

Spectrum Sharing in the Radar Bands: an economic perspective

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Sharing Radar bands with Commercial users

Economic goals

- What are the economic goals?
 - Maximize benefit to society from use of scarce spectrum
 - Promote BOTH Mission goals + Economic growth
 - More spectrum for commercial uses (mobile BB)
 - Commercial share with Federal -> Focus on Radar Bands
 - (Smart wireless is DSA/sharing friendly)
- Role of Government – “Regulation”
 - Set the agenda: balance missions (security v. economy)
 - Establish rules/framework to enable sharing agreements
 - Police agreements, Enforcement
 - Manage agencies (NTIA conflict of interest...)

Understanding the problem: risk-return models different

- What makes commercial sharing work
 - Profit motivated actors: all about \$'s => strong incentives
 - Scarcity
 - Liberalization (auctions, flexible licenses, secondary markets)
 - Competition => innovation, efficiency
 - Darwinian selection: best practices for max \$profits win out
 - Externalities/Public goods: not easy, even for commercial
- Why government harder
 - Non-profit, mission-driven
 - Administrative budget process
 - No competition

Economic Solutions?

- ❑ Lower costs of sharing => better tech, design for sharing
- ❑ Choose sharing opportunities carefully
 - Intra/Inter Agency Sharing easier: govt pooling, public safety
 - Some government missions have market proxies
 - Defense: No; Basic research: Maybe
 - Post office, General govt operations: Yes
 - FAA v. DoD – but politics are part of economics also...
- ❑ Make spectrum sharing/efficiency part of the mission, budget
 - Spectrum efficiency: explicit requirement in mission
 - Spectrum opportunity cost in budget
 - OMB A-11 process -- Yes
 - Spectrum Fees -- Probably
 - Auctions (and other ideas) – Maybe

If I had more time.....

- Design for sharing → enforcement key
 - Enable credible commitments “agreement” honored
 - System *not* just technical, but includes user (non-technical)
 - E.g., time-limited leases, black boxes, dbases to swap out policy regimes, etc.
- Spectrum Management → one agency to rule, one to represent
 - Not two kinds of spectrum. NTIA & FCC is a mess.
 - Spectrum Mgmt *not* Industrial policy (aka, Broadband policy)
- Markets/Sharing → big start-up costs → bandwagon problem
 - Viral growth: get positive feedback loops working
 - Commercial interests: where’s the beef???
 - Metrics: information, value → \$/MHz-Area (tech? use?)
- Role of test beds, Econ/Policy research agenda, Etc.....

Thanks

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