The Boundary Between 'Free' And 'Traded' Spectrum

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Some quotes

In the UK, Martin Cave's review of radio spectrum management suggested in March 2002 that:

> "the current constraint on the use of licence-exempt bands for the provision of public access communications services should be removed as soon as possible."

In the US, the Spectrum Policy Task Force recommended in November 2002 that the FCC:

> "expand the use of both the exclusive rights and commons model, and move away from the command-and-control model."

Will a spectrum commons suffer a tragedy?

Users of a spectrum common are only allowed to engage in activities which cause few or no externalities.

Economists would call such a regulation rationing or quotas.

It is a crude policy instrument, but avoids the tragedy.

What justifies the introduction of a spectrum commons?

Alternative arrangements, such as property rights combined with trade, may create too large transaction costs.

The spectrum commons provides an implicit subsidy for new, perhaps innovative entrepreneurs.

Two questions:

1. How much spectrum should be licence-exempt?

2. Which rules should apply to licence-exempt spectrum?

How much spectrum should be licence-exempt?

Some advocate that all spectrum be declared "common" (David Reed, Yochai Benkler).

Two related points have been made:

- Spectrum is not really a scarce resource.
- There is a complementarity in spectrum use: The more users use an application, the smaller the negative externality.

"Spectrum is not really a scarce resource."

- This does not seem certain.
- This does not speak against a market-based approach.
- If spectrum is not scarce, the market price of spectrum will fall to zero.
- Protections against spectrum hoarding are needed.

"There is a complementarity in spectrum use: the more users use an application, the smaller the negative externality."

- This argument has been emphasized by David Reed.
- This may be true for multi-hop communication networks where each node acts as a transmitter as well as a sender and receiver.
- Which conditions would facilitate efficient development of multi-hop networks?

- If there is too little spectrum for license-exempt use, or if regulations are too tight, this might hinder the development of networks of users.

- This argument seems to justify that there is some spectrum available as a commons.

- It does not follow that all spectrum should be a common.

How should one choose the part of the spectrum that is a commons?

There cannot be a market based mechanism which determines how much spectrum should be license exempt.

The alternative seems to be an administrative consultation process.

Which regulations should apply to a spectrum commons?

Regulations should be aimed at addressing the externality.

Could a more flexible regulation than direct rationing of allowed activities be found?