

# Thesis Abstract

Henk Schouten, University of Western Ontario

hschoute@uwo.ca

**Upsets in the All-Pay Auction (Job-Market Paper).** I consider a symmetric two-player binary-signal all-pay auction with correlated signals and interdependent valuations. Because a monotone equilibrium need not exist, this paper provides a novel, less restrictive notion of a weakly monotone equilibrium and provides conditions for its existence. In a weakly monotone equilibrium, the bid supports are ordered by the strong set order and yet the bid supports of a low signal player can overlap with that of a high signal player. That is, while a bidder with a low signal wins with a lower probability than the same bidder with a high signal, a player may bid higher when he gets a low signal than when he gets a high signal. The main finding is that a unique equilibrium exists for all but one configuration of the primitives. This unique equilibrium can only be one of four forms of equilibria, all of which are weakly monotone and symmetric. This paper provides a full characterization of each form of equilibrium and gives conditions for their existence. I apply my all-pay auction model to elections, where a candidate that receives good news from the polls behaves in a rationally overconfident manner and reduces her equilibrium effort. Consequently, the other candidate can win the election in an upset.

**The Symmetric Weakly Monotone Equilibrium of the All-Pay Auction.** Recently, the all-pay auction literature has characterized equilibria that are not monotone in the traditional sense for a setting with two types. However, no such characterizations have been made for a general N-type space. This is because the binary type space allows for a guess-verify approach. Since the amount of possible guesses increases rapidly, such an approach is infeasible for larger type spaces. I characterize the set of symmetric equilibria in a general N-type two-player all-pay auction with arbitrary type dependency and interdependent valuations. My approach is centered around linear algebra techniques and a novel notion of a weakly monotone equilibrium. I classify these weakly monotone equilibria into four primary forms. I characterize each form and find sufficient conditions for their existence. Furthermore, I provide a novel necessary and sufficient condition for the existence of a traditional monotone equilibrium.

**War and Peace, Conflict over a Prize with Common Value.** I consider a two-stage game: a negotiation stage followed by a conflict stage in case the negotiations break down. In a setting with multi-dimensional correlated types, two players compete over a good that is of uncertain but common value. Conflict is modeled as an all-pay auction, which endogenizes the cost of conflict. In the literature, which assumes independent private values or costs, a peaceful equilibrium, in which war occurs with zero probability, need not exist. I find that in my correlated pure common-value model, a peaceful equilibrium always exists and is essentially unique. Further, I show that adding private values to this model worsens the prospect of peace, and conflict might occur.