.