

FOSTERING WIRELESS COMPETITION THROUGH SPECTRUM AUCTION RULES : KEY ECONOMIC CONSIDERATIONS

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Topics

1. Restrictions on spectrum aggregation in auctions can foster wireless services competition
2. Advantages of auction spectrum caps
3. Shortcomings of post-auction reviews
4. Separate caps for different bands

For further discussion, see Jonathan B. Baker, *Spectrum Auction Rules That Foster Mobile Wireless Competition* (March 12, 2013) (submitted in FCC WT Docket Nos. 12-268 & 12-269).

1. Restrictions on Spectrum Aggregation in Auctions Can Foster Wireless Services Competition

The highest bidder need not offer the highest social value

- The total value of spectrum to a bidder equals the sum of its “use value” and “foreclosure value” to the firm
- A large incumbent wireless services provider places a “foreclosure value” on spectrum if it can obtain or enhance market power in wireless services by keeping the spectrum away from its rivals
- But firms that place a high foreclosure value on spectrum may outbid rivals with a higher use value, and win the spectrum at auction, when that would not be the best outcome for consumers or society as a whole
- Spectrum policies, such as auction rules incorporating spectrum ownership caps, can limit or prevent such competitive distortions

1. Restrictions on Spectrum Aggregation in Auctions

Can Foster Wireless Services Competition, Cont'd

Long-run problems from excessive spectrum aggregation may arise when technology is changing

- Long-run problems may arise if a small number of incumbent providers end up controlling large amounts of spectrum when future technologies and demand are uncertain
 - Incumbents may have the incentive and ability to prevent or delay the development of new competition by frustrating new technologies and business models brought to the market by smaller rivals and potential competitors (including firms that cannot now be identified)
 - The resulting harms may extend beyond downstream wireless services markets to markets for complementary products (e.g. wireless infrastructure and devices, wholesale wireless services, mobile applications)
- Auction rules and limits on secondary market transactions can help protect long-term competition in markets for services that use spectrum and complementary markets
 - New spectrum auctions offer a particularly valuable opportunity to do so because of the difficulty reallocating spectrum involuntarily once assigned
 - Current circumstances, including the nature of present-day scale economies, may not be a good predictor of future efficient scale, so should be given limited weight in developing spectrum cap standards for protecting long-run competition

2. Advantages of Auction Spectrum Caps

Clear auction rules with certain application can avoid competitive distortions that would arise from an after-the-fact review of auction results

- Rules limit distortions that would arise if firms base bids on potentially erroneous predictions of how the FCC will react in an after-the-fact review of auction results
 - Auction complexity – many parties, each making interdependent decisions regarding multiple alternatives available at the same time – amplifies this concern
- Reallocations following after-the-fact auction review will also be distorted:
 - because auction winners and losers make commitments to business plans that change their valuation of reallocated spectrum (see slide 8)
 - to the extent firms required to divest can influence the choice of spectrum to divest or the selection of the new owner
- Auction rules also avoid costs and delays associated with regulatory reviews, and avoid prolonging uncertainty about how spectrum would be allocated
- Case-by-case competition reviews make more sense for secondary market transactions that take place after time passes and circumstances change since the original spectrum allocation, and that are less complex than auctions

2. Advantages of Auction Spectrum Caps, Cont'd

Regulatory arbitrage would not undermine spectrum caps

- It is unlikely that spectrum caps would be circumvented by small firms making speculative purchases, with the goal of “flipping” the spectrum to firms prevented from bidding on it at auction by the spectrum cap
 - Speculative bidders bear a substantial risk that the FCC would not approve a secondary market transaction in the wake of an auction with a firm prohibited from bidding in the auction
 - Speculative bidders must also bear costs of auction participation, resale negotiation, and regulatory review, and financing costs of delay
 - Auction participation requirements could discourage speculative bidding

After-auction reviews would not yield better outcomes than spectrum caps

- A case-by-case after-auction review could not practically avoid applying general guidelines for preventing excessive spectrum agglomeration similar to those specified when developing a spectrum cap
- Spectrum caps can be fine-tuned auction-by auction to address changing conditions (e.g. spectrum availability) without undermining their benefits

2. Advantages of Auction Spectrum Caps, Cont'd

Spectrum caps can encourage auction participation, so need not reduce auction revenues and could increase them

- Spectrum caps can encourage auction participation by firms under the cap
 - Firms may not participate in auctions if they expect to be outbid by a large incumbent that would obtain a “foreclosure value.” If so, the incumbent may win the bid, and foreclose rivals, without bidding up the auction price.
 - Under such circumstances, spectrum caps can encourage auction participation. The resulting increase in revenues could offset (or more than offset) the revenue effect of reduced demand by large incumbents subject to the cap.
- Spectrum caps may increase regulatory certainty, thereby encouraging more aggressive bidding by large incumbent firms
 - Large incumbent firms that would be under the cap in various markets but would be uncertain about the outcome of a post-auction review would not need to discount bids to account for the risk they may later bear the costs of divesting the spectrum they have won

3. Shortcomings of Post-Auction Reviews

False positives and negatives may lead to inefficient spectrum allocation

- When auction results are reviewed ex-post, this could lead to false positives and false negatives; both may result in inefficient spectrum allocation.
 - o *False positive*: A large firm bids and wins but is forced to divest after the review. By the time the auction and review are over, other firms that could have won the original auction may have made alternative investments. Moreover, firms required to divest may be able to influence the choice of spectrum to divest or the identity of new owner based on foreclosure considerations.
 - o *False negative*: A large firm doesn't bid (or bids lower and loses) because of uncertainty regarding the approval of its acquisition; spectrum ends up with less efficient firm.

Bidders may exploit time-inconsistency problems with post-auction review

- By the time of the post auction review, some of the distortions of an inefficient spectrum acquisition are “sunk”: other potential acquirers have made alternative investments, costs of divesting are large, expensive to rerun auction.
- A forward-looking FCC would ignore sunk costs, leading to a different and less efficient *ex post* allocation than what the Commission would have allowed with *ex ante* rules
- Anticipating this, firms may be able to acquire spectrum through auction that a well-designed spectrum cap would have prevented them from purchasing in order to protect competition

4. Separate Caps for Different Bands

Separate caps have benefits regardless of substitution between different spectrum bands

- A large incumbent may disadvantage rivals (raising their production costs) by denying them access to low-frequency spectrum even if high-frequency spectrum can physically substitute to some extent with additional capital investment
 - The cost-penalty for providing service without using a mix of low-frequency (coverage) and high-frequency (capacity) spectrum is likely asymmetric: higher for providers that mainly employ high-frequency spectrum
- This problem would not be addressed successfully by an overall spectrum cap that does not distinguish spectrum bands
- Imposing caps on separate bands is not costly if caps are later found unnecessary
 - If the FCC later concludes that wireless services can be offered effectively using spectrum of any frequency, then separate spectrum band caps would not make much practical difference to wireless services markets
 - But if the FCC does not impose separate band caps when doing so would be warranted, wireless services competition would be harmed

4. Separate Caps for Different Bands, cont'd

Separate caps have benefits regardless of substitution between spectrum and infrastructure

- Even if (hypothetically) spectrum price differences offset the difference in discounted present value of capital investments needed to equalize quality of service, a large firm could foreclose rivals and limit competition by purchasing high-quality spectrum
 - Had the smaller rivals purchased high-quality spectrum, they would have offered service equivalent in quality to the large incumbents and compete with those incumbents aggressively
 - Once the smaller rivals have purchased lower-quality spectrum, their best option may not be to invest their full auction price “savings” on infrastructure, but instead to spend less on build-out and offer more targeted service (less coverage, more limited building penetration, or lower capacity), limiting the competitive constraint they impose on the large firm
- This problem would not be addressed successfully by an overall spectrum cap that does not distinguish spectrum bands