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RESEARCH SUMMARY

Sweeten the Deal: Transfer of Government Spectrum through Overlay Licenses

The largest challenge in wireless telecommunications policy is transferring spectrum from inefficient legacy operators like federal agencies to bandwidth-hungry entrants. Almost no "greenfield" spectrum is left—commercial and government users occupy nearly all valuable spectrum—so policymakers are scouring most existing wireless systems for surplus spectrum that can be auctioned.

This hidden crisis arose because consumer demand for wireless services has increased dramatically since the widespread adoption of cellphones in the 1990s. Reflecting this demand, in early 2015 the Federal Communications Commission (FCC) completed an auction for a small slice of prime spectrum that grossed over $40 billion for the Department of the Treasury. New mobile services such as browsing the web, streaming video, using the Internet of Things, and gaming require even more spectrum. Inaction means higher smartphone bills, more dropped calls, and stuttering downloads.

A new paper for the Mercatus Center at George Mason University shows that auctioning overlay licenses is an effective means of repurposing underused federal spectrum for consumer uses. Overlay licenses have been used to reassign nonfederal spectrum but never federal spectrum. The paper presents new evidence from a 2006 spectrum auction (AWS-1) that suggests billions of dollars of underused federal spectrum could be deployed more quickly than other policy alternatives. Crucially, overlay licenses allow agencies to receive payment for spectrum sales, and this reordering of spectrum rights would benefit taxpayers and wireless broadband users.

To read the paper in its entirety and learn more about its author, research fellow Brent Skorup, see "Sweeten the Deal: Transfer of Government Spectrum through Overlay Licenses."

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KEY FINDINGS

Policymakers are interested in spectrum policy because spectrum availability improves broadband access and generates substantial government revenues. Further, conservative estimates place the consumer surplus losses from misallocation of spectrum at hundreds of billions of dollars per year. Therefore, policymakers should favor reform proposals that show promise in repurposing federal spectrum relatively quickly. The paper compares two policy proposals for spectrum reform: regulation-intensive dynamic spectrum sharing and market-oriented overlay licenses.

Regulation-Intensive Approach

A 2012 President's Council of Advisors on Science and Technology (PCAST) report promotes complex spectrum-sharing technologies to enable consumer use of fallow federal spectrum in order to avoid clearing agencies from their spectrum.

- According to the PCAST report, widespread dynamic spectrum sharing would take decades to implement. The proposal relies on precise government planning and complex device requirements to enable intensive use of federal spectrum. However, the sharing technologies the report considers are in early development and will not be in routine deployment for many years. Social welfare losses mount quickly in the interim.

- Despite recognizing that agencies have no incentive to improve efficient use of their spectrum, this proposal does little to encourage efficient government use of spectrum. Dynamic spectrum sharing techniques allow wasteful legacy systems to operate indefinitely, and PCAST recommends against clearing inefficient federal users.

- Implementation of the PCAST proposal would likely degenerate into regulatory failure. Previous attempts to share spectrum between different wireless systems frequently resulted in rent-seeking, severe deployment delays, and few consumer benefits.

Market-Based Approach

The superior reform proposal is to auction off overlay licenses to certain federal spectrum bands. Purchasing an overlay license is like acquiring real property that contains a few tenants with unexpired leases. While those tenants have a superior possessory right to use the property, a high enough cash payment or trade will persuade them to vacate the property. The same dynamic applies for spectrum. These winning overlay licensees can put unused federal spectrum into service rapidly. Winning licensees can pay the agencies to vacate remaining spectrum bands or upgrade to more efficient systems. This may mitigate agencies' resistance because they can negotiate compensation for selling rights to their spectrum.

- The FCC has conducted overlay auctions in the past and they represent an off-the-shelf tool to reorder spectrum rights. The bidding process was effective in previous overlay auctions, and winning bidders compensated existing users like state public safety agencies and public utilities to vacate their valuable spectrum.

- Overlay license auctions and clearing deadlines transfer spectrum into the market and to its highest-valued uses. For example, in as few as two years after the 2006 AWS-1 auction, existing users and federal agencies vacated their spectrum, allowing carriers to invest billions of dollars into networks and deploy mobile broadband in cities like San Francisco and New York.
- A combination of clearing federal agencies from their spectrum and using overlays to clear nonfederal users has freed about 210 MHz of prime spectrum for mobile broadband use, supplying over one-third of spectrum held by mobile carriers today.

CONCLUSION

Government agencies sit on wireless spectrum worth hundreds of billions of dollars without having to pay rent for the space. This federal spectrum is often unused or underutilized, and social costs come from the misallocation of this valuable resource. Congress should permit agencies to sell some of their spectrum to private parties after an overlay auction. No other reform proposal has enabled widespread consumer use and economic investment as rapidly as have overlay auctions combined with clearing deadlines. Overlays and clearing deadlines in the recent past have permitted commercial deployment of cutting-edge wireless technologies in encumbered spectrum within a few years.