

## **Project Ideas for Economics 415**

### ***Professor Peter Cramton***

#### ***Spectrum Auctions***

- The FCC is going to begin using combinatorial bidding (or package bidding) in the 700 MHz auction. When does package bidding make sense? Compare and contrast the strategic factors in the FCC's standard simultaneous ascending auction and in the simultaneous ascending auction with package bidding.
- The 3G auctions in Europe have raised over \$100 billion. Many telcos and equipment manufacturers are concerned that this is sucking much needed capital from the industry. What is their concern? Does it make economic sense? What is a good solution to the problem?
- In the recent C&F block re-auction, most of the licenses were won by bidding fronts that were owned by the six largest wireless operators. Is this a problem? What can the FCC do to mitigate this problem?
- The US is in need of spectrum to offer 3G services. What options are available? How can additional spectrum best be found and cleared of any incumbents?
- In Europe, there has been a debate about whether to use auctions to assign spectrum licenses or beauty contests. Comment on the debate. What are the pros and cons of both? What would you recommend? Does a beauty contest every make sense? If so, how should it be structured?
- C-block auction winners are having a difficult time raising capital on Wall Street. Most of the major winners defaulted. What are the difficulties with defaults? Why may this happen? What can the FCC learn for future auctions?
- The DEF auction was the largest to date in terms of number of licenses (nearly 1500). Prices were low. Why? Did the small business F-block bidders bid on the DE blocks? Was there evidence of "splitting up the pie without using price"? Were punishment strategies used? Why did we see all the withdrawals? Were they part of nice punishments or for some other purpose?
- Some of the large bidders in the C-block auction had questionable financing (NextWave) or ownership structures (NorthCoast). What effect did these large bidders have in the auction? Were true small bidders harmed by their presence?
- Evaluate the impact of women/minority/small business preferences in the FCC spectrum auctions. Do these preferences make sense? What are the costs and benefits of preferences? How can they best be structured? What are the risks?
- A few of the FCC auctions involve very few bidders. Examples include the DBS auction and the DARS auction. What are the special features of these auctions? What can we learn from the bidding in these auctions? Are there alternative auction designs that might have worked better?
- The IVDS auction of July 1994 is widely viewed as a failure. What went wrong? How could the auction have been improved? Analyze the bidding in the auction. Is there evidence of irrational bidding in the auction?
- The FCC as directed by Congress is giving the broadcasters additional spectrum for broadcasting digital programming. Does this make sense? Why are auctions not used in this case?

#### ***Electricity Auctions***

- California is currently experiencing a crisis in its electricity market. Identify the causes of the problem and propose solutions.

- The UK has an electricity auction in which prices and allocations are determined by a “black box” after bidders submit complex bids. What are the advantages and disadvantages of this system? One of two dominant firms is almost always the marginal bidder in these auctions. What is the effect of this market power? How can it be avoided?
- The UK electricity market intends to switch from uniform pricing to pay-as-bid pricing. Does this make sense? What are the various tradeoffs?
- Discuss the issues in the debate on how to auction electricity in California. What appears to be the best plan?
- As a result of deregulation in electricity, many utility companies have some highly inefficient generators. What should be done with these “stranded assets”? Present the debate and the various proposals in the U.S.
- Critique alternative methods of auctioning generation assets.

### ***Trade negotiations***

- The US is often involved in trade negotiations with other countries. Pick a particular negotiation and analyze the negotiation using methods from game theory. What is the objective of the countries? What are the issues of negotiation and the instruments used in the process of reaching agreement?

### ***Natural Gas Auctions***

- Enron has created a large and successful business as a market maker in natural gas. Describe what it has done and why it has been successful. Are there alternative market designs that might yield even more efficient outcomes?

### ***Treasury Auctions***

- Analyze the experiment by the U.S. Treasury with the uniform-price auction. From this experiment, can we conclude whether the Treasury should use a uniform-price or pay-your-bid auction? What are the problems with the experiment? What are the issues of auction design?

### ***Emissions Permits***

- The SO<sub>2</sub> emission permit auctions have a strange design. What are the problems with the design? How did the design influence outcomes? How could the program be improved?
- Present a program for CO<sub>2</sub> emissions permit auctions. What are the design issues? How should a permit be defined? Who gets the money? Will such an auction work?

### ***Airport Slots***

- Why does it make sense to auction landing rights at congested airports? What are the difficulties of such an auction? Can these difficulties be overcome?

### ***Internet Auctions***

- Several companies are now conducting auctions over the World-Wide-Web. The most successful is ebay ([www.ebay.com](http://www.ebay.com)). What bidding rules do they have? Do these rules make sense? Analyze behavior in these auctions. What are the advantages/disadvantages of auctioning over the Internet? Why has ebay been so successful?

- Business-to-business e-commerce may revolutionize the way that companies do business. Will this revolution be a success? In what areas? What kind of firms will succeed? What kind of firms will fail?
- E-business enables a host of pricing strategies that were difficult or impossible to implement in a traditional business. Describe the new options and analyze an effective pricing strategy for a particular e-business application.

### ***Allocating Scarce Resources on Campus***

- Student tickets for Maryland basketball games were allocated by students waiting in line before the disaster in Spring of 2002. Now they are allocated by lottery. Is there a better way? Design an auction to allocate the tickets.
- Parking permits are in scarce supply, even though fees are more than doubling. People pay the same fee whether they get a good permit or an inferior permit. Design a better method for allocating parking permits to Faculty/Staff and to Students.