

## RESEARCH

# *Auctions Design*

### OBJECTIVES

Auctions are market-based procedures to allocate objects or contracts among bidders. Their strength is their ability to pool information before making a price or allocation decision. This often generates better prices for the auctioneer and more efficient allocations. In addition, auctions are transparent and often easy to organize, unlike some of their alternatives. For these reasons, auctions are increasingly used in practice. Firms use auctions to procure goods and services. The new European Public Procurement Directives (2004/17 and 2004/18) define the auction formats public entities can use when allocating public contracts and encourage the use of web-based auctions. Auctions are also used in privatization, IPOs or in allocating scarce resources such as electricity capacity. Finally, national banks use auctions of treasury bills in their conduct of monetary policy.

In practice, there are many ways to organize an auction: the auctioneer needs to decide on participation rules, bidding rules, how much information bidders receive, how winners and their resulting obligations are determined. There are also many ways to go wrong, a notable example being the 3G spectrum auctions held in Belgium where the auction raised 10% of what had been planned.

The objective is to develop expertise in how to design an auction best suited to the economic environment (potential market participants, type of contracts being auctioned, and so on) and the auctioneer's needs.

### RESEARCH TEAM

ECORE's team in auctions design consists of the following full time permanent faculty members: Claude d'Aspremont, Estelle Cantillon, Victor Ginsburgh, Patrick Legros and Yves Smeers. Several doctoral students are also currently working in this area.

## RESEARCH AREAS

The following topics are areas of ongoing and future research. They are supported by doctoral courses in advanced microeconomics, auction theory and market design, where doctoral students get up to speed with the current methods and research frontier.

**The design of procurement auctions when both quality and price matter.** Quality is often important for buyers. ECORE researchers are contributing to the ongoing debate in practice and in academia on the best way to incorporate quality in allocation procedures.

**Electricity and capacity auctions.** Deregulation has brought auction and market design to the electricity sector. At the same time, the sector operates under very specific institutional and technical constraints. ECORE researchers have developed an expertise in electricity markets.

**Multi-unit auctions.** When an auctioneer has several goods to sell or when a buyer has several goods to buy, should he hold separate, sequential auctions or should he sell / buy all goods at the same time? If so, should he allow bidders to submit bids on packages as well? Only partial answers to these questions are known and ECORE researchers are contributing to the existing academic debate by their empirical and theoretical research on the subject.

**Organizing auctions on the Internet.** The Internet has led to an explosion of auction sites. At the same time, the Internet has vastly increased the number of options auctioneers need to think about when setting up an auction, including what kind of information about participants to reveal.

**Treasury bills auctions.** National banks and the European Central Bank use auctions in their daily management of money supply. ECORE researchers are developing methods to analyze data from these auctions in order to evaluate accurately the optimality of the choice of the auctions formats.

## CONTACTS

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