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In Public Notice DA 06-238, the FCC proposes alterations to the rules for the forthcoming Auction 66 for Advanced Wireless Services. We submit this comment in the hope that our economic research (cited below) can inform the rulemaking process for this potentially very important auction.

In Section II.A.2, the FCC suggests that the identity of bidders and winning bids no longer be disclosed to rival bidders in SMR auctions. In Section II.B.5, the FCC proposes restricting bidders to choose from a menu of nine bid levels. Both changes have theoretical and empirical support.

Our research shows that the identities of winning bidders do affect the economic efficiency of the post-auction wireless industry. Empirical analysis of the equilibria in past auctions suggests that bidders treat geographically near packages as complements: the value of two near licenses if won together exceeds the value of the licenses if won separately. This finding is consistent with economies of geographic scope in mobile telephony. The FCC has a public service motive to ensure that license allocation is not distorted by strategic behavior by bidders within the auction. In particular, the FCC should design rules to allow bidders to competitively create packages of complementary licenses, if bidders in the AWS auction also have such valuations.

Because many licenses are auctioned at once in a FCC SMR auction, rival bidders can interact in the bidding on many licenses. Consider an example of bidding on three geographically near licenses. Bidder A is the high bidder on items 1 and 2, and bidder B is the high bidder on item 3. Assume it is efficient for A to win all three items in order to capture complementarities. However, if A outbids B on item 3, bidder B can see that A is competing with it, and punish A by bidding on items 1 and 2, raising A's eventual costs of acquiring licenses 1 and 2. B can further signal A by jump bidding on either items 1, 2 or 3, in order to signal A to back off. Seeing this, A may find it profitable to not compete for item 3, making the eventual outcome (A wins 1 and 2, B wins 3) both economically inefficient (full complementarities are not realized) and suboptimal in terms of revenue to the government, as items 1, 2 and 3 sell for lower prices than under competitive bidding.

Our empirical research shows that in a previous FCC SMR auction, past jump bidding by a rival is negatively correlated with a bidder adding a license to its winning package. Thus signaling behavior does appear to make aggressive bidding to secure a license less attractive. We believe it is possible that jump bidding encouraged bidders to not add geographically near licenses to complement clusters of licenses.

The rule change in Section II.A.2, hiding the identities of competing bidders, would make the retaliation scenario described above difficult. For bidder B to punish bidder A by

bidding on items 1 and 2, bidder B would have to guess that it was indeed bidder A competing for item 3, and that bidder A was the winning bidder on items 1 and 2.

The rule change in Section II.B.5 to restrict bidders to a menu of nine bid values makes it less likely that bidders can include sophisticated communications in bids. Our research has not focused on using the digits of a bid to encode signals, but other economists have documented this signaling behavior.

The two rule changes are mutually essential for either to be effective. If bids are anonymous but any bid level is possible, bidders will be able to communicate by choosing particular digits to signal license or bidder ID numbers. If bids are constrained to a pre-set menu, but bids are not anonymous, an aggressive jump bid will still be a very effective signal to tell a rival to back off or face retaliation on the rival's other licenses.

In conclusion, we believe our empirical economic investigation of past FCC SMR auctions presents evidence consistent with the likelihood of the rule changes in Sections II.B.5 and II.A.2 improving the efficiency of license assignments and raising the revenue to the government.

Sincerely,

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Citations

"Complementarities and Collusion in a FCC Spectrum Auction", by Patrick Bajari and Jeremy T. Fox, NBER Working Paper #11671, 2005.

"Collusive Bidding: Lessons from the FCC Spectrum Auctions", by Peter Cramton and Jesse A. Schwartz, *Journal of Regulatory Economics*, Number 3, Volume 17, 2000.