



The Daily Dish

Setting the Stage for 5G Wireless

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Eakinomics: Setting the Stage for 5G Wireless

There are a lot of vague hopes for better infrastructure, but one very concrete issue is the foundation for 5G wireless networks: spectrum. Unlike other kinds of infrastructure, however, there is only so much spectrum out there. In the early years of radio, television and other communications, the basic approach was to simply give the spectrum away. This had two drawbacks: the allocation of the spectrum among competing interests was settled by the political mechanism and taxpayers were not compensated for permitting the use of this common property.

As time progressed, the federal government turned to auctions as the means of allocating spectrum. This took care of the taxpayers; they received the proceeds of the auction. And, in principle, it took the politics out of who got the spectrum. Except that it did not. Political interests intervened to shape the auctions — limitations were placed on some bidders, portions of the spectrum were set aside for preferred bidders, and so forth. These two aspects interact, however, because limitations on auctions work to reduce the total proceeds from the auction.

With regard to 5G, this interaction is even more important. To lay the groundwork for 5G, the Federal Communications Commission (FCC) must decide how to reallocate the use of spectrum, in particular 180 megahertz (MHz) of spectrum between 3.7 gigahertz (GHz) and 4.2 GHz. AAF's Will Rinehart's [research](#) details the attractive features of the so-called C-Band. First, lower frequency bands are best for broad coverage and can penetrate buildings. With most of the low-band space (below 1 GHz) already in use, people are very interested in the C-Band. Second, the C-Band spans 500 MHz, making it one of the largest contiguous bands in spectrum. It is also the spectrum that other countries are likely to use for their 5G wireless services. Finally, satellite providers currently use the C-Band to distribute video programming. Technological advances have been such that they no longer need the full spectrum allocated.

The usual approach is a two-sided auction in which 5G providers would bid for spectrum and the FCC would use the money to make offers for the C-Band spectrum. History shows that this process would take a long time, inevitably would result in political favors lowering the proceeds from the auction, and would permit one or a small number of C-Band spectrum video transmitters to “hold out” for unreasonably large compensation.

Enter the C-Band Alliance (CBA), which proposes that the FCC sanction its auction of the spectrum. This would have the advantage that it would solve the holdout problem — all of the key owners of C-Band spectrum are on board — and reduce the issue to a simple, one-sided auction. And it could solve the political problem because there are no favored band holders within the alliance. Finally, for both reasons it would be fast — and time is money in getting a jump start on 5G: a 2-year delay is like forgoing \$18 billion in consumer surplus benefits. And it would maximize the auction proceeds, allowing a greater contribution to the fisc.

The CBA proposal makes economic sense and merits serious consideration.