

Geoffrey Myers

February 20th, 2023

## Spectrum auctions in Europe: The good, the bad, and the ugly

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*Governments throughout Europe use auctions to award valuable spectrum licences to mobile phone companies. In a new **open-access book**, Geoffrey Myers demonstrates why some auctions succeed and others fail, and how regulators can do better by learning from good practice.*

The 'Hitchhiker's Guide to the Galaxy' in Douglas Adams' eponymous book described the Earth as 'mostly harmless'. In my new **book**, a boiled-down description of the UK's spectrum auctions is that they have been 'mostly successful'. Based on the richness and nuances lying

behind this brief conclusion for the UK, and from a range of examples in other European countries, I draw out the wider lessons to be learned for any country.

The radio spectrum is a scarce natural resource that we use every day of our lives, whether browsing the internet or checking social media on our smartphones, watching terrestrial or satellite television, listening to the radio, opening car or garage doors with a remote key fob, travelling on taxis, buses, trains, boats or airplanes that use wireless communication, or using the emergency services if something goes wrong.

It is now mainstream practice in Europe and worldwide to utilise auctions in order to award licences, which provide rights to use specific frequency bands in part of the radio spectrum, especially for cellular mobile services. Auctions can work out broadly as expected, be highly successful, or go embarrassingly wrong. We can take a step back and consider the good, the bad, and the ugly experiences of European auctions.

Some commentators have characterised as '*ugly*' the very high prices in 3G auctions in Germany and the UK in 2000 (which were then followed by low prices in other European countries), describing them as a fiasco which drained mobile operators' finances and starved them of funding for investment. However, there is mixed evidence whether or not these auctions with exceptionally high auction prices led to delays in 3G rollouts.

Furthermore, my judgement of UK auctions as 'mostly successful' has nothing to do with the high revenue raised in 2000 for the government's coffers. Instead, it is based on the economic efficiency and public value arising from the outcomes, chiefly in terms of allocating spectrum to the operators able to use it most efficiently, and promoting downstream competition between operators at the retail level to benefit consumers.

Revenue-raising can be a legitimate objective for auctions, but it should be subsidiary to other aspects of economic efficiency, because the benefits generated for the public by successful auctions can be an order of magnitude larger.

A '*bad*', and all too common, mistake in spectrum auctions comes from setting excessive reserve prices in a vain attempt to increase revenue – you can 'lead the horse to water' at the auction, but the minister or regulator setting the reserve prices cannot make the companies that are bidding 'drink' by buying the spectrum licence if the reserve price is more than they are willing to pay. There has been unsold spectrum in auctions in, for example, the Czech Republic, Italy, the Netherlands, Norway, Portugal, Romania, Slovenia, Spain, Switzerland, and Turkey.

The duration of auctions can vary enormously – online auctions to sell targeted advertising as you load up a web page can take milliseconds, while there are examples of bad spectrum auction processes which turned into marathons, lasting so long that the regulator needed to change the rules during the auction itself to make them finish. This happened in agonisingly long auctions lasting eight or nine months in Finland in 2013, Poland in 2014, and most recently Portugal in 2021 which involved 1,727 rounds of bidding, a world-record for spectrum auctions.

Strategic bidding by mobile phone companies in spectrum auctions is an occupational hazard because mobile markets are oligopolistic, so that only a small number of bidders choose to participate. For instance, Germany in 1999 and the UK in 2021 provide clear evidence of mobile operators tacitly colluding in the auction to split the spectrum between them at low prices.

Germany and the UK have diverged in the approaches adopted by their regulators to design the sequences of 3G, 4G, and 5G spectrum auctions and achieve mostly '*good*' outcomes. The UK has followed the

route of 'horses for courses', adjusting the design to the circumstances, including untested innovative designs on occasion, whereas Germany has tended to plough a narrower furrow of sticking with a tried and trusted design.

But there is context dependence, because auction rules in Germany – such as allowing companies to see the details of exactly what other bidders have been doing – seem to work to deliver reasonably efficient spectrum allocations in that economic and cultural context (at least in auctions since 1999). However, such an open information policy could lead more frequently to undesired tacit collusion in other countries.

There are also examples of good practice in terms of successful, novel approaches to address public policy challenges of improving the extent and quality of mobile coverage. Some countries have utilised well-chosen auction designs to enable bidding to determine the allocation of coverage requirements on a regional basis, such as Denmark in a series of auctions since 2012. The auction in Austria in 2020 went further and successfully integrated the sale of multiple spectrum bands with procuring coverage obligations at the very granular level of 2,100 underserved municipalities to deliver much needed coverage improvements to local communities.

Overall, we can see that we do not need science fiction to achieve success in spectrum auctions, just the smart application of expertise to the public policy challenges of designing markets to benefit the public, industry and the economy.

*For more information, see the author's new book, **Spectrum Auctions: Designing markets to benefit the public, industry and the economy**, published by **LSE Press** (open access, 2023).*

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*Note: This article gives the views of the author, not the position of EUROPP – European Politics and Policy or the London School of*

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## About the author



**Geoffrey Myers**

Geoffrey Myers is Visiting Professor in Practice at the London School of Economics and Political Science, and formerly Director of Competition Economics at Ofcom, 2003-21.

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