

Taxed Matrix Games and Changes in the Expected Transfer

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Abstract

For a zerosum matrix game A and mixed strategies p and q of the two players, the expected payoff is given by $v(A; p, q) = \sum \sum p_i q_j a_{ij}$. In this paper instead of the expected payoff the **expected transfer** is defined by $ET(A; p, q) = \sum \sum p_i q_j |a_{ij}|$. Question: How does this expected transfer change when the winner has to pay a tax proportional to his win?

Paradoxically, for small fair matrix games the tax leads to an **increased expected transfer**. This phenomenon occurs also in analogous situations with tax on the loser, bonus for the winner, or bonus for the loser. Our results may play a role in the discussion on transfer taxes for stock or exchange markets.

MSC: 91A35 Decision theory for games, 91A40 Game-theoretic models

Key words: matrix game, expected transfer, taxed matrix game, bimatrix game, sensitivity analysis, tax paradox, transfer tax, Tobin Tax