

Overcoming strategic ambiguity in auctions and detecting collusive pricing patterns in retailers markets: Two novel approaches to address real-world issues.

Abstract: The presentation will review the main findings of a project exploring bounded rationality in auction markets. The project involves four studies on the strategic ambiguity that arises from one's ignorance of the intentions of others in real-world interactive settings, such as auctions and bargaining contexts. Additionally, it will outline a project on the detection of collusive pricing in the retailers' petrol markets of Western Australia and New South Wales in Australia.

Bounded Rationality in Auctions: The allocation of goods and services via bidding procedures has become ubiquitous in modern economies and has triggered a considerable interest among economists to design and assess 'optimal' mechanisms. The first three investigations of this project, with Hang Wu, propose a novel Impulse Balance Equilibrium heuristic for auction games that entails the rational expected profit-maximization predictions for single-unit auctions as a special case, and that rationalizes much of the misbehavior observed in laboratory experiments on first-price and all-pay auctions, common-value auctions, and on a class of multiple unit auctions. This decision-making approach overcomes strategic ambiguity in *pay-your-bid* auctions and resolves the problem of modeling bidders' heterogeneous preferences in auction games. It also outperforms existing bidding models in terms of goodness-of-fit.

The fourth investigation, with Nobi Hanaki and Tibor Neugebauer is still 'on-going' and tackles the auctioneer's problem of always disclosing or always concealing the available supply for sale in multiple unit auctions. We theoretically and experimentally compare the expected revenues performances of repeated sequential and simultaneous auctions with a varying supply. The complex bidding environment of these experiments matches best that of real-world auctions of perishables and allows us to assess *between-day* dynamics on the formation of prices. The data indicates that (i) always concealing the available supply for sale increases long-run expected revenues in both auction formats (as predicted) and (ii) that the systematic disclosure of the available supply generates more revenues in simultaneous auctions, what contradicts the rational predictions and is best captured by strategic ambiguity in sequential auctions.

Detecting Collusion: Petrol prices have been a contentious issue in Australia (and elsewhere), with widespread suspicion among consumers and the Australian Competition and Consumer Commission of collusive behavior among petrol stations to keep prices high. Studying collusion (or market power) in industries with thousands of actors operating on multiple local markets is challenging, as the conclusions reached tend to overlook local specificities. This project, with David Frigaard, will contribute to the literature by using Machine Learning routines to detect price sequence alignments and clusters of collusive behavior in two markets (states) that operate under different price fixing-regimes. In Western Australia petrol stations can change/update their prices only once a day (by 2:00pm), whereas in New South Wales prices can be changed at any time and multiple times. This study will compare price alignments and the existence/formation of clusters in each market over a long period of time to document which of these regimes preempts best anti-competitive behavior.