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Are Auctions Always Best?

In March 2000 the U.K. government was the first to auction third-generation mobile-phone licenses. Although analysts predicted the licenses might perhaps be worth $5 billion, the auction actually raised around 7 times as much---around $34 billion. Not surprisingly, the U.K.'s example has now been widely copied across the world. Even countries who had originally chosen 'beauty contests' (administrative hearings) to allocate their licenses have been having second thoughts. The rules of the Italian beauty contest turned it into an auction by another name (albeit a very badly-designed one); Hong Kong recently switched from a beauty contest to a 'hybrid' that will probably in effect be an auction; there are rumours that the Irish beauty contest may also look more like an auction; and there have been calls for the result of the Spanish beauty contest to be nullified and the licenses to be reallocated by an auction.

But are auctions the best way to allocate radiospectrum licenses?

To an economist the answer is almost always "Yes!"

AUCTIONS ARE BEST

Most important, a well-designed auction is the most likely method to allocate resources to those who can use them most valuably. Rather than rely on government bureaucrats to assess the merits of competing firms' business plans, an auction forces businessmen to put their "money where their mouths are" when they make their bids, so the auction extracts and uses information unavailable to the government.

Second, even if the government did have access to good information---and the lamentably poor government estimates of the money that spectrum auctions would raise are just one illustration of how little the government knows---allocation by bureaucrats leads to the perception, if not the reality, of favoritism and corruption. In fact some governments may well have chosen beauty contests precisely because of the possibilities for favoring, e.g., "national champions" over foreign firms. But such protectionism is unlikely to benefit consumers or taxpayers.

Third, of course, an auction can raise staggering sums of money to support the public finances---the UK 3G auction yielded about two and a half per cent of GNP, or enough money to build 400 new hospitals. A beauty contest, by contrast, can give away valuable assets at a fraction of what they are worth. Those who advocate beauty contests should say how they would prefer to fund the government. Do they prefer higher income taxes? (The distinguished economist Martin Feldstein recently estimated that every extra $1 of income tax raised in the U.S. costs the economy an additional $2 in deadweight losses caused through the disincentives to earn, and the misallocation of resources to avoid taxes. True Feldstein's estimates may be overstated, but charging companies for spectrum incurs none of these additional costs.)

Some have argued that firms' costs in the auction will be passed through to consumers in the form of higher prices, and this would probably be at least partly true for an auction in which firms bid royalties. But the argument is mistaken for an auction in which firms make once-and-for-all lump sum payments. Like any other firms, telecom companies will charge the prices that maximize their profits, independent of what the spectrum cost them in the past. To take a more familiar example, consider housing prices. The price of new housing is no lower when the

developer had the good fortune to obtain the land below its current market value (e.g. because it was bought before planning permission was available) than when the developer has paid the full market value. In either case, the price is determined by the housing market at the time the new housing is sold. There is no more sense in handing out free spectrum to the telecom companies than in handing out free land to developers in the belief that this will lead to cheaper houses.

Of course, telecom companies (and land developers) have enormous incentives to argue the opposite, because they obtain large windfall profits if they can obtain a scarce resource for free. And it is true that consumer prices could be affected (even by past lump sum payments) if, for example, an auction somehow allows firms to tacitly coordinate on higher prices, or the companies' specious arguments fool politicians and regulators into agreeing that the auction is a reason for allowing artificially high prices, e.g. through permitting collusion. But with intelligent regulation these effects should be small.

Finally, how practical is a beauty contest? Technology guru Nicholas Negroponte, for example, has argued that winners should be chosen according to who would guarantee the lowest costs to consumers, invest the most in infrastructure, stimulate most creativity, etc. But how can firms guarantee consumer prices for 5-20 years in the future for products that we may not yet even be able to imagine? Infrastructure investment can be costed, but will it all be useful? How can the government possibly decide who will be most creative? And how could the government monitor and enforce any commitments made by firms? How should the government penalize a firm that turns out to be insufficiently creative?, and what should the government's response be to a firm that is creative and develops a product with valuable unforeseen features but above the previously guaranteed price? It is hard to think of a more serious drag on innovation than pre-specifying future prices for products that don't yet exist!

And the difficulty of specifying and evaluating the criteria for a beauty contest make this a time-consuming and opaque process relative to the rapidity and transparency of an auction. So even a well-run beauty contest is more likely to generate a legal challenge after the fact.

Of course, the companies are taking huge risks in bidding in an auction, just as, for example, firms take huge risks when they invest in developing a new aircraft or a Channel Tunnel. The companies might come huge croppers; or they might make huge fortunes. Only time will tell. But in the U.K., Germany, and Italy, some licenses were won by companies who had no previous presence in those markets, proving that companies who were under no pressure to compete saw the risks as worth taking. (Indeed in the U.K. case one winner has already sold a share of its license at a profit!) Whether the large license costs will speed or slow investment is ambiguous---arguments can be made in both directions. But what is clear is that the companies have invested in licenses because they believe that it is in their own business interests to do so.

...BUT AUCTIONS DO NEED CAREFUL DESIGN

Certainly an auction needs careful design to work well, and must be tailored to the specific country's context---auction design is a matter of 'horses for courses', NOT 'one size fits all'.
(See my paper 'What Really Matters in Auction Design' at
www.nuff.ox.ac.uk/economics/people/klemperer.htm.)
The Netherlands and Italian auction designs, for example, both foolishly aped the U.K.'s ascending-auction rules in contexts in which the U.K. system was clearly inappropriate. The crucial difference is that there were far fewer bidders in Holland and Italy. Both the Netherlands and Italian auctions would have been much more successful if bidders had been forced to

make sealed "best and final" offers rather than participating in an ascending auction---and this was predictable (and predicted) in advance.

Last week, in Italy, for example, there were just six bidders for five licenses. Because one of the bidders, Blu, looked weak, the other bidders did not need to bid aggressively in the ascending auction which always allowed them to come back and top any bid that Blu made. When Blu dropped out just a few rounds after the auction began, the result was per capita revenues below 40% of the British and German levels. But if the government had asked for sealed, final offers that the bidders could not revise, the other bidders could not have taken the risk of bidding so low. They would have felt forced to make serious offers in case Blu had turned out to bid more strongly (e.g., Blu might just have been pretending weakness), so the government would have raised much more money. Indeed, Blu itself might perhaps have made a reasonable offer even if---as was the case---it didn't feel able to bid up to the level required to be a winner in the ascending auction. And this possibility would also have encouraged more aggressive bidding from the others. In addition, a sealed-bid design might have attracted more entry into the Italian auction, and further improved the outcome.

It has been alleged that the Italian auction also suffered from collusion. That may or may not turn out to be true. But if it was the case, it is yet another reason why a sealed-bid auction (in conjunction with proper anti-collusion measures) would probably have worked better---an ascending design facilitates collusion by making it easier for firms to check that their collaborators are sticking to the collusive agreement.

The Netherlands also had just six bidders, one of whom seemed very weak, for five licenses, with results similar to Italy's; in fact, the Netherlands per capita revenues were less than 30% of the U.K. levels.

But even the badly-designed Netherlands and Italian auctions probably performed no worse than beauty contests which would most likely have yielded the same winners and no more revenue for the government. Very occasionally---for example, when there are too few potential bidders, or large costs of supplying necessary information to bidders---a form of structured negotiations may be better. However the general rule is that auctions treat firms fairly and transparently, and yield the greatest possible benefits for consumers and taxpayers.

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