

Introduction to Spectrum Trading

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Agenda

Defining rights

- interference rights
- commercial rights

Market organisation

Market regulation

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OFCOM's Goals of Trading

- Permit markets to act to allocate scarce spectrum resources to maximise overall social and economic value to the nation
- In particular, objectives include
 - reallocation of spectrum from low economic value uses to high economic value uses
 - allowing efficient companies to expand and displace less efficient companies
 - increasing opportunities for companies to access spectrum to introduce innovative technologies and new services
 - reducing the transaction costs of acquiring spectrum

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Defining Rights

Does it matter?

In theory, if rights are poorly defined, trading partners can exchange them (e.g bargain over interference rights at a border) to produce an efficient allocation

But this may be difficult to achieve in practice : here the need to seek to optimise rights at the outset of trading

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Basic Dimensions of Property Rights

Time : tenure

Area: geographical boundaries

Frequency: defined frequency band

In-band emission constraints : manage interference across frequency and geographical boundaries

Out-of band emission constraints : manage interference outside the frequency boundaries

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Change of Owner/ Change of Use

Current allocation system based on prescribed use and apparatus licensing

Change of ownership presents few challenges but change of use may require re-jigging of rights.

It may also override existing conventions protocols and understanding among spectrum users

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Choosing Initial Set of Rights

Two Main Options

- 1) limits to all licences set at restrictive level (consistent with any change of use)
- 2) base rights on status quo
 - 1) facilitates change of use but requires major negotiations from the outset
 - 2) saves immediate transaction costs

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Easements

Should third parties have access to owned spectrum when they have no impact on the owner, either because of low power or because spectrum is temporarily unused
UWB is an example of an easement in power. The key issue is the risk of congestion and interference. Easement in time are better dealt with by sub-leasing.

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Enforcement

Options are:

Public enforcement, by agency

Private enforcement, through the courts

Use of both seems sensible

There is also a need for an architecture procedure or spectrum court' to deal with disputes

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Commercial Rights

Tenure

Options include:

- indefinite term

- initial term set at primary issue (unusually by action)
followed by a rolling period

- fixed term with revision to agency

This decision influences investors to acquire spectrum, how to use it and whether to make collateral investments.

Long-term and certain arrangements most likely to promote efficiency

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Powers of intervention

Should the regulator be entitled to intervene in the case of

- excessive fragmentation
- failure to use or trade
- a refusal to trade which sterilises a whole band?

What should be the terms of any compulsory purchase?

Windfall Gains

Should existing licences be gifted with trading rights, or should spectrum be withdrawn and re-auctioned

Should any resulting gains be taxed?

If so, how:

by general corporate taxation

by a specific capital gains tax

by payment of an annual 'leasing' charge

Market Organisation

What would a spectrum market look like?

	Land	Energy	Stocks
Bilateral trades?	- Yes	- Some	- Some, typically between institutions
Trading exchange?	- No	- Usually	- Yes
Public register?	- Yes, land registry	- No, available to participants only	- Yes, share registers and prices
Speed to process?	- Can take months	- Gas balancing every 30 minutes	- Rapid, based on electronic systems
Complex financial instruments	- Typically, no	- Some futures and options traded	- Yes

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What information should be available

- Who owns what
- Who bought what
- At what price

Should traders be licensed?

Would there be

- rival market places
- rival market makers
- wholesalers (selling at retail)?

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Competition Policy

- Markets would be subject to competition law, but do they require - ex ante intervention:
 - a power to enforce divestment
 - approval of trade based on
 - a merger type procedure (would the acquisition lessen competition?)
 - alternative criteria?