Auction Strategies - Part 2

Spectrum Auctions

The following excerpt is taken from the FCC Auctions website.

A **Spectrum auction** is a process whereby governments use an auction system to sell the rights to broadcast over specific electromagnetic wavelengths.

Since 1994, the Federal Communications Commission (FCC) has conducted auctions of licenses for electromagnetic spectrum. These auctions are open to any eligible company or individual that submits an application and upfront payment, and is found to be a qualified bidder by the Commission.

FCC auctions are conducted electronically and are accessible over the Internet. Thus, qualified bidders can place bids from the comfort of their home or office. Further, anyone with access to a computer with a web browser can follow the progress of an auction and view the results of each round.

In 1993, Congress passed the Omnibus Budget Reconciliation Act, which gave the Commission authority to use competitive bidding to choose from among two or more mutually exclusive applications for an initial license. Prior to this historic legislation, the Commission mainly relied upon comparative hearings and lotteries to select a single licensee from a pool of mutually

exclusive applicants for a license. The Commission has found that spectrum auctions more effectively assign licenses than either comparative hearings or lotteries. The auction approach is intended to award the licenses to those who will use them most effectively. Additionally, by using auctions, the Commission has reduced the average time from initial application to license grant to less than one year, and the public is now receiving the direct financial benefit from the award of licenses.

In the Balanced Budget Act of 1997, Congress extended and expanded the FCC's auction authority. The Act requires the FCC to use auctions to resolve mutually exclusive applications for initial licenses unless certain exemptions apply, including exemptions for public safety radio services, digital television licenses to replace analog licenses, and non-commercial educational and public broadcast stations.

Auction Designs

Simultaneous Multiple-Round (SMR) Auctions: In a simultaneous multiple-round (SMR) auction, all licenses are available for bidding throughout the entire auction, thus the term "simultaneous." Unlike most auctions in which bidding is continuous, SMR auctions have discrete, successive rounds, with the length of each round announced in advance by the Commission.

After each round closes, round results are processed and made public. Only then do bidders learn about the bids placed by other bidders. This provides information about the value of the licenses to all bidders and increases the likelihood that the licenses will be assigned to the bidders who value them the most. The period between auction rounds also allows bidders to take stock of, and perhaps adjust, their bidding strategies.

In an SMR auction, there is no preset number of rounds. Bidding continues, round after round, until a round occurs in which all bidder activity ceases. That round becomes the closing round of the auction.

Package Bidding: The Commission's SMR auction design can be modified to allow combinatorial or "package" bidding. With package bidding, bidders may place bids on groups of licenses as well as on individual licenses. This approach allows bidders to better express the value of any synergies (benefits from combining complementary items) that may exist among licenses and to avoid the risk of winning only part of a desired set.

In general, package bidding is appropriate when there are strong complementaries among licenses for some bidders and the pattern of those complementaries varies among bidders. Under these circumstances, package bidding yields an efficient outcome, ensuring that licenses are sold to those bidders who value them the most.

Package bidding procedures are also designed to allow the auction to proceed at an appropriate pace, to encourage straightforward bidding, and to permit bidders to employ flexible backup strategies.

How is an Auction Conducted?

Depending on the auction design, number of bidders, and the number of licenses being offered, an auction might run anywhere from one day to several weeks. Auctions are typically conducted Monday through Friday during normal business hours (Eastern Time). The first day of an

auction generally opens with long bidding periods, typically two bidding rounds lasting one or two hours each, followed by round results. As the auction continues, the Commission generally increases the number of rounds per day and decreases the duration of the rounds. Bidders drop out of the auction when licenses in which they are interested exceed the value they are willing to pay. The auction typically continues until all bidding activity stops.

Browser-Based Bidding Systems

FCC auctions are conducted electronically, and are accessible over the Internet. The FCC Automated Auction System is accessible by anyone using a personal computer with an Internet connection and a browser, such as Netscape Navigator or Microsoft Internet Explorer. (Bidders may also bid electronically through a dial-up network, as well as telephonically.) The system is state-of-the-art and is designed for ease of use. In fact, most operations can be performed by clicking a mouse button. A built-in help facility is also provided.

Activity Rules

In a traditional real-time or continuous auction, bidders often wait until the last minute to place their bids. However, the FCC has developed activity rules to ensure that participants bid actively throughout the auction. Before an auction, each bidder must submit an upfront payment that determines its bidding eligibility in the auction. During each round of the auction, each bidder is required to bid on a specified portion of its maximum eligibility. If a bidder does not meet this requirement, it uses an activity rule waiver (if available) or loses eligibility.

Reviewing Round Results

Round results are released within approximately 15 minutes after each round closes. They are available for downloading, both to bidders and to the general public. Interested parties may perform detailed analysis by loading these data files into a spreadsheet program or the Auction Tracking Tool, which is provided by the FCC for most auctions.

Closing

At the conclusion of the auction, the Commission issues a public notice declaring the auction closed, identifying winning bidders, and specifying the amounts of down payments due. At that time, winning bidders are typically given ten business days to supplement their upfront payments to satisfy the license down payment requirement. By the same deadline, winning bidders must electronically submit a properly completed long-form application and required exhibits to the appropriate licensing bureau.

The Argument for Auctioning Spectrum Rights

The following is from an FCC report on the overwhelming advantages of auctioning spectrum rights as opposed to alternative methods.

I. Mechanisms for Assigning Spectrum

When more than one party applies to use the same spectrum in the same geographic area on an exclusive basis, *i.e.*, when they are mutually exclusive applicants, the United States has used comparative hearings, lotteries, and auctions to select among applications. Our experience has been that auctions are superior to the alternatives because they are more likely to award licenses fairly and efficiently. Auctions assign licenses quickly to those who value them the most,

employ objective, transparent criteria, reduce wasteful private expenditures on obtaining licenses, and raise revenue for the public.

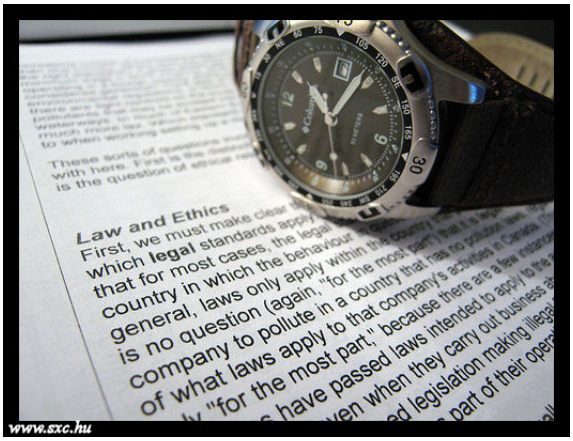
Comparative Hearings: Comparative hearings at the FCC are a quasi-judicial administrative process to select among competing applicants for spectrum licenses. Under this approach, the Commission evaluates applicants under comparative criteria established by rulemaking prior to the hearing.

Auctions: The Omnibus Budget Reconciliation Act of 1993 gave the FCC authority to use auctions to award licenses to the highest bidders. The auction authority was revised in 1997 and again in March 2000. Auctions are permitted for mutually exclusive, initial (as opposed to license renewal) applications. However, four types of licenses are exempt from the auction process: public safety radio; digital television for incumbent broadcasters; non-commercial educational broadcast and public broadcast; and international satellite. The FCC is also directed to ensure that small businesses, minorities, women and rural telephone companies ("designated entities" or DE's) have an opportunity to participate in the provision of spectrum-based services.

II. Evaluating Alternative Spectrum Assignment Mechanisms

The goals of spectrum assignment we consider here are: economic efficiency (maximizing the total benefits to the public of services provided with licenses, net of licensing costs), fairness (ensuring an equitable process and an equitable distribution of license benefits) and revenue for the public. An economically efficient licensing mechanism would assign licenses to parties that value them most highly, minimize wasteful private expenditures to obtain spectrum, foster (economically) efficient spectrum use and increase competition with existing spectrum-based services with minimum delay and cost to the government. The two fairness objectives that will

be used to evaluate alternative assignment mechanisms are perceived fairness of process—that is, the presence of a transparent methodology relying on objective criteria and the absence of political favoritism—and avoidance of windfalls for speculators.



All spectrum allocation and assignment procedures strive to ensure non-interference among spectrum uses. The implementation of any assignment system should be consistent with this purpose. Because both the assignment mechanisms evaluated here should be consistent with this objective, non-interference is not further discussed in this paper.

A. Economic Efficiency

Auctions maximize benefits to consumers by assigning licenses to the parties that value them most highly and fostering efficient spectrum use. Well-designed auctions are more likely than comparative hearings to assign licenses to the parties that value them most highly.

These parties are generally best able to provide consumers with the services they most want, while using the spectrum the most efficiently. Auctions also promote economically efficient spectrum use in two additional ways. First, they facilitate efficient combining of licenses across geographic areas and spectrum blocks. Second, they generate information about the value of spectrum for alternative uses that the FCC can use for future spectrum allocations.

Comparative hearings, or other assignment mechanisms that do not rely on price signals to guide decisions, are unlikely to be as good as auctions at awarding licenses to those that can best use them to implement needed wireless communications services.

Permitting resale of licenses awarded by hearings improves their efficiency, but they are still inferior to auctions. Sequential, after-market negotiations may not assign licenses to the parties that value them the most highly, or may take years to do so because of high transaction costs and strategic bargaining. For example, a license winner may act as a holdout when another party seeks to acquire the license in the after-market. This "holdout problem" may be particularly severe when a party is attempting to acquire multiple licenses held by numerous other entities.

Auctions minimize wasteful private expenditures in obtaining licenses. Under comparative hearings applicants expend real resources to increase their probability of winning a license—primarily the time of lawyers and engineers in preparing applications, litigating, and lobbying. While such expenditures are privately valuable, they are largely socially unproductive.

In contrast, competitive bidding minimizes such socially unproductive expenditures. With auctions applicants increase their chance of winning by raising their bids. The money that they bid is not used up in the application process. It is transferred to the government and available for socially productive public or private (if used to lower taxes) expenditures.

Auctions increase competition with existing services. A well-designed auction, by awarding spectrum to those who value it the most and by facilitating efficient aggregation, will increase the opportunities for competition in the telecommunications services market. This will result in lower prices for consumers and more rapid deployment of new technologies.

Where necessary, eligibility limitations or restrictions designed to prevent excessive market concentration can be employed with auctions to ensure that the auction outcomes will promote economic efficiency.

B. Fairness

Auctions are fair, objective, open and transparent processes. In contrast, comparative hearings can be subject to charges of bias. In addition, a comparative hearing process can be subject to political pressure, and there may be a resulting lack of public confidence in the decisions arising out of such hearings. Further, winners of comparative hearings are likely to receive a windfall at the expense of the public. The winners may earn excess profits via providing telecommunications services. Or, if resale is allowed, they may earn a windfall by quickly reselling the licenses. (Forbidding such resale would simply hide the windfall while reducing economic efficiency. To maximize economic efficiency permitting resale of spectrum rights is desirable. Resale allows for corrections in the initial assignment and provides for reassignment of licenses as circumstances change over time.)

C. Revenue

Auctions of spectrum licenses can raise substantial revenue for the public. The 32 auctions conducted by the FCC have raised over $32 billion for the U.S. Treasury. In contrast, comparative hearings raise no revenues in the absence of application or license fees, and it is not feasible to establish a set of fees that would raise as much revenue without information about license values that could only be generated in an auction.

III. Common Misconceptions about Auctions

Two major misconceptions about auctions are that they will raise the price of communications services and that they will reduce the investment in telecommunications services. We address these arguments in turn here, and then briefly address several other common misconceptions.

Misconception #1:

Auctions will raise the price of telecommunications services. The cost of winning bids at auctions will have no effect on the price customers pay for spectrum-based telecommunications services. Pricing depends on opportunity cost, not historical cost, and the opportunity cost of spectrum is independent of the assignment technique. The opportunity cost of a license is the amount that a firm forgoes by using it. This is what someone else would pay for its use. These market-clearing prices for licenses will be a function of current supply and demand conditions, not the historical cost at which firms acquired the licenses.

If the government auctioneer is not restricting the supply of spectrum, but rather making available as much as possible, and if there is effective competition, the prices firms set will be ones that maximize consumer benefits. To the extent that telecommunications service providers compete with each other for customers, no firm can raise service prices above the level set by the market. If the holders of spectrum licenses are not also the telecommunications service providers, but rather the suppliers of spectrum to such providers, then to ensure that consumer benefits are maximized it would be necessary to have competition in both the spectrum and telecommunications service markets. Moreover, to the extent that auctions assign licenses to the most efficient producers, facilitate efficient aggregation of spectrum, and move spectrum into the

production of services consumers value the most, they will tend to expand the supply and reduce the prices of the wireless services most valued by consumers.

Empirical evidence corresponds with this theoretical argument. For example, in the rental housing market, rents do not depend on what landlords paid for their properties; rather rent levels depend on the total supply of housing and on the prices consumers are willing to pay. Owners who may have paid a great deal for their properties are not able for that reason to charge more rent. Nor do owners charge less where they obtained properties cheaply. Telecommunications experience in the U.S. has also been consistent with the theory that historic costs don't alter pricing. For example, within a given market, the prices charged by cellular operators who obtained their licenses via comparative hearings or lotteries are no lower than the prices of those firms that purchased their cellular licenses in the secondary market, or firms that obtained PCS licenses in an auction.

Similarly, where a U.S. cellular license has been bought at a significant cost from a party that obtained it at no cost, we have not observed any increase in consumer prices.

Note also that some auction winners have experienced subsequent declines in stock prices and debt downgrading. These facts are good evidence that financial markets do not believe these firms can pass on to consumers the high prices they paid at auction.

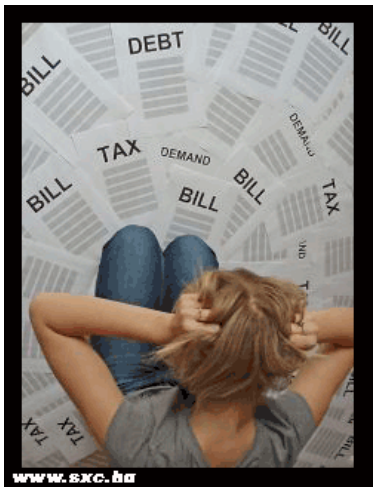
While the need to pay for a spectrum license does not affect prices consumers will experience, it will affect the future profitability of the licensee. And a licensee that over-pays for this asset

might be unable, for example, to cover fixed debt payments while charging consumers the optimal, profit-maximizing prices. Note that even when this occurs, however, there should be no adverse public interest impact. The results of such financial distress or bankruptcy might be one-time losses for investors and a change in the ownership of the licenses. However, as long as the assets constitute used and useful—rather than inefficient or excess—capacity, they should not exit the market, and consumers should experience no increase in prices or reduction in service availability or quality. It is necessary, however, to have a clear and effective legal framework in place so that financial distress does not cause licenses to get caught in a protracted transition that would prevent service from being provided and thus harm consumers.

Misconception #2: Auctions will reduce the investment in telecommunications services.

The costs of winning auction bids do not reduce the winners' ability to subsequently invest in physical assets needed to provide spectrum-based services. The correct analysis is very similar to the analysis of why auctioning does not alter the price of service consumers will see. Once licenses are acquired, the decision of whether, how, and when to go forward with further investment depends on a forward-looking assessment of expected revenues and costs. No investment will occur unless the expected flows of revenues and costs result in a positive net present value (NPV), and among alternative possible investments, that investment program will be chosen that maximizes the NPV. The forward-looking calculation will include the opportunity cost of continuing to hold the spectrum licenses rather than sell, and this is true whether the spectrum is paid for or obtained for free. The analysis, however, will not include the historic cost of the spectrum licenses.

What would happen to investment if winning bidders overpaid for licenses? Again, the analysis is similar to that for the impact on pricing. It is possible, for example, that the flow of revenues which construction would enable might be sufficient to cover the real, long-run economic costs of service, but not sufficient to cover those real costs plus the fixed debt payments owed to those who financed the winning bid. The result will be financial distress and perhaps formal bankruptcy, and some or all investors will suffer a one-time loss. This may cause a temporary halt in further construction, and such delays might be significant if the legal/financial disputes are protracted. However, if the spectrum and physical assets really are best employed in the current uses, then the investment will go forward eventually. In this case, any public harm arises from the delay rather than from a permanent loss of investment or service.



Note also that if resale is permitted, licenses awarded by comparative hearings may be resold quickly, so that the ultimate licensee making subsequent investments will have no more money available for investment than if it had acquired the license in a government auction. Indeed, U.S. experience to date shows no apparent lack of investment in facilities by cellular or PCS operators that bought their licenses relative to firms that acquired their licenses in a comparative hearing.

Misconception #3:

Auctions will lead to the monopolization of the spectrum. If licensees have freedom to resell their licenses, the potential for monopolization would be no greater under auctions than under comparative hearings. To the extent that excessive market concentration is a concern, the

government can set limits on spectrum aggregation, such as a “one-to-a-market” rule (limiting entities to a single license in any market) or a spectrum cap (limiting the total amount of spectrum each licensee can hold in any market), which can apply regardless of how a license is acquired. In addition, where possible, auctions should be structured to create or increase competition in telecommunications services, rather than to maximize revenue raised by limiting the number of licensees and prospects for future competition. Further, an effective competition policy should be in place to prevent post-auction mergers that would harm competition.

Misconception #4:

Small businesses will be unable to compete in an auction. Auctions have little or no effect on the ability of small businesses to compete. All investors will attempt to invest their money where the expected returns are highest. When a resource is sold, whether at an initial auction or a subsequent resale, the price paid will be a reflection of what the purchaser thinks it can earn, and the highest earnings will go to those who use the resource most productively. Prior to the introduction of FCC auctions, small businesses had successfully obtained spectrum licenses in the after-market. And they have successfully obtained licenses in 22 of the 27 FCC auctions of non-broadcast spectrum held to date. Overall, auctioned licenses are not won by the parties with “deep pockets,” they are won by the parties who value them the most. Given efficient capital markets, the bidder with best business plan, producing the highest expected profits, will get best financial backing and will be able to place winning bids.

Misconception #5:

Auctions undermine the public trustee concept of spectrum management. Employing competitive bidding to assign licenses does not change the government's ability or responsibility

to allocate spectrum. The terms, conditions or rights of the licensee can be exactly the same for licenses obtained through an auction as those obtained through a comparative hearing or lottery. In all cases the terms, conditions or rights associated with a license affect bidders' willingness to pay for the license.