

Collecting revenue from spectrum

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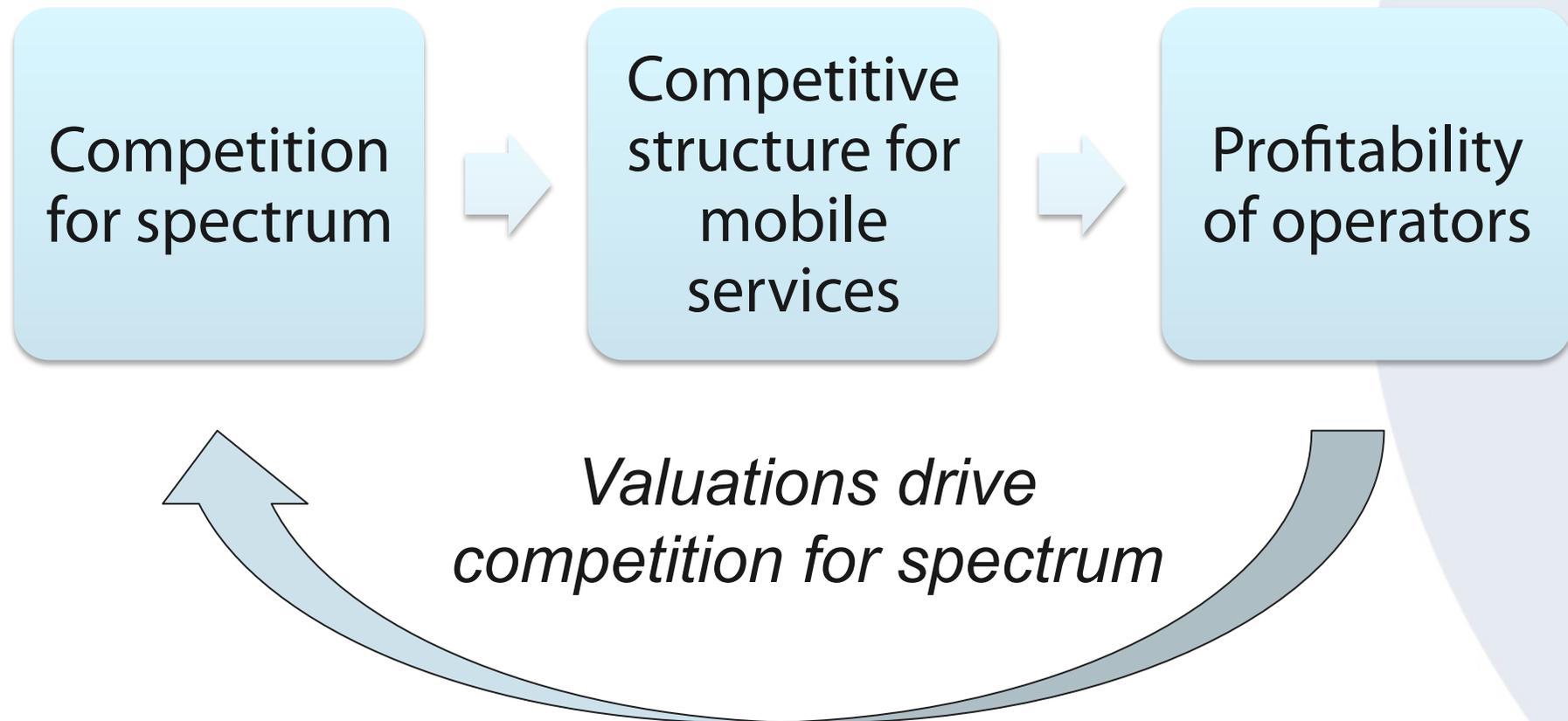
Auctions can raise considerable revenue for governments

Indian 3G and BWA
(2010)
US\$22.7bn

UK 3G
(2000)
£22.4bn

- Significant ***short-run*** impact on public finance
- Auction revenue avoids economic distortions created by general taxation
- However, efficient use of spectrum creates ***long-term*** benefits

Downstream competition drives valuations for spectrum



Why we need effective downstream competition

Downstream competition in mobile services essential to realise long-run benefits for mobile customers

Market power in downstream service markets boosts spectrum value at the expense of customers

Revenue and downstream competition

Governments with a revenue objective should operate within the constraint of protecting downstream competition

Maximum short-run revenue obtained by creating competition for a position of downstream market power ...

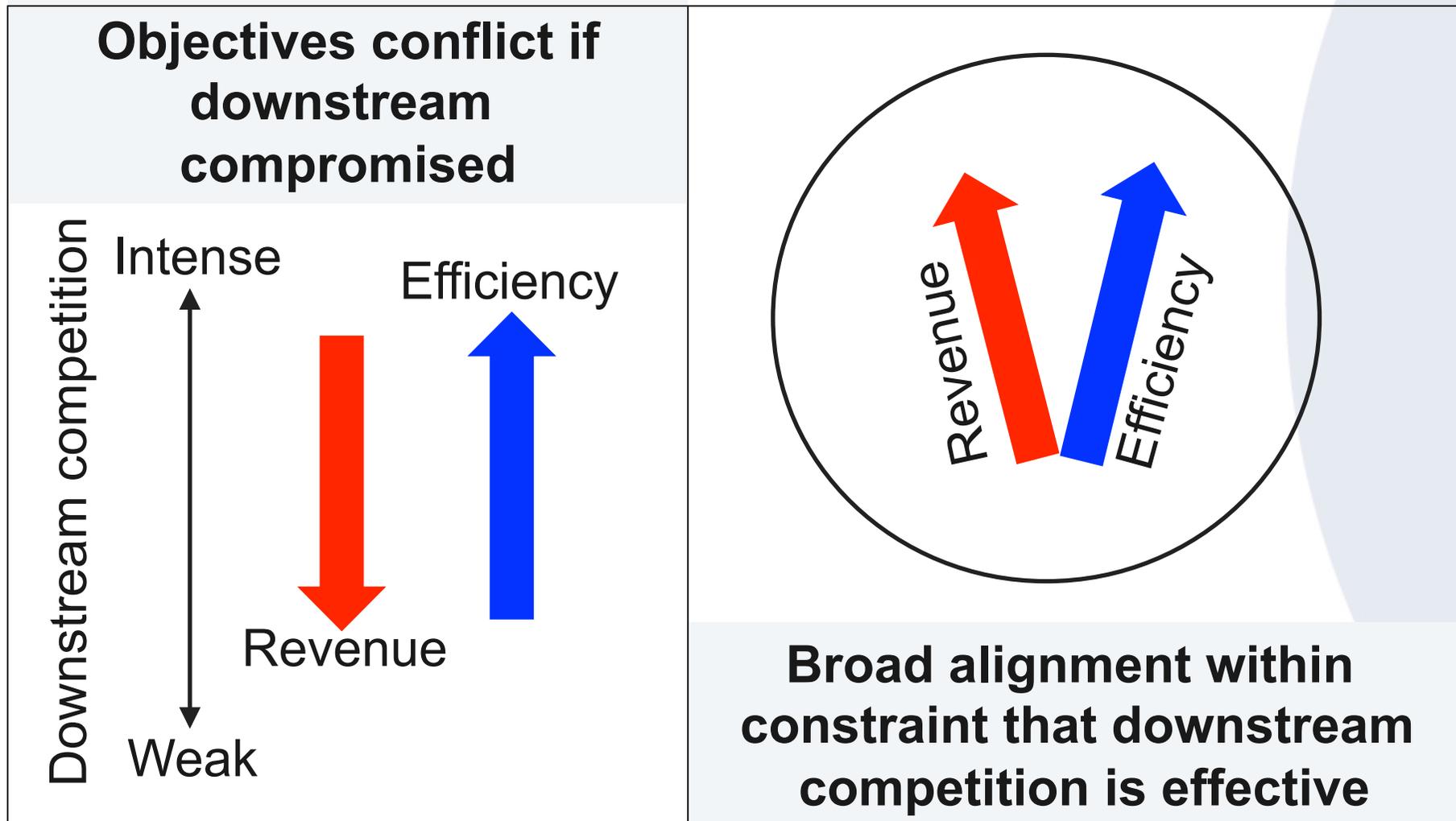
... but conflicts with achieving full long-run benefits from spectrum

What is *efficient allocation* of spectrum?

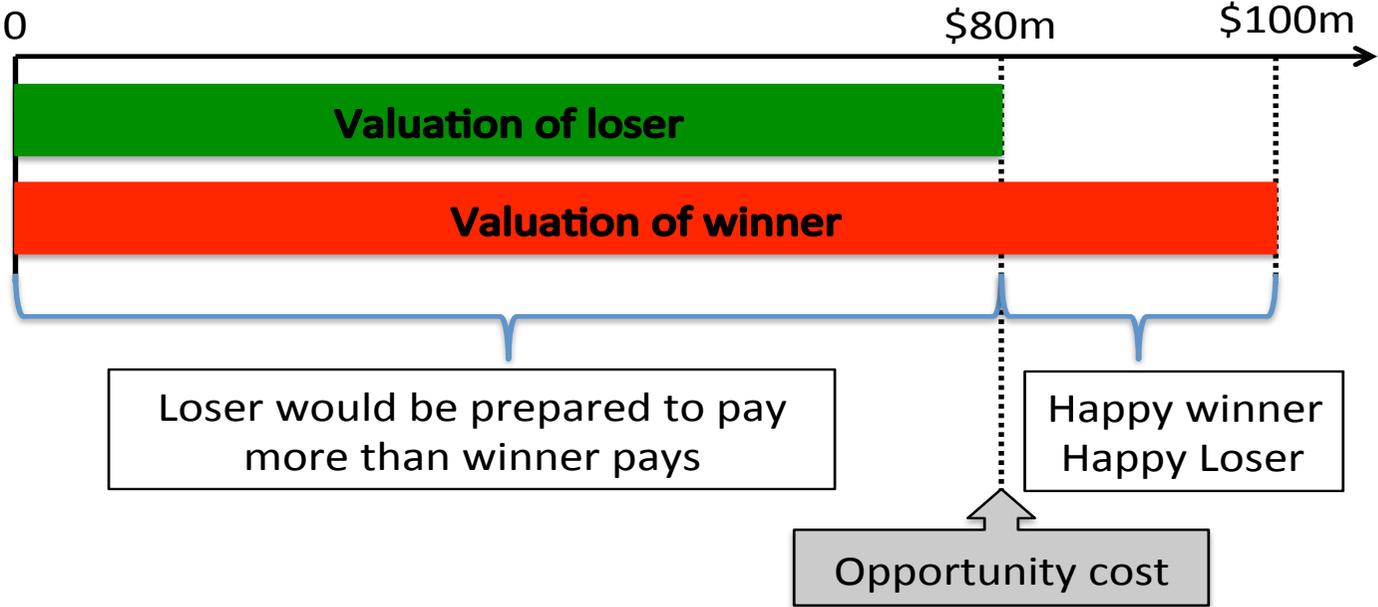
A spectrum band distributed amongst potential users in order to maximise overall benefit for society

Provided downstream competition is effective, efficiency can be achieved through auctions by allocating spectrum to whoever values it most

Are revenue and efficiency objectives opposed?



Revenue is a by-product of efficient allocation



Efficient allocation **requires** a licensee pay the opportunity cost of its spectrum otherwise losers will complain

Revenue raising requires that allocation is reasonably efficient

Maximising revenue **requires** that spectrum is allocated to high value users with a sufficient probability

Within the constraint that downstream competition is effective, raising revenue and efficient allocation are close aligned

Two natural questions

Given that revenue and efficiency are closely aligned, what measures are **good for both objectives?**

If they are not *completely* aligned, what is the **trade-off** between efficiency and revenue?

Measures to promote efficiency **and** revenue

Credible and predictable framework for licensing that avoids 'hold-up'

Design licences and process to maximise auction participation

Create competition over quantities as well as prices where appropriate

Where do revenue and efficiency objectives conflict?

Strong competition
for spectrum

- **No conflict in objectives**
- **Maximising revenue and efficiency largely the same**

Weak competition
for spectrum with some
strong bidders

- **Strong bidders not challenged**
- **Auction format trades small efficiency loss for some extra revenue**

Auction rules to raise additional revenue

Tweaks of format such as sealed bid elements *might* challenge strong bidders

But creating a high probability of strong bidders lose *reduces* revenue

Great care needed in making such changes to standard methodologies

Preferential sources of revenue

Relatively non-distorting

- Auction prices set by competition
- Fixed path for annual licence fees

Relatively distorting

- Revenue shares
- Sector-specific tax
- Annual licence fees that increased unexpectedly

Conclusions

Efficiency is an appropriate objective for spectrum allocation as large socio-economic benefits are at stake

Downstream competition should never be compromised for more short-run revenue as long-run benefits would be lost

Within the constraint that downstream competition is efficient, auctions aimed at efficiency will raise revenue as a by-product

We can only expect to achieve greater revenue by 'tweaking' auction rules in cases where competition for spectrum would otherwise be ineffective in getting strong bidders to pay up