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Legitimacy and the Administration of the Airwaves Auctions*

Abstract

This article is about the challenge of administrative legitimacy in the United Kingdom's economic constitution, particularly the situation post-Brexit. In view of excitement around the fifth generation of mobile technology (5G), the article considers the economic constitution in the context of legal and policy developments concerning how radio waves are allocated to such technology. It identifies a transactional governance regime, the core value of which is efficiency, and the centrepiece instrument is the auction. Looking to Fisher's work on administrative constitutionalism, the article argues that, in this regime, technocratic and compartmentalised policymaking result from the pursuit of rational-instrumental legitimacy. Increasing complexity has undermined claims to rational-instrumental legitimacy, and the transactional regime is giving way to something else. An emergent post-Brexit regime presents scope for governing arrangements that are responsive to consumer and citizen interests, and the article concludes with what needs to happen to realise this.

Key words: Legitimacy; Administrative Constitutionalism; Telecommunications; 5G; Spectrum Auctions

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This article is about the challenge of administrative legitimacy in the United Kingdom's (UK) economic constitution, particularly considering Brexit.

The economic constitution, following Prosser, refers to the governing arrangements, including the main public law values and principles, which concern economic policy.¹ The UK's economic constitution was unsettled by Brexit, and understanding what Brexit means (or might mean)² for it represents a necessary undertaking for public law scholars, especially for areas that are beyond the purview of conventional scholarship.³ Advancing the literature on the economic constitution, the article employs administrative constitutionalism as an analytical lens. It uses this to understand legitimacy in the implementation of the Wireless Telegraphy Acts (WTA) 1998 and 2006 and the Communications Act (CA) 2003 in the context of mobile telephony, interrogating the auction as an administrative process. In so doing, the article charts the advent and decline of the new public management, an agenda for state reforms undergirded by market critiques of classic public administration.⁴ It also sheds light on the, more nebulous, era post-new public management.

Mobile telephone and internet services use the radio wave frequency spectrum. Individuals and businesses rely on the availability of appropriate wave frequencies for these technologies, and such radio waves represent the bedrock for the realisation of smart homes and cities.⁵ The radio spectrum is finite and if multiple users, e.g. rival Mobile Network Operators (MNOs), transmit on identical frequencies simultaneously, interference can render the spectrum useless. Due to this spectrum scarcity, coordinated access to, and use of, the

¹ Tony Prosser, *The Economic Constitution* (Oxford: Oxford University Press, 2014), p.8.

² Keith Ewing, "Socialism and the Constitution" (2020) 73(1) *Current Legal Problems* 27.

³ Dimitrios Kivotidis, "The UK economic constitution after Brexit: between authoritarianism and democracy" [2023] P.L. 650.

⁴ Christopher Hood, "A Public Management for All Seasons" (1991) 69(1) *Public Administration* 3.

⁵ International Telecommunication Union, *Setting the Scene for 5G: Opportunities and Challenges* (2018), https://itu-ilibrary.org/science-and-technology/setting-the-scene-for-5g_pub/811d7a5f-en; House of Commons Culture, Media and Sport Committee, *Establishing worldclass connectivity throughout the UK*, Second Report of Session 2016–17, HC147.

spectrum is needed, and legitimacy in how the state administers the spectrum is important for a modern society.

Modern spectrum administration relies on market mechanisms. This involves treating the spectrum as a commodity, parcelling it up into exclusive licences to be bought and sold. Due to excess demand for spectrum for mobile telephony (“mobile spectrum”), governments around the world have raised billions in revenue from auctioning such licences. In 2000, the UK government raised £22.5 billion from an auction to enable networks for third generation mobile telephony (3G) - “the biggest single transfer of funds from the private to the public sector from any initiative”.⁶ Fourth generation (4G) licences were auctioned off in 2013, raising £2.3 billion, and auctions for fifth generation (5G) licences raised £1.37 billion in 2018 and £1.38 billion in 2021. For the earlier first and second generations (1G and 2G), in return for market entry, licences were effectively given away.

[INSERT TABLE NEAR HERE]

Ronald Coase sought to promote market mechanisms as the basis for allocating radio wave licences in 1959,⁷ and spectrum auction design and strategy later became a focal point in applied microeconomics, “mechanism design”. Notably, Milgrom and Wilson, who were influential in the design of the United States’ (US) first spectrum auction in 1994, received the 2020 Nobel prize in economics.⁸ Away from economics, however, academic scrutiny of such administrative processes has been limited.⁹ This is unfortunate, not least because the auctions are a precursor to the big data algorithms of today, and offer a cautionary tale.

⁶ House of Commons Select Committee on Public Accounts, *The Auction of Radio Spectrum for Third Generation Mobile Telephones* (2002), Thirteenth Report of Session 2000-01, HC 436-i, para.3.

⁷ R. H. Coase, “The Federal Communications Commission” (1959) 2(1) *Journal of Law & Economics* 1; and Leo Herzel, “‘Public Interest’ and the Market in Colour Television Regulation” (1951) 18(4) *University of Chicago Law Review* 802; “My 1951 Colour Television Article” (1998) 41(2) *Journal of Law & Economics* 523.

⁸ Alexander Teytelboym, *et al.*, “Discovering Auctions: Contributions of Paul Milgrom and Robert Wilson” (2021) 123(3) *Scandinavian Journal of Economics* 709.

⁹ Exceptions include Mark Thatcher, “Regulatory Agencies, the State and Markets: A Franco-British Comparison” (2007) 14(7) *Journal of European Public Policy* 1028; “Sale of the Century: 3G Mobile Licensing

The article begins with a discussion of legitimacy and administrative constitutionalism. It then moves on to discuss the governing arrangements for the allocation of mobile spectrum, considering the introduction and development of a transactional governance regime. Examining the legitimacy of the spectrum actions, the article reflects on the challenge of managing complementary and competing policy objectives. To conclude, moving the conversation beyond a dichotomy of market forces versus bureaucratic discretion, the article examines the interests and instruments of an emergent post-Brexit regime.

Legitimacy

Legitimacy, for this article's purposes, refers to the extent to which actors perceive the bindingness of a normative order as "desirable, proper or appropriate".¹⁰ A regulatory space¹¹ will be occupied by a shifting variety of actors, each with their own agenda and values, and different justifications will appeal to different actor communities.¹² This section introduces Fisher's work on administrative constitutionalism, using it to organise the "discourse of justification"¹³ that surrounds legitimacy.¹⁴

The lens of administrative constitutionalism captures how law, which constitutes the regulatory space, informs the normative and moral frames of reference that structure how

in Europe" in J. Black, M. Lodge and M. Thatcher (eds.), *Regulatory Innovation: A Comparative Analysis* (Cheltenham: Edward Elgar, 2005), p.92.

¹⁰ Mark C. Suchman, "Managing Legitimacy: Strategic and Institutional Approaches" (1995) 20(3) *Academy of Management Review* 571, 574; Julia Black, "Constructing and contesting legitimacy and accountability in polycentric regulatory regimes" (2008) 2(2) *Regulation & Governance* 137, 144.

¹¹ L. Hancher and M. Moran, "Organizing Regulatory Space" in L. Hancher and M. Moran (eds.), *Capitalism, Culture and Regulation* (Oxford: Clarendon, 1989), p.271; Colin Scott, "Analysing regulatory space: fragmented resources and institutional design" [2001] P.L. 329.

¹² Black, "Constructing and contesting legitimacy and accountability in polycentric regulatory regimes" (2008) 2(2) *Regulation & Governance* 137, 144-146.

¹³ R. Baldwin, *Rules and Government* (Oxford: Clarendon, 1995), p.41.

¹⁴ E. Fisher, *Risk Regulation and Administrative Constitutionalism* (Oxford: Hart, 2007); Sidney Shapiro, Elizabeth Fisher, Wendy Wagner, "The Enlightenment of Administrative Law: Looking Inside the Agency for Administrative Legitimacy" (2012) 47(3) *Wake Forest Law Review* 463.

administrative actors narrativise situations and their role within them. It might, for example, foreground expertise (epistemic communities, like economists) and/or interests (those of consumers or citizens, for instance). Law is also a means by which the justificatory basis for administrative action is made public and open to contestation, and it provides “arenas and discourses” for dispute resolution.¹⁵ Fisher details two distinct paradigms – ideal types - of administrative constitutionalism, a rational-instrumental and a deliberative-constitutive.

Fisher’s rational-instrumental paradigm corresponds with the Weberian bureaucracy where a formal, means-end, rationality is pervasive.¹⁶ Here, legality represents the administrative state’s principal source of legitimacy. In this values-free paradigm, the administration functions to implement properly enacted government policies, and legitimacy derives from the correct, efficient and/or successful pursuit of such policy ends.

The “deliberative-constitutive” paradigm, by contrast, chimes with Habermasian legitimacy.¹⁷ Legitimacy, for Habermas, depends on the quality of processes and procedures for deliberation. In the deliberative-constitutive paradigm, instead of merely implementing policy, the administration partakes in policymaking. Law in this paradigm serves as a flexible framework, providing space for a plurality of expertise, participatory dialogue and consensus-building (as opposed to interest group competition and compromise).¹⁸

The article employs Fisher’s insights, starting in the next section with the legislative beginnings of the mobile telephone market.

The shift to a transactional governance regime

Modernising the legislative framework

¹⁵ Fisher, *Risk Regulation and Administrative Constitutionalism* (2007), p.23.

¹⁶ Max Weber, *The Theory of Social and Economic Organisation* (New York: Free Press, 1964), pp.88-132.

¹⁷ Jürgen Habermas, *Between facts and norms* (Cambridge: Polity, 1996).

¹⁸ Julia Black, “Proceduralising Regulation: Part I” (2000) 20(4) *Oxford Journal of Legal Studies* 597, 611-614.

The liberalisation of telecommunications, away from state ownership, began in 1982 when Mercury Communications was set up in competition with British Telecom (henceforth BT), which itself was first corporatised¹⁹ and subsequently privatised.²⁰ The policy shift, to remove telecommunications from state provision, coincided with plans to introduce *mobile* telecommunications services. Formally, access to this regulatory space for potential MNOs required a licence under section 1 WTA 1949, reflecting a traditional conception of public administration. A WTA licence entitled its holder to use a prescribed portion of the spectrum.²¹

Authority for awarding licences resided with the Secretary of State, who enjoyed a broad discretion - subject to a range of duties, including to promote consumer interests and competition.²² It was supported in this task by the Radiocommunications Agency, an executive agency of the Department of Trade and Industry, established in 1990.²³ There was also a requirement for it to consult the Office of Telecommunications (OfTel),²⁴ the independent regulator, which was responsible for day-to-day management of the spectrum.

Following the launch of the 1G networks in the 1980s, and 2G in the 1990s, mobile telephones quickly became a mass-market product. Having established a mobile market, by the mid-1990s, technological innovation and growing spectrum demand engendered a reframing

¹⁹ British Telecommunications Act 1981.

²⁰ Telecommunications Act (TA) 1984 Pt.V.

²¹ A requirement, in this period, for an additional licence to operate a telecommunications network (TA 1984 s.7) is beyond this article's scope. The requirement was replaced by a general authorisation system (CA 2003 s.45 and s.147), required by Directive 2002/20/EC on the authorisation of electronic communications networks and services [2002] OJ L 108/21, art.3 (Directive 2018/1972 establishing the European Electronic Communications Code [2018] OJ L 321/36, art.12).

²² TA 1984 s.3.

²³ See the archived website of the Radiocommunications Agency (RA): <https://webarchive.nationalarchives.gov.uk/ukgwa/20051027120000/http://www.ofcom.org.uk/static/archive/ra/rahome.htm>. Prior to the RA, there was the Radiocommunications Division (1986-1990) and Radio Regulatory Division (1983-1986). An insider account is S. Temple, *Casting the Nets: From GSM to Digital TV* (Tolworth: Grosvenor House, 2018).

²⁴ TA 1984 s.7.

of the policy problem. The need to optimise spectrum usage was now a priority,²⁵ leading to a new WTA in 1998 to govern the 2000 award of the 3G licences.

The discussion moves on next to look at how, through the WTA 1998, the pursuit of efficient spectrum administration, was operationalised. The WTA 1998 marks the beginning of a transactional governance regime, a regime of technocracy and compartmentalisation where, in place of political choices and negotiative relationships, there was to be discrete auction transactions. The regime represents the embrace of Fisher's rational-instrumental paradigm.

Modernising the award of mobile spectrum

To award the 1G and 2G licences, prior to the WTA 1998, the government had opted for a combination of direct and competitive awards. Direct awards had benefited national champions – the recently privatised BT, which owned Cellnet, and Mercury (“One2One”), which had been BT's only competitor in the market for basic fixed telecommunications services until the government's duopoly policy came to an end in 1991.²⁶

For the competitive awards, a comparative selection method, so-called “beauty contests”, was used. Suitably qualified firms/consortia put forward technical and financial proposals, and government committees judged these against pre-agreed criteria.²⁷ With this approach, the government could satisfy itself that would-be MNOs had the required competencies – technical, financial, and managerial. It could also scrutinise plans for the scale and speed of network rollout and commitments on service quality alongside projected costings.

²⁵ Department of Trade and Industry (DTI), *Spectrum Management into the 21st Century* (HMSO, 1996), Cm.3252; RA, *The Future Management of the Radio Spectrum* (1994); *Implementing Spectrum Pricing* (1997); and *Spectrum Pricing: Implementing the Second Stage* (1998).

²⁶ DTI, *Competition and Choice: Telecommunications Policy for the 1990s* (HMSO, 1991), Cm.1461.

²⁷ Hansard, HL Deb Vol.503, col.826-829 (26 January 1989) (Lord Young).

Previously, there had been no element of price competition - fees paid by the MNOs for the 2G licences were set by the Secretary of State, but limited to an amount needed to cover administrative costs.²⁸ Paving the way for the auctioning of mobile spectrum, the WTA 1998 expressly empowered the government to introduce commercial pricing and permitted the assignment of licences via bidding processes.²⁹

Such a shift in law and policy conforms with the new public management (defined above). Here, one finds two core objections to discretionary awards. The first relates to an argument that, absent the price mechanism, bureaucrats are incapable of capturing and assimilating all the fragmented and dispersed information needed to administer the spectrum in the public interest.³⁰ The second concerns the risk that, without the discipline of market forces, incentives will be misaligned with the public interest, e.g. diverting investment towards rent seeking.³¹ Market mechanisms are the policy prescription. These, it is argued, promote efficiency, maximising the socio-economic benefits of the spectrum.³²

Market-based spectrum administration was occurring elsewhere, for instance in the US.³³ It also complemented maturing telecommunications regulation in the European Union, where the Licensing Directive had established a common licensing framework, based on openness, non-discrimination, transparency, and proportionality.³⁴

Auctions

²⁸ WTA 1949 s.2; Department of Trade and Industry (Fees) Order 1988 (SI 1988/93) art.8.

²⁹ WTA 1998 ss.1-3.

³⁰ F. A. Hayek, "The Use of Knowledge in Society" (1945) 35(4) *American Economic Review* 519, 525.

³¹ Anne O. Krueger, "The Political Economy of the Rent-Seeking Society" (1974) 64(3) *American Economic Review* 29.

³² M. Cave, *Review of Radio Spectrum Management: An independent review for Department of Trade and Industry and HM Treasury* (2002), p.6.

³³ John McMillan, "Selling Spectrum Rights" (1994) 8(3) *Journal of Economic Perspectives* 145; R. Preston McAfee and John McMillan, "Analyzing the Airwaves Auction" (1996) 10(1) *Journal of Economic Perspectives* 159.

³⁴ Directive 97/13/EC on a common framework for general authorizations and individual licences in the field of telecommunications services [1997] OJ L 117/15, arts.9-10.

The WTA 1998 does not demand the use of auctions, and, preceding it, the 1991 auction for Independent Television (ITV) franchises had, by most accounts, been a policy fiasco.³⁵

However, as a means of awarding scarce spectrum rights, auctions have several attractions.

To begin with, an auction scores high on good governance values, including transparency and accountability. Prior to the auctioning of spectrum rights, for the 2G beauty contests, committees had had to wade through the qualification paperwork and business plans for each of eight candidates, trying to “pick winners”. For 3G, given higher demand, plus technological and commercial uncertainty, the same approach was expected to be unmanageable - discretionary determinations would be more complicated and difficult to justify. An auction promised to eliminate the problem: instead of discretion, awards would be objective, made according to a transparent, rule-bound competition to the highest bidders.³⁶ Auctions were also argued to be resource efficient in comparison to beauty contests, but, given the UK experience, this is debatable.

Auctions are also attractive in terms of policy outcomes. First, they can establish the market price, something that is otherwise difficult for a government to get right.³⁷ For the 2G licences, which were assigned prior to the WTA 1998 without an auction, setting an appropriate annual licence fee³⁸ proved challenging. A suitable fee was implemented only after *EE v Office of Communications*³⁹ in 2018,⁴⁰ following government directions to do so in 2010.⁴¹

Secondly, auction mechanisms promise to allocate licences to the bidders that value them highest, thereby securing “allocative efficiency”. For an MNO, the value of a licence

³⁵ J. Campbell, *Margaret Thatcher, Volume Two: The Iron Lady* (London: Jonathan Cape, 2003), p.571.

³⁶ N. M. Rothschild & Sons and RA, *The Next Generation of Mobile Communications* (1999), p.7.

³⁷ For the set-price beauty contest in France, prices were too high. Four 3G licences were on offer, but only two large incumbent MNOs expressed interest.

³⁸ Wireless Telegraphy (Licence Charges) (Amendment No.2) Regulations 1998 (SI 1998/1567).

³⁹ *EE Ltd v Office of Communications* [2017] EWCA Civ 1873.

⁴⁰ Wireless Telegraphy (Licence Charges for the 900 MHz Frequency Band and the 1800 MHz Frequency Band) Regulations 2018 (SI 2018/1368).

⁴¹ Wireless Telegraphy Act 2006 (Directions to Ofcom) Order 2010 (SI 2010/3024) art.6.

depends on how much profit they expect to derive from it, and it is assumed therefore that MNOs will formulate their bids based on profitably forecasts. It follows, in theory, that an award to the highest bidder equates to an allocation to the bidder that is best placed to monetise the spectrum - in other words, the bidder with the best business plan.⁴²

For an auction to deliver optimal outcomes, according to auction theory, its design (or rulebook) must be “incentive compatible”, meaning that rational bidders, rather than bidding strategically or collusively, are compelled to bid truthfully and to reveal how much a licence is worth to them.⁴³ To achieve this, and promoting rational-instrumental legitimacy, the auctions utilised sophisticated rulebooks, relying on modelling and testing by expert consultants.⁴⁴

The rulebooks for the 3G and 4G auctions will be considered below. However, complicating matters, politics and law invariably demand that account be taken of various policy objectives, alongside efficiency, some of which may be incompatible with efficiency. The article turns to this next.

The Communications Act 2003

For the 3G assignments, which were organised and conducted by the Radiocommunications Agency, there was criticism that the auction was used politically, to generate government income.⁴⁵ The 3G auction raised £22.5 billion, considerably more than the £1–3 billion anticipated.⁴⁶ Maximising auction revenues might be a justifiable objective, insofar as upfront payments, like taxes, extract monopoly profits. However, the purpose of commercial pricing

⁴² John McMillan, “Why auction the spectrum?” (1995) 19(3) *Telecommunications Policy* 191, 193-194.

⁴³ G. Myers, *Spectrum Auctions: Designing Markets to Benefit the Public, Industry and the Economy* (London: LSE, 2023), p.149.

⁴⁴ Ken Binmore and Paul Klemperer, “The Biggest Auction Ever: The Sale of the British 3G Telecom Licences” (2002) 112(March) *The Economic Journal* C74.

⁴⁵ Martin Cave and Tommaso Valletti, “Are spectrum auctions ruining our grandchildren’s future?” (2000) 2(4) *Info* 347.

⁴⁶ National Audit Office (NAO), *The Auction of Radio Spectrum for the third Generation of Mobile Telephones*, HC 233, Session 2001-2002, p.17.

under the WTA 1998 was efficiency, not to raise income (which threatened to distort incentives).⁴⁷

Heading into the 4G auction in 2013, the regulatory landscape had evolved. At European level, a “common regulatory framework” was established.⁴⁸ Responding to concerns about the effects of excessive auction revenues, licence fees needed to be “objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose”⁴⁹ and, as well as efficiency, reflect a range of policy considerations – e.g. “encouraging efficient investment in infrastructure, and promoting innovation”.⁵⁰

In addition, a unified independent regulator for the UK communications sector - the Office of Communications (Ofcom) -⁵¹ was at the helm for the 4G auction. Ofcom had assumed the Radiocommunications Agency’s and Oftel’s spectrum management responsibilities, operating under the CA 2003 and WTA 2006 in this regard.

The CA 2003 entrusts Ofcom with two cardinal duties:⁵² to further both citizen interests, which points to social and democratic values,⁵³ and consumer interests, which signifies a market frame of reference.⁵⁴ The generality of the two duties prompted conversations on their meaning and relationship.⁵⁵ However, such conversations are less apparent in the context of spectrum administration, because the legislation places a range of more specific obligations on Ofcom, providing that it must secure optimal spectrum usage,⁵⁶ and have regard to various

⁴⁷ DTI, *Spectrum Management into the 21st Century*, pp.21-24; Hansard HL Deb Vol.580, col.718 (5 June 1997) (Lord Clinton-Davis).

⁴⁸ Directive 2018/1972 establishing the European Electronic Communications Code [2018] OJ L 321/36.

⁴⁹ Directive 2002/20/EC on the authorisation of electronic communications networks and services [2002] OJ L 108/21 art 13; WTA 2006 Sch.1, para.1(1).

⁵⁰ Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services [2002] OJ L 108/33 art.8.

⁵¹ Office of Communications Act 2002; CA 2003 Sch.1(1).

⁵² CA 2003 s.3(1).

⁵³ T. Prosser, *The Regulatory Enterprise: Government, Regulation, and Legitimacy* (Oxford: Oxford University Press, 2010), pp.15-18.

⁵⁴ Prosser, *The Regulatory Enterprise*, pp.12-13 and 160-161.

⁵⁵ Ofcom, *Discussion Paper: Citizens, Communications and Convergence* (2008); Ofcom, *Statement: Ofcom’s Consumer Policy* (2006).

⁵⁶ CA 2003 ss.3(2)-(4); WTA 2006 s.3. In relation to the s.3(2) duty, Ofcom’s Spectrum Advisory Board, established in 2004, provides independent strategic advice.

interests, including “promoting competition” and “encouraging investment and innovation ...”.⁵⁷

Ideally, a market-based approach, which Ofcom champions, will cater for citizens and consumers together: “citizen-consumers”.⁵⁸ However, conflicts within and between legislative duties arise,⁵⁹ and in these situations, the dominance of rational-instrumental legitimacy entails that questions about values are left for politicians, not regulators. This is rooted in the legislation, which endorses Ofcom’s light-touch ethos and preference for market solutions,⁶⁰ and, though Ofcom is generally autonomous, in relation to spectrum administration specifically, central government can step in by issuing Ofcom with directions,⁶¹ and since 2017 by setting strategic priorities.⁶² Thus, in situations where consumer and citizen interests conflict, the legislation deters intervention (without government backing).⁶³

The pursuit of efficiency

The article now examines the meaning of, and relationship between, consumer and citizen interests in the context of 3G and 4G. The discussion demonstrates the irrationality of the (rational-instrumental) transactional regime.⁶⁴

⁵⁷ CA 2003 s.3(4).

⁵⁸ Ofcom, *Citizens, Communications and Convergence*, p.5 and para.2.25.

⁵⁹ Ofcom, *Citizens, Communications and Convergence*, para.4.1-4.3 and fig.4.1; Michael Harker and David Reader, “How statutory duties shape the decision making of an economic regulator: insights from the energy regulatory community, past and present” (2022) 49(1) *Journal of Law and Society* 118; Simon Deakin and Stephen Pratten, “Reinventing the Market? Competition and Regulatory Change in Broadcasting” (1999) 26(3) *Journal of Law and Society* 323.

⁶⁰ CA 2003 s.3(4)(c).

⁶¹ WTA 2006 s.5. The government also gives directions to Ofcom under CA 2003 s.5(3).

⁶² CA 2003 ss.2A-2C.

⁶³ House of Lords Industry and Regulators Committee, *Who watches the watchdogs?*, HL Paper 56, First Report of Session 2023-24, p.13; House of Lords Select Committee on Regulators, *UK Economic Regulators*, HL Paper 189-i, First Report of Session 2006–07, pp.53-56.

⁶⁴ George Ritzer, “The McDonaldisation of Society” (1983) 6(1) *Journal of American Culture* 100, 107.

Auction efficiency and market efficiency

First, relating to the definition of consumer interests, auction efficiency must be reconciled with *market* efficiency, referring to the outcome of the auctions on market competition.⁶⁵

Auction rulebooks

For the assignment of the 3G rights, a concern for the auction designers (including the game theorist, Ken Binmore, and the economist, Paul Klemperer) was that the cost of the new networks and consumer demand over the 20-year licence period, was highly uncertain, making it difficult for bidders to calculate how much a licence was worth to enable them to bid rationally. To achieve efficiency in such conditions, a sophisticated auction rulebook was chosen - “the simultaneous multi-round ascending auction”.⁶⁶ The rulebook involves successive rounds of ascending price bidding (the 3G auction had 150 rounds), where bidding information from each round is made public. This transparency means that bidders gain an insight into the value estimates of their rivals, which they can feed into their own estimates, in theory, to bid, in later rounds, with less uncertainty.⁶⁷

The 3G auction was arguably efficient.⁶⁸ However, in designing the auction, alongside auction efficiency, the effect of the outcome on market competition had to be factored in. MNO markets tend towards oligopoly, as capital costs, needed for the construction of network infrastructure, deter market entry and expansion. This makes it difficult to gauge what level of

⁶⁵ CA 2003 ss.369-371 gives Ofcom concurrent competition enforcement powers.

⁶⁶ Wireless Telegraphy (Third Generation Licences) Regulations 1999 (SI 1999/3162); DTI, Wireless Telegraphy (Third Generation Licences) Notice (1999).

⁶⁷ P. R. Milgrom and R. J. Weber, “A Theory of Auctions and Competitive Bidding II” in P. Klemperer (ed.), *The Economic Theory of Auctions* (Cheltenham: Edward Elgar, 2000), p.179.

⁶⁸ John Cable, Andrew Henley, and Kevin Holland, “Pot of gold or winner’s curse? An event study of the auctions of 3G mobile telephone licences in the UK” (2002) 23(4) *Fiscal Studies* 447.

competition is both optimal for consumers and sustainable. For 3G, the Radiocommunications Agency decided that to “promote effective and sustainable competition”,⁶⁹ the auction was an opportunity for market entry, to go from four MNOs to five.⁷⁰ Consequently, despite the auction rulebook, key choices about the items for sale – the contents of the licences - were unavoidably in the hands of the Radiocommunications Agency.

It decided to offer five licences, to be won by five distinct bidders, for set amounts of 3G spectrum. The licence for the largest amount of spectrum was set aside for a market entrant, and to assist this fledgling MNO the incumbents were required to agree to regulatory changes, as a precondition of participation, to enable the entrant roaming rights on an existing network.⁷¹ The 3G assignments were therefore shaped by negotiations and discretion ahead of the auction.

The 2013 4G auction was less competitive, involving seven bidders, compared to 13 for the 3G auction, and all four incumbents won spectrum, as did a BT subsidiary. Whilst the timing of the 3G auction had been ideal, the 4G auction, delayed by litigation,⁷² took place amidst challenging economic conditions. In 2010, Ofcom was directed by central government to hold the auction “as soon as reasonably practicable ...”.⁷³ The auction raised £2.3 billion (the Autumn Statement had valued the licences at £3.5 billion).

MNOs typically want to hold a mix of low range wave frequencies (below 1GHz), which travel and penetrate further, and mid-high range frequencies (above 1GHz), which possess greater data capacity. With this in mind, to attain auction efficiency in the 4G auction, Ofcom (assisted by the consultants DotEcon) wanted flexibility to sell licences for two different frequency bands, so as to allow MNOs to package the spectrum according to their individual

⁶⁹ Hansard HC Deb Vol.312, col.233W (18 May 1998) (Barbara Roche MP).

⁷⁰ N. M. Rothschild & Sons and RA, *The Next Generation of Mobile Communications*.

⁷¹ This was challenged unsuccessfully in *Mercury Personal Communications v Secretary of State for Trade and Industry* (Times, 20 October 1999).

⁷² *T-Mobile (UK) Ltd v Office of Communications v Office of Communication* [2008] EWCA Civ 1373.

⁷³ 2010 Order art.9.

preferences. It opted for a “combinatorial clock auction”,⁷⁴ a rulebook at the cutting edge of economics.⁷⁵ This rulebook transforms an auction determination into a mathematical optimisation problem. Bidding serves to collect information about preferences and prices, where, via successive rounds, bidders indicate the quantity of the different spectrum frequencies that they want at prices specified by the auctioneer (“clock prices”), and this information is used ultimately to identify the combination of package bids that maximises the total value (subject to constraints, e.g. that bidders may have only one winning package bid). The rulebook obviated the need for the upfront choices that were such a decisive part of the 3G auction, meaning that Ofcom could be less prescriptive about the contents of licences - letting market forces decide.

Ofcom still adapted the rulebook to achieve specific competition objectives. By the time of the 4G auction, the efficiency-competition trade-off was more complicated. In addition to the MNOs, there were Mobile Virtual Network Operators (MVNO). These are operators that do not own network infrastructure themselves but have commercially agreed access to an MNO’s national network, enabling them to offer consumer mobile services. With the competitiveness of these downstream markets depending on the MVNOs gaining reasonable access at the wholesale level,⁷⁶ auction rules sought to guard against severe disparities in MNO spectrum holdings. A cap, an upper limit, was put on the amounts of spectrum that an MNO could acquire, and a floor sought to guarantee that an entrant or the smallest MNO (Hutchison 3G/Three) had adequate holdings to remain credible in the market.

Despite the sophistication of the rulebook, this cap and floor regulation threatens auction efficiency - for example, a bidder with the highest valuation, but holding above threshold amounts of spectrum, would be prevented from submitting the highest bid and

⁷⁴ Wireless Telegraphy (Licence Award) Regulations 2012 (SI 2012/2817).

⁷⁵ Lawrence M. Ausubel and Oleg Baranov, “A Practical Guide to the Combinatorial Clock Auction” (2017) 127(605) *The Economic Journal* F334.

⁷⁶ Ofcom, *Statement: Mobile Evolution* (2009), pp.18-19.

winning. Alternatively, it could be that bidders with higher valuations do not possess the most desirable business plans – e.g. where, as Hutchison argues,⁷⁷ larger MNOs buy-up spectrum, preferring to sit on surplus holdings lest a rival have them – or that budget constraints prevent some bidders from submitting high bids. But, if so, the notion that an award to the highest bidder equates to an award to the bidder with the best business plan has broken down.

Though auction theory underplays the role of discretion, the cap and floor show how it is unavoidable. Discretion in determining a cap/floor is contentious. The cap, amongst other disagreements, prompted legal wrangling, and to stave off litigation and delay, the Secretary of State intervened, meeting with the MNOs together to broker a consensus.⁷⁸ It is also technically difficult to gauge the correct level at which to set a cap/floor. Mistakes occurred in the 4G auction. Though a competition over the reserved spectrum had been planned for, it did not happen, allowing Hutchison 3G to secure reserved spectrum cheaply.⁷⁹

Strategic manoeuvring

In addition to auction rulebooks, strategic manoeuvring by MNOs away from the auction complicates the interaction between auction efficiency and competition policy. Immediately prior to the 3G auction, Vodafone, which under the stewardship of Chris Gent was transforming into a global telecommunications giant, launched a hostile takeover over Mannesmann, owner of the Orange network. Vodafone was required to dispose of Orange after the auction, and this allowed France Télécom to enter the market, having previously failed to win any 3G spectrum at auction. Similarly, Hutchison Whampoa, which had not participated in the auction due to

⁷⁷ Ofcom, *Explanatory Note: Campaign to “Make the Air Fair”*, <https://www.ofcom.org.uk/siteassets/resources/documents/consultations/uncategorised/93522-award-of-the-spectrum-bands/responses/make-the-air-fair.pdf?v=213726>.

⁷⁸ D. Thomas, “Ministers broker deal to allow 4G peace talks” (10 September 2012), *FT.com*, <https://www.ft.com/content/d04811c0-fb5e-11e1-87ae-00144feabdc0>.

⁷⁹ NAO, *4G Radio Spectrum Auction: Lessons Learned*, HC 968, Session 2013-2014, p.22.

links with Orange, entered the market when Hutchison 3G acquired the winner of the reserved 3G licence.

Such mergers may be means for mobile spectrum to gravitate towards an efficient outcome, e.g. following an inefficient initial allocation. However, merger policy is a distinct area of public administration – at that time, a matter for the Office of Fair Trading and the Competition Commission – in which spectrum holdings, though important, are one of several considerations.

Prior to the 4G auction in 2010, Orange and T-Mobile merged, creating Everything Everywhere (EE from 2012). Whilst this left three MNOs with comparable market shares, and a fourth – Hutchison 3G - in an insurgent position, disparities in spectrum holdings meant that EE, as a merger condition, was required to divest 25% of its 2G spectrum.⁸⁰ At the behest of government,⁸¹ in 2011, the spectrum trading scheme was extended to trading in mobile spectrum,⁸² and EE was able to sell its 2G spectrum to Hutchison 3G. Trading may promote allocative efficiency, but there is again potential for a clash with competition policy, where a trade harms market competition. The interaction between trading and competition policy is difficult to evaluate, however, because there have been few voluntary trades – suggesting that “... resale is itself generally inefficient” due to transaction costs.⁸³

Adding further complication is that Ofcom has had to make material, post-auction changes to the licences. In 2011, the 2G licences – which at the time Hutchison 3G did not possess - were amended to permit the use of those frequencies for 3G. Later, in 2012 prior to the 4G auction, ahead of rivals, EE was allowed to repurpose its 2G licence to deliver 4G, and

⁸⁰ T-Mobile/Orange UK, Case COMP/M.5650, *Commission Decision of 1 March 2010*, p.32.

⁸¹ 2010 Order art.7.

⁸² Wireless Telegraphy (Mobile Spectrum Trading) Regulations 2011 (SI 2011/1507).

⁸³ Paul Klemperer, “How (not) to Run Auctions: The European 3G telecom Auctions” (2002) 46(4-5) *European Economic Review* 829, p.831.

only after the 4G auction in 2013 were the rest of the 2G and 3G licences similarly liberalised. All licences are now technologically neutral.

For the 2G licences (which were not assigned by auction), Ofcom could be responsive to post-award modifications, adjusting annual fees to take account of them. There was no such possibility for the auctioned licences, where MNOs had paid upfront. The UK's ad hoc approach to licence changes has its advantages: consumers benefit from new technologies quickly and it avoids the inconvenience and cost of an auction. However, according to economic theory, rather than liberalising licences by fiat, allocative efficiency demands a fresh allocation. This, for example, occurred in Germany after the expiry of its 2G licences, to coincide with Germany's 4G auction.⁸⁴ The UK's approach also has implications for market competition – e.g. the disadvantaging of H3G and the advantaging of EE, mentioned above.

Interim conclusions

Whilst the legislative framework grants Ofcom considerable discretion, for rational-instrumental legitimacy, expertise keeps it in check. The auction rulebooks, based on mathematical models, ostensibly represent the discretion-free pursuit of optimal outcomes, and process developments from 3G to 4G can be portrayed as a story of instrumental learning and improvement.⁸⁵ This narrative is made possible because the policy discourse is confined to expert communities - auction economists, prioritising auction efficiency, and competition economists, prioritising market efficiency.

Auctions provide policy answers, but as algorithms, these answers are shaped by political design choices. Before and after the auctions, the MNOs use the legal framework to

⁸⁴ Bundesnetzagentur, *Mobile Broadband – Project 2016*, https://www.bundesnetzagentur.de/EN/Areas/Telecommunications/FrequencyManagement/ElectronicCommunicationsServices/MobileBroadbandProject2016/project2016_node.html.

⁸⁵ Myers, *Spectrum Auctions*.

jostle for competitive position, e.g. via mergers and litigation, and discretion and negotiation play a decisive role. This is to be expected given the levels of technical complexity, such as in relation to the spectrum caps.⁸⁶ In addition, the auction rulebooks, which follow consultations, policy statements⁸⁷ and regulatory impact assessments,⁸⁸ should arguably be regarded as the product of interest group competition and compromise, over which the regulator presides. Discretion is reviewable by the courts, and the auctions, as major economic events, will invariably be scrutinised by Parliament.⁸⁹ As such, the approach may be defended from a rational-instrumental perspective.

However, whether auctions are an improvement on what came before is far from evident. An argument that objective auctions are preferable to subjective and contestable beauty contests is unpersuasive. This is particularly so when process complexity is factored in. For the 4G auction, complicated bidding rules undermined transparency and obstructed rational bidding. There were suggestions of bidder confusion,⁹⁰ as well as strategic bidding.⁹¹

Auction efficiency and coverage equity

Engaging consumer and citizen interests, for the second policy interaction efficiency must be reconciled with the equity of the coverage and quality of 3G and 4G services. Inequity in

⁸⁶ L. Schrefler, *Economic Knowledge in Regulation: The Use of Expertise by Independent Agencies* (Colchester: ECPR, 2013); Despoina Mantzari and Francesca Pia Vantaggiato, “The paradox of regulatory discretion” (2020) 42(4) *Law & Policy* 382.

⁸⁷ CA 2003 s.3(8).

⁸⁸ CA 2003 s.7.

⁸⁹ NAO, *The Auction of Radio Spectrum for the third Generation of Mobile Telephones; and 4G Radio Spectrum Auction: Lessons Learned*; House of Commons Select Committee on Public Accounts, *Thirteenth Report: The Auction of Radio Spectrum for Third Generation Mobile Telephones*; House of Commons Select Committee on Trade and Industry, *Radio Spectrum Management*, HC 1258, Third Special Report of Session 2002-2003; House of Commons Culture, Media and Sport Committee, *Spectrum* (2011), HC 1258, Eighth Report of Session 2010-12.

⁹⁰ S. Da Costa, S. Kennedy and H. Sharp, *What we can learn from the UK 4G auction?* (KPMG, 2014), <https://assets.kpmg.com/content/dam/kpmg/pdf/2015/10/spectrum-uk-4g-auction.pdf>, p.6.

⁹¹ NAO, *4G Radio Spectrum Auction: Lessons Learned*, pp.19 and 22.

mobile connectivity, with access to mobile services increasingly recognised as “essential”, is an aspect of economic and social inclusion and of a broader debate on the UK’s “digital divide”.⁹²

Depoliticised spectrum administration

A trade-off between efficiency and equity was less apparent in policymaking ahead of the 3G auction. Whilst the previous 1G and 2G licences had specified requirements on the extent and speed of network rollout (90% coverage of the UK population within seven years) 3G obligations were lighter, requiring 80% population coverage – approximately “45[%] land area coverage averaged over the whole of the [UK]”.⁹³ The auction designers concentrated on revenue maximisation, identifying the highest value bidders. In theory, network buildout would take care of itself, provided the auction was efficient.

The investment climate for 3G was challenging. Straight after the auction, in 2001, there was a telecommunications stock market crash. Investors lost confidence: stocks plummeted, credit ratings agencies downgraded MNOs, and senior management came under pressure. BT’s chairman, Iain Vallance, and CEO, Peter Bonfield – who was admitting to buyer’s remorse within a year of the auction –⁹⁴ left the company, and BT demerged its mobile business.⁹⁵ Unsurprisingly, in relation to network investment, the prices at the UK auction, coupled with high spending elsewhere, like Germany, often sets the tone for policy debates.

According to one narrative - typically advanced by MNOs in arguing for favourable treatment or defending against criticism (e.g. relating to their tax affairs) - overbidding, in effect,

⁹² Secretary of State for Levelling Up, Housing and Communities, *Levelling Up: Levelling Up the United Kingdom* (2022), Cm 604, pp.184-185.

⁹³ Hansard HC Written Answers Vol.474, col.1961 (22 April 2008) (Malcolm Wicks MP).

⁹⁴ Paul Durman, “BT overspent £10bn on licences, says Bonfield” (18 February 2001), *Sunday Times*.

⁹⁵ BT re-entered the market via the 4G auction and went on to acquire EE in 2016.

subjected MNOs to “economically unsustainable tax[ation]”,⁹⁶ with ramifications for prices, and investment.⁹⁷ The fiercely competitive 3G auction took place amidst radical uncertainty and a telecommunications bubble. For incumbents, with high profitability expectations, failing to secure a licence was not a viable commercial proposition, and significant financial backing was available for would-be entrants. Bidding “spun out of control”.⁹⁸ Saddling an indebted telecommunications industry with even more debt, high auction prices also risked impeding access to external finance,⁹⁹ which was needed due to the £billions involved in establishing and operating national networks.

According to alternative accounts, the auction was not to blame for the crash. The value of the 3G licences fell “because of a change in the capital market’s view of 3G’s prospects”.¹⁰⁰ In any case, for many economists, high auction prices – a market entry fee – are “sunk costs”. Sunk costs, in economic theory, have no bearing on future decisions, like pricing and investment, because these are determined by current market conditions. Such an analysis is contested due to the MNO market’s oligopolistic structure.¹⁰¹ However, not long after the auction, squeezing profitability, the 2G services were subject to UK price cap regulation,¹⁰² and, from 2007, price controls were placed on roaming charges in Europe.¹⁰³

Missing from both narratives is the interplay between the auctions and the tax treatment of MNO debt and network investment. Despite high spending, the MNOs have been able to

⁹⁶ Cave and Valletti, “Are spectrum auctions ruining our grandchildren’s future?”.

⁹⁷ House of Commons Select Committee on Trade and Industry, *Radio Spectrum Management*.

⁹⁸ Stephen Temple, “Story from inside the greatest 3G Auction on earth”, *History of GSM: Birth of Mobile Revolution*, http://www.gsmhistory.com/3g_auction/.

⁹⁹ NAO, *The Auction of Radio Spectrum for the third Generation of Mobile Telephones*, p.55.

¹⁰⁰ Binmore and Klemperer, “The Biggest Auction Ever: The Sale of the British 3G Telecom Licences”, p.C92.

¹⁰¹ Carlo Cambini and Nicola Garelli, “Spectrum fees and market performance: A quantitative analysis” (2017) 41(5-6) *Telecommunications Policy* 355.

¹⁰² Competition Commission and Office of Telecommunications, *Reports on references under section 13 of the Telecommunications Act 1984 on the charges made by Vodafone, O2, Orange and T-Mobile for terminating calls from fixed and mobile networks* (2003).

¹⁰³ Regulation 717/2007 on roaming on public mobile telephone networks within the Community [2007] OJ L 171; *Vodafone Ltd v Secretary of State for Business, Enterprise and Regulatory Reform* (C-58/08) EU:C:2010:321.

avoid UK corporation tax, lawfully benefitting from debt interest relief and capital allowances. An egregious example is Vodafone, which, in 2012, was revealed to be paying zero UK tax.¹⁰⁴ Vodafone UK had received a loan from elsewhere in the Vodafone Group to cover the cost of its 3G licence (£6.3 billion). It was paying yearly interest on its loan (£300 million) and the full loan was to remain outstanding for the 20-year licence duration. According to media commentators, the government was “...giving back to Vodafone half the money it spent on 3G spectrum”.¹⁰⁵

Whilst there was a market correction following the 3G auction, whether there was overbidding is moot. The MNOs participated in the auction knowing that they stood to benefit from favourable corporate taxation. Unlike elsewhere, however, few safeguards were in place to ensure that the MNOs, operating internationally, directed these benefits into UK networks. In addition, the government chose not to ring-fence a portion of its auction revenues to invest in network infrastructure, using it instead to pay down the national debt.¹⁰⁶

Repoliticised spectrum administration

Whilst the MNOs had gone above and beyond in rolling out 2G, leading to near universal coverage, in the period after the 3G auction, leading up to the 2013 4G auction, the geographic reach of 3G was inadequate. The MNOs met their licence requirements for 80% population coverage (describing it as an “economic straitjacket”,¹⁰⁷ O2 only did so after Ofcom threatened

¹⁰⁴ Vodafone, “Why does Vodafone pay little or no UK corporation tax?”, <https://www.vodafone.com/about-vodafone/reporting-centre/tax-and-economic-contribution/-vodafone-corporation-tax>.

¹⁰⁵ Juliette Garside and Ian Griffiths, “Mobile networks hand small fortune to shareholders but little to taxpayers” (1 August 2013), *theguardian.com*, <https://www.theguardian.com/business/2013/jul/31/mobile-phone-companies-tax-avoidance#:~:text=A%20Guardian%20investigation%20has%20found,paying%20little%20or%20no%20tax>.

¹⁰⁶ Hansard HC Deb Vol 356, col 319 (8 November 2000) (Gordon Brown MP).

¹⁰⁷ O2 (UK), *3G Rollout Obligations: Measuring Compliance: Response to Ofcom’s Consultation Document* (20 October 2006), https://www.ofcom.org.uk/_data/assets/pdf_file/0015/33603/o2.pdf.

to shorten its licence).¹⁰⁸ However, incentivised to target profitable services (e.g. urban locations), some rural localities, and indoor areas, were encountering coverage problems – “not-spots”.¹⁰⁹ Improved connectivity was recognised as beneficial for economic activity and a matter of social equity.¹¹⁰

Prior to the 4G auction, there were a series of interventions. These included, to realise economies of scale, encouraging MNOs to share the costs of owning and operating network infrastructure; a new informational duty for Ofcom, requiring it to report biennially on the coverage, capability and resilience of UK networks;¹¹¹ and, to remedy market failure, a government subsidy of £150 million for infrastructure.¹¹² Reconcilable with a market-based approach, the politics of this intervention bring to mind Chang’s remark that “if you are clever enough, you can justify any government policy ... with the help of [n]eoclassical economics”.¹¹³

Ofcom was also directed to extend the MNO’s coverage obligations from 80 to 90%.¹¹⁴ The MNOs met their new requirements (apart from Vodafone, missing by 1.488%). However, such material licence modifications, post-auction, that make licences less valuable, are legally and politically contentious - potentially undermining the credibility of the auction, if MNO agreement is not forthcoming.¹¹⁵ In return for the additional obligations, and to incentivise long-term investment, the 3G licences were made indefinite.¹¹⁶

Evident in the multi-pronged response, the policy problem clearly has several dimensions to it. Auctions alone had been unable to achieve the optimal socio-economic usage

¹⁰⁸ Hansard HC Written Answers Vol.487, col 1679WA (Patrick McFadden MP) (9 February 2009).

¹⁰⁹ House of Commons Culture, Media and Sport Committee, *Spectrum*, Pt 4.

¹¹⁰ Department of Business, Enterprise and Regulatory Reform (BERR) and Department for Culture, Media and Sport (DCMS), *Digital Britain: Interim Report* (2009); BERR and DCMS, *Digital Britain: Final Report* (2009).

¹¹¹ CA 2003 ss.134A-134B.

¹¹² DCMS, *Mobile Infrastructure Project: Impact and Benefits Report* (July 2017).

¹¹³ Ha-Joon Chang, *Economics: The User’s Guide* (London: Pelican, 2014), p.46.

¹¹⁴ 2010 Order art.5(3)(a).

¹¹⁵ MNO agreement was a requirement under TA 1984 ss.12-15; *Mercury Personal Communications v Secretary of State for Trade and Industry* (Times, 20 October 1999).

¹¹⁶ 2010 Order, art.5(3)(b)–(d).

of the spectrum. Nevertheless, for the 4G auction, just one licence contained coverage obligations. Deterring coverage obligations is that they arguably detract from the auction price,¹¹⁷ so that Ofcom is, in effect, buying coverage from the MNOs.

Soon after the 4G auction, any pretence of a technocratic distancing from politics broke down. With the 2015 general election looming, a prompt for action by the Conservative-Liberal Government was reportedly that poor coverage tended to affect rural villages most keenly, some of which were Conservative heartlands, where local campaigns were springing up.¹¹⁸ Only two years after the 4G auction, the range of options for discussion expanded. Whilst commentators argued for the nationalisation of mobile networks in the broadsheet press,¹¹⁹ the government threatened mandatory national roaming, a measure that would enable consumers of one network with limited coverage to utilise a rival network.¹²⁰ To avoid such measures, the MNOs agreed to invest £5 billion and to take on coverage obligations based on geographic area as opposed to population – 90% of the UK by 2017.¹²¹ The debate on network coverage had become party political. Holding the MNOs to their commitments was part of the Conservative manifesto.

The other side of this intervention was that politicians began to take seriously practical impediments to the installation and maintenance of telecommunications infrastructure, especially relevant for rural locations.¹²² Though in 2013 the Law Commission had reported¹²³ on the need to reform the Electronic Communications Code¹²⁴ (legislation that governs land

¹¹⁷ House of Commons Culture, Media and Sport Committee, *Spectrum: Government Response to the Committee's Eighth Report of Session 2010–12*, HC 1771, Sixth Special Report of Session 2010–12, para.7-9.

¹¹⁸ D. Thomas and E. Rigby, “David Cameron orders improvement in mobile phone coverage” (5 June 2014), *FT.com*, <https://www.ft.com/content/c13ef86a-ecc0-11e3-a57e-00144feabdc0>.

¹¹⁹ O. Jones, “Mobile phone companies have failed – it’s time to nationalise them” (11 August 2014), *theguardian.com*, <https://www.theguardian.com/politics/2014/aug/11/nationalise-mobile-phone-companies>.

¹²⁰ DCMS, *Tackling Partial Not-Spots in Mobile Phone Coverage: Consultation* (2014), pp.25-33.

¹²¹ DCMS, *Tackling Partial Not-Spots in Mobile Phone Coverage: Government Response to Consultation* (2015).

¹²² DCMS, *Policy Paper: The digital communications infrastructure strategy* (2015).

¹²³ The Law Commission, *The Electronic Communications Code* (TSO, 2013), Law Com. No.336, HC1004.

¹²⁴ The code, originally set out in TA 1984 sch.2, was amended by CA 2003 sch.3.

access rights), a modern Code came in only under the Digital Economy Act 2017.¹²⁵ This aspect of the policy problem, commonly cast as “local nimbyism” e.g. arising from health concerns associated with mobile masts, was politically sensitive.¹²⁶ It cut across public administration, local and national.

Interim conclusions

As mobile telephones became ubiquitous, and services came to be regarded as essential, the response to coverage concerns appears indecisive. With confusion over what Ofcom’s priorities should be, central government, possessing a stronger claim to democratic legitimacy, provided the impetus for intervention. Spectrum administration became less a technocratic matter for which Ofcom took responsibility by running efficient auctions, and instead a matter for politicians.¹²⁷

The opening of the policy problem to discussion was to reveal another side of administrative constitutionalism, one in keeping with the deliberative-constitutive paradigm. For instance, the Consumer Panel, established under the CA 2003¹²⁸ to advise Ofcom became concerned with the matter. In addition, in relation to planning law, an area of public administration that accords with a different ordering of public values, in 2016 and 2022 a code of practice was formulated by a working group that comprised the MNOs, government departments and a range of national and local stakeholders (e.g. the Local Government Association and National Parks England).¹²⁹ Planning reform has been a continuing focus in

¹²⁵ Digital Economy Act 2017 s.4 (introducing CA 2003 sch.3A). Proposals to amend the Infrastructure Bill in 2015 had previously been withdrawn due to MNO concerns, Ofcom, *Electronic Communications Code* (Statement, December 2017), p.4.

¹²⁶ Hansard HC Prime Minister Vol.607, col.274 (9 March 2016) (David Cameron MP).

¹²⁷ For a member of Parliament’s perspective see R. Stewart, *Politics On The Edge: A Memoir From Within* (London: Jonathan Cape, 2023), pp.108-111.

¹²⁸ CA 2003 s.16(2); Communications Consumer Panel, <https://www.communicationsconsumerpanel.org.uk/>.

¹²⁹ DCMS, *Code of Practice for Wireless Network Development in England* (2022).

the next regime for 5G, and with this are shoots of an alternative version of administrative constitutionalism, one that values conversations that go beyond negotiations amongst government, the MNOs and Ofcom.

A post-Brexit regime

The 5G policy context

The preceding discussion, on 3G and 4G policy implementation, raises questions about the transactional regime's justificatory basis – efficiency, effectiveness and expertise.¹³⁰ EU law provided the framework under which the activity discussed took place (state aid and merger law, for example). This would not be so after 2020, and, for 5G, the policy backdrop would be markedly different.

Background conditions have changed since the introduction of the transactional regime in the 1990s. The impetus behind the new public management, given “crises and contradictions”, has long since waned,¹³¹ though it has not been replaced by an alternative managerial paradigm. In addition, what was supposed to be the UK's “post-bureaucratic age” has increasingly resembled a Weberian plebiscitary democracy,¹³² and the political has returned to the UK industrial economy.

Having fallen behind with 4G, central government assumed a prominent position in directing the implementation of 5G policy. With some urgency, it advanced a 5G strategy,¹³³

¹³⁰ Martin Cave, “Stick with Auctions” (April 2019) 47(1) *InterMEDIA* 34.

¹³¹ H. Margetts and P. Dunleavy, *The second wave of digital-era governance: a quasi-paradigm for government on the Web* (Philosophical Transactions of the Royal Society A, 2013), p.2.

¹³² T. Prosser, “Reflections on the Post-Brexit Constitution” in K. Gromek-Broc (ed.), *Public Law in a Troubled Era: A Tribute to Professor Patrick Birkinshaw* (Alphen aan den Rijn: Kluwer, 2023), p.9.

¹³³ HM Government, *Information Economy Strategy* (2013); DCMS, *Connectivity, Content and Consumers: Britain's digital platform for growth* (2013); DCMS, *The UK Spectrum Strategy: Delivering the best value from spectrum for the UK* (2014).

setting an ambition for the UK to be a “world leader”.¹³⁴ The Department for Digital, Culture, Media and Sport, which was tasked with responsibility for digital connectivity from 2017-2023, issued a stream of 5G policy publications - work that culminated, in 2019, when Ofcom was issued with strategic priorities.¹³⁵ In 2023, the Department for Science, Innovation and Technology was established, taking on the agenda-setting role.

The ministerial power to issue strategic priorities, contained in section 2A CA 2003, was introduced by section 98 of the Digital Economy Act 2017, despite existing powers to issue specific and general directions,¹³⁶ to “make it easier ... to direct Ofcom” to implement broader government policy, recognising that the government needed to be able to “work with Ofcom in a timely fashion”.¹³⁷ Ofcom must have regard to the section 2A statement, must explain in writing what it proposes to do, and must publish yearly reviews about what it has done.¹³⁸ Whilst there may have been no “significant overhaul” in the government’s relationship with Ofcom (a powerful actor in the transactional regime),¹³⁹ central government has assumed a stronger measure of directive control.

Despite a return of central government to driving policy implementation, governance is markedly fragmented. There are two aspects to this fragmentation. Firstly, pinning down one dominant conceptualisation of the regulatory problem is hard to do - accepting “the dynamics, complexity, and diversity of economic and social life, and ... the inherent ungovernability of social actors, systems, and networks”.¹⁴⁰ For the 5G era, given the 3G and 4G experience, post-Brexit politics and the nature of 5G technology, this is evidently a regulatory space with wicked

¹³⁴ DCMS, *Next Generation Mobile Technologies: An update to the 5G strategy for the UK* (2017), p.8.

¹³⁵ DCMS, *Statement of Strategic Priorities for Telecommunications, the Management of Radio Spectrum, and Postal Services* (2019).

¹³⁶ WTA 2006 s.5.

¹³⁷ DCMS, *Connectivity, Content and Consumers*, p.19.

¹³⁸ CA 2003 s.2B; Ofcom, *Letter from Katie Pettifer to James Heath, 25 November 2019* (2019), <https://www.ofcom.org.uk/siteassets/resources/documents/about-ofcom/public-correspondence/2019/letter-katie-pettifer-james-heath-ssp.pdf?v=324423>.

¹³⁹ DCMS, *The UK Spectrum Strategy*, p.31.

¹⁴⁰ Julia Black, “Decentring Regulation: Understanding the Role of Regulation and Self-Regulation in a ‘Post-Regulatory’ World” (2001) 54(1) *Current Legal Problems* 103, 111.

complexity to it. Spectrum frequencies have been identified for 5G, but doubt surrounds the technical and commercial gains from its use for mobile internet. This is particularly so because of the role envisaged for 5G in enabling “SMART” applications and services, which stand to benefit the economy and society, e.g. by providing the supporting network for the “internet of things”, in areas including transport, healthcare, entertainment and manufacturing.¹⁴¹ The regulatory problem, therefore, is a technological and innovation challenge as much as it is an economic or social equity challenge, and alongside economic expertise policymaking emphasises the science and technology evidence base.

A second aspect of governance fragmentation relates to the policy response, which is “... hybrid (combining governmental and non-governmental actors), multi-faceted (using a number of different strategies simultaneously or sequentially), and indirect”.¹⁴² For instance, in 2018 a “cross-government governance forum”, the UK Spectrum Board, was established to connect what have traditionally been distinct areas of administration - including competition, the environment, public health and national security.¹⁴³

The response also depends on neither one of the state or the market. It combines market mechanisms with negotiation and discretion (e.g. Ofcom and the MNOs are collaborating on the technicalities of calculating network coverage), and public subsidies. In this regard, since 2016, government has directed significant sums to support research and development – including, between 2017 and 2021, £200 million for a “5G Testbeds and Trials Programme”.¹⁴⁴ This marks a recognition that, because of demand uncertainty and because some 5G benefits may not be fully captured by the market, “[government] has a major role to play through stimulating the growth of new use cases and ... de-risking deployment”.¹⁴⁵ Previously,

¹⁴¹ Lorna Christie, *5G Technology* (Parliamentary Office of Science and Technology, 2019), POSTbrief 32.

¹⁴² Black, “Decentring Regulation: Understanding the Role of Regulation and Self-Regulation in a ‘Post-Regulatory’ World”, (2001) 54(1) *Current Legal Problems* 103111.

¹⁴³ Telecommunications (Security) Act 2021.

¹⁴⁴ DCMS, *5G Trials and Testbeds Programme - 5G Network Deployment Pilots: Call for Views* (2017).

¹⁴⁵ DCMS, *Future Telecoms Infrastructure Review* (2018), p.63.

investment like this would have been coordinated mostly at EU level, and the EU, from an early stage, has likewise been active in gearing up for 5G, utilising Horizon Europe funding to establish, in 2017, the “5G Infrastructure Public-Private Partnership” and, in 2022, the “6GStart: Starting the Sustainable 6G Smart Networks and Services Initiative for Europe”.

Legitimacy, in this post-Brexit regime, still emphasises a rational-instrumental frame, but public administration has moved away from the ideal of rational-instrumental legitimacy. Discretion and negotiation are central to the post-Brexit regime, and the legitimacy of this, which can be taken for granted, can be claimed by reference to the direct involvement of the elected government. This appears suboptimal. Failing to rethink legitimacy for the challenge of administering 5G is a missed opportunity to enhance legitimacy, both rational-instrumental and deliberative-constitutive.

Responsiveness

To reflect on real-world legitimacy, the article concludes by structuring an assessment of the post-Brexit regime around Baldwin and Black’s considerations for responsive regulation – regulation that is “flexible and sensitive” to the needs of both citizens and consumers.¹⁴⁶ Consideration of responsiveness is apt given that mobile connectivity is essential to modern life, and that there is debate to be had over how the spectrum is used – e.g. whether for commercial purposes or to deliver innovative public services.

(i) Responsiveness to the logics of regulatory tools and strategies

¹⁴⁶ Robert Baldwin and Julia Black, “Really Responsive Regulation” (2008) 71(1) *Modern Law Review* 59; Robert Baldwin and Julia Black, “Really Responsive Risk-Based Regulation” (2010) 32(2) *Law & Policy* 181.

Ofcom still champions auctions “because the market determines the outcome”,¹⁴⁷ and auctions remain the primary mechanism for getting mobile spectrum to the market. However, respected technologists are questioning the continuing utility of market mechanisms,¹⁴⁸ and the experience of the two nation-wide 5G auctions, in 2018¹⁴⁹ and 2021,¹⁵⁰ mostly reinforced concerns about declining competition, MNO disputes and process complexity.

For the 2018 auction, there was just one bidder in addition to the four incumbents, whilst only the incumbents contested the 2021 auction. These auctions have been less about who will win and more about how precisely 5G spectrum was to be divvied up amongst the incumbents. Myers also notes “strong evidence” of tacit collusion,¹⁵¹ the risk of which is heightened by such competitive conditions.

A “four to three” MNO merger was contentious at EU level,¹⁵² but, out of the EU, a merger between Vodafone and Hutchison 3G has been approved.¹⁵³ Pressure for market consolidation to facilitate 5G investment has intensified the tensions examined in this article - between auction and market efficiency, and between consumer and citizen interests -¹⁵⁴ and the approval reflects this, imposing behavioural remedies, including commitments on consumer prices and licence requirements relating to network rollout.¹⁵⁵

¹⁴⁷ Ofcom, *Consultation: Enabling mmWave Spectrum for New Uses Making the 26 GHz and 40 GHz Bands Available for Mobile Technology* (2022), p.27.

¹⁴⁸ W. Webb, *The End of Telecoms History* (Self-published, 2024); W. Webb and S. Temple, *Emperor Ofcom's New Clothes: How the market approach to radio spectrum failed the country's mobile infrastructure and how to turn it around* (Self-published, 2024)

¹⁴⁹ Wireless Telegraphy (Licence Award) Regulations 2018 (2018/86).

¹⁵⁰ Wireless Telegraphy (Licence Award) Regulations 2020 (2020/1199).

¹⁵¹ Myers, *Spectrum Auctions*, p.241.

¹⁵² *CK Telecoms UK Investments Ltd v European Commission* (T-399/16) (EU:T:2020:217); *Commission v CK Telecoms UK Investments* (C-376/20 P) (EU:C:2023:561).

¹⁵³ Competition and Markets Authority, *Anticipated joint venture between Vodafone Group Plc and CK Hutchison Holdings Limited concerning Vodafone Limited and Hutchison 3G UK Limited: Final Report* (2024), ME/7064/23.

¹⁵⁴ Ofcom, *Conclusions: Ofcom's future approach to mobile markets and spectrum* (2022), p.35.

¹⁵⁵ Competition and Markets Authority, *Anticipated joint venture between Vodafone and CK Hutchison*, pp.479-650.

Ofcom wanted its auctions to be “... simple, where possible” and “... perceived ... as fair and legitimate ...”.¹⁵⁶ It was, however, contending again with multiple objectives. Both 5G auctions adopted a format that combined aspects of the 3G and 4G rulebooks, and capped the amount of 5G spectrum that one MNO could acquire. At least from an external perspective, the auctions were still overly elaborate, and the contentious spectrum caps gave rise to litigation.¹⁵⁷

As algorithms, auctions (with MNOs committing funds upfront) offer little flexibility. Accompanied by an ineffective trading regime, they may be too blunt an instrument. In this regard, the government has encouraged Ofcom towards “innovative spectrum management”, especially that which might enliven the trading system.¹⁵⁸ However, difficulties here are apparent in Ofcom’s efforts, in the 2021 5G auction, to “defragment” the 3.4-3.8 frequency band.¹⁵⁹ After the concluding bidding stage, the auction was paused to give MNOs an opportunity to negotiate and agree precise frequency locations amongst themselves. The result was successful in that EE paid an extra £23 million, ensuring that its 3.6GHz winnings were located close to its existing 3.4GHz holdings and O2 and Vodafone (which share infrastructure) negotiated a trade. However, the measure exacerbated process complexity and raised transparency concerns.

(ii) Responsiveness to the behaviour, attitude and culture of the regulated

¹⁵⁶ Ofcom, Statement and Consultation: *Public Sector Spectrum Release: Award of the 2.3 and 3.4 GHz Spectrum Bands* (2015), p.29.

¹⁵⁷ *Hutchison 3G UK v Office of Communications* [2017] EWHC 3376 (Admin).

¹⁵⁸ Department for Science, Innovation and Technology (DSIT), *Policy Paper: Spectrum statement* (2023), p.21.

¹⁵⁹ Ofcom, *Statement on the Final Regulations for the Award of Spectrum in the 700MHz and 3.6-3.8GHz Frequency Bands: Notice that Ofcom has made the Wireless Telegraphy (Licence Award) Regulations 2020* (2020), pp.15–16.

The failings of the transactional regime point to a regulatory approach that was too generalised, “fail[ing] to acquire the knowledge of the circumstances to be regulated”.¹⁶⁰ Ofcom has been overly dependent on economic expertise, especially mathematical models of auction strategies. This modelling struggles to accommodate the reality of governance in multi-national telecommunications corporations, especially in relation to activity happening outside, but impinging upon, the auctions - mergers, trading, tax affairs, investment and expectations around political intervention.

In the post-Brexit regime, these knowledge deficits may be addressed via a broader evidence base. It is estimated that 5G requires £3–4 billion in network investment, and, with MNOs facing technological and commercial uncertainty, the 4G experience suggests that underinvestment will be felt most acutely by disadvantaged communities. Supplementing hierarchical state-market relationships, the government and MNOs are partnering up to address such coverage concerns, agreeing a “shared rural network” in 2021, which involves £500 million in public money and £530 million in MNO investment.¹⁶¹ As part of this agreement, separate from the auctions, the MNOs are set to provide coverage to 88% of the UK geographic area by 2024, and 90% by 2027. Horizontal relationships are likely more conducive to the learning required.

Rather than complementing such relational aspects, it is doubtful that adversarial auction transactions provide a foundation conducive to successful, long-term, public-private collaboration. As themes, the transactional (auctions and trading) and the relational appear incoherent, corroborating observations, more broadly, of the post-new public management (see the introduction to this section above). Auctions and trading may just be a hangover from a previous, transactional, regime.

¹⁶⁰ R. Cotterrell, *Law's Community: Legal Theory in Socio-Legal Community* (Oxford: Clarendon, 1995), p.305.

¹⁶¹ See *Shared Rural Network: Transforming Mobile Coverage Countrywide*, <https://srn.org.uk/>; NAO, *Supporting Mobile Connectivity* (2024), HC555, Session 2023-24.

Looking across to a comparable regulatory field, public procurement (buying as opposed to selling) a similar thematic tension between transactional and relational regimes plays out.¹⁶² In that context, it is generally accepted that, whilst lowest price tendering might be suitable to procure off-the-shelf items, for technically, legally and financially complex procurements, like public-private partnerships, public value depends on the relationship that is forged.¹⁶³ Accordingly, processes are available that facilitate dialogue to overcome information problems and to establish the trust and shared expectations necessary for lasting cooperation.

Enhanced dialogue between central government, Ofcom and the MNOs is desirable - for example, early-stage conversations over the amount of the licence fee (which offers more flexibility than a one-off auction purchase), the levels of investment required, options about how to deliver that investment (including MNO infrastructure sharing) and the feasibility of spectrum sharing (discussed under the next heading). This presents accountability risks – capture and corruption – to which the transactional regime was a response. However, rather than a transactional approach, a responsive answer lies in transparency and the informed and empowered inclusion of third parties: public interest groups.¹⁶⁴ Legislation should develop the role and representativeness of the independent communications consumer panel, tasking it, as a public interest representative, to oversee relationships between Ofcom, central government, and the MNOs.¹⁶⁵

(iii) Responsiveness to institutional environments

¹⁶² For example, P. V. Jones, *The New Public Contracting: Regulation, Responsiveness, Relationality* (Oxford: Oxford University Press, 2006); N. Ball and M. Gibson, *Partnerships with principles: putting relationships at the heart of public contracts for better social outcomes* (Government Outcomes Lab, 2022) https://golab.bsg.ox.ac.uk/documents/Partnerships_with_principles_policy_brief.pdf.

¹⁶³ Patrick Bajari, Robert McMillan and Steven Tadelis, “Auctions Versus Negotiations in Procurement: An Empirical Analysis” (2008) 25(2) *Journal of Law, Economics, and Organization* 372.

¹⁶⁴ I. Ayres and J. Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate* (Oxford: Oxford University Press, 1992), pp.54-100; Carolyn Abbott and Maria Lee, “Economic Actors in EU Environmental Law” (2015) 34(1) *Yearbook of European Law* 26.

¹⁶⁵ On its role see Michael Harker, et al., “Regulation and Consumer Representation”, in M. Crew and D. Parker (eds.) *International Handbook on Economic Regulation* (Cheltenham: Edward Elgar, 2006).

Governance in the transactional regime was also too generalised due to its focus at the national level, i.e. sole-use mobile spectrum licences assigned for the whole of the UK. The drawbacks of a neglect of local/regional perspectives are evident, particularly in the way, in the transactional regime, local planning policy contributed to MNO underinvestment. In the post-Brexit regime, local perspectives are increasingly prioritised.

To address spectrum underuse (due to wastage and hoarding) Ofcom has introduced “demand-led” licensing models for sharing spectrum (preferring this over “use it or lose it” licence conditions): local access¹⁶⁶ and shared access¹⁶⁷ licences. Local access licences provide, typically, three years of access to MNO spectrum that is not in use. The need for such licences is not obvious, as spectrum can be traded; however, according to Ofcom, a “simple process” was needed for “... instances where trading is not likely to work”.¹⁶⁸ For the shared access licences, four frequency bands have been set aside for mobile technology, available on a “first come, first served” basis. These licences suggest responsiveness to the technological needs of 5G (high frequency waves that are less suitable for wide area coverage) and to the failings of the transactional regime, which made it necessary for government and Ofcom to engage with local interests around the provision of network infrastructure (discussed in the previous section).

Mobile telecommunications (unlike fixed broadband) has no history of community benefit organisations taking on local provision.¹⁶⁹ However, noting the Labour Government’s enthusiasm for deeper and wider English devolution,¹⁷⁰ there are opportunities for more

¹⁶⁶ Ofcom, *Local Access Licence: Guidance Document* (2019).

¹⁶⁷ Ofcom, *Shared Access Licence: Guidance Document* (2019).

¹⁶⁸ Ofcom, *Local Access Licence*, p.1.

¹⁶⁹ DCMS, *Guidance: Introduction to Community-Led Schemes* (2019),

<https://www.gov.uk/government/publications/community-led-broadband-schemes/introduction-to-community-led-schemes>. Prominent examples include Broadband for the Rural North (“B4RN”) in the UK)) and guifi.net in Spain - see Mélanie Dulong de Rosnay and Félix Tréguer (eds), *Telecommunications Reclaimed: A Hands-on Guide to Networking Communities* (Internet Society, 2019).

¹⁷⁰ Ministry of Housing, Communities & Local Government, *English Devolution White Paper: Power and Partnership: Foundations for Growth* (December 2024), CP 1218.

deliberate localised policymaking, and the proactive inclusion and empowerment of local actors (whilst recognising organisational capacity constraints). Pointing to Fisher’s deliberative-constitutive paradigm, Ofcom, organisationally, aspires to be “deeply connected to communities ..., so [it] can ... learn about the society [it] serves”.¹⁷¹ To “bring in different views and perspectives”, it has been diversifying its workforce - e.g. recognising local expertise in its recruitment - and expanding its geographic presence.¹⁷² Though most staff are based at Ofcom’s London headquarters, its footprint outside London, which includes offices in each UK nation (required by section 1 CA 2003) plus several English regional offices, is growing (a Manchester office opened in 2021). Momentum may be building for central-local collaboration in spectrum administration, particularly regarding local licences, .

(iv) Responsiveness to the performance and effects of a regulatory regime

Ofcom argued recently against beauty contests because it is difficult “to envision how [it] would design [award] criteria [to] reliably select the highest value users ...”.¹⁷³ It went on to add that “[t]here is a substantial risk that the selection criteria may lead to an outcome where the final allocation is inefficient, and/or licensees do not deliver on ... commitments”, whereas, “[i]n an auction, the spectrum would be awarded to the participant who bids the highest for it, which is likely to be the user who can obtain the most value from [it] ... and provide the most value to society”. Comments like this suggest that Ofcom is trapped in outdated arguments, failing to appreciate the performance and effects of the auction assignments.

Ofcom has arguably been insufficiently sensitive to the inherent politics of the spectrum auctions. The priority placed on driving out the highest auction bid appears short-sighted –

¹⁷¹ Ofcom, *Making Ofcom Work for Everyone: Ofcom’s Diversity and Inclusion Strategy* (January 2021), p.15.

¹⁷² Ofcom, *Making Ofcom Work for Everyone*, p.13.

¹⁷³ Ofcom, *Consultation: Enabling mmWave Spectrum for New Uses Making the 26 GHz and 40 GHz Bands Available for Mobile Technology* (2022), p.27.

privileging short-term prices over long-term investment - and much of this was arguably down to policy conversations that were insufficiently plural. Ofcom, and the government, have struggled to see past the MNOs, and other relevant actors and interests – especially citizen voices – have been sidelined, e.g. where national roaming has featured primarily as a negotiating card.

To foreground Ofcom’s duties to both consumers and citizens, opportunities exist to move away from a rational-instrumental framing in the post-Brexit regime and to value a diversity of interests, values, and information sources. In relation to research and development, central government has invested £40 million to establish ten “innovation regions”.¹⁷⁴ These are projects, led by regional and local government, scattered around the UK, that are committed to establishing areas that promote collaboration between the ICT industry and local/regional actors, e.g. local authorities and universities. Here, the potential capabilities of 5G and a desire to facilitate innovation is enabling a wider range of actors to acquire status in the regulatory space. Thus, away from the predominantly rational-instrumental framing of the auctions, there are already pockets of deliberation and collaboration.

Ofcom, cast in the post-Brexit regime in a facilitative role might do more to organise, facilitate and nurture a deliberative-constitutive administrative constitutionalism under the CA 2003, and to realise the potential in sites, like the innovation regions, for reflexive learning.¹⁷⁵ Currently, Ofcom, which was established under and is committed to a transactional regime, has been slow to accept the regime’s changing nature. For it to lead on a responsive agenda, it may need pushing, via a legislative reframing of its approach, in that direction. This could involve, for instance, enshrining subsidiarity in the CA 2003. Ideally, this would be supported by a new

¹⁷⁴ DSIT, *Notice: 5G Innovation Regions: Successful Regions* (2023), <https://www.gov.uk/government/publications/5g-innovation-regions-successful-regions/5g-innovation-regions-successful-regions>.

¹⁷⁵ G. Palast, J. Oppenheim and T. MacGregor, *Democracy and Regulation: How the Public Can Govern Essential Services* (London: Pluto, 2002).

statutory institution, a “local government digital service” or “alliance” that emphasises “local ownership, the importance of local context, and local identities”, as one commentator proposes.¹⁷⁶

Conclusion

Adding to the literature on the economic constitution, this article has examined administrative legitimacy pre- and post-Brexit. In doing so, the article, engaging Fisher’s lens of administrative constitutionalism, has shown how a rational-instrumental frame pervades the governing arrangements for the assignment of mobile spectrum. Despite complexity and the boundary spanning nature of the regulatory challenge, this framing has engendered technocracy and compartmentalisation.

The dominance of Fisher’s rational-instrumental paradigm over the deliberative-constitutive was most striking when looking at the assignment of the 3G and 4G licences, which involved governing arrangements that relied on discrete transactions. The approach, given the legislative framing – the efficiency objective, the permissibility of auctions and trading and promotion of a hands-off regulatory style – prioritised rational-instrumental legitimacy, which entailed the privileging of economic expertise. However, despite sophisticated auction mechanisms with numerous theoretical attractions, in such a complex environment discretion and negotiation could not be eliminated, and the adequacy of outcomes can be contested. This transactional regime (as with the new public management generally) came unstuck.

As mechanisms for allocating scarce public resources, auctions receive relatively little critical treatment, though their use has spread, notably into emissions trading.¹⁷⁷ This article’s

¹⁷⁶ James Plunkett, *Helping local digital work* (March 2024), <https://medium.com/@jamestplunkett/helping-local-digital-work-b628178df647>.

¹⁷⁷ Commission Regulation 2023/2830 laying down rules on the timing, administration and other aspects of auctioning of greenhouse gas emission allowances [2023] OJ L, 2023/2830.

consideration of auctions provides a necessary corrective and should inform other areas that similarly foreground algorithmic decision-making.

A more complicated picture arises in the 5G period. Though market mechanisms still play a role, these operate alongside different values, interests, and instruments and may be just remnants of a previous regime. It is argued that a post-Brexit regime has emerged. Due to the way in which governance has fragmented, a regime that is responsiveness to consumer and citizen interests, and with enhanced legitimacy, both rational-instrumental and deliberative-constitutive, seems attainable. However, to achieve this, different conceptions of legitimacy must be nurtured, requiring administrative actors, notably Ofcom, to engage with a plurality of interests and values, especially by way of policy devolution. The article's centralisation/decentralisation theme is broadly relevant to the UK's economic constitution. In relation to spectrum administration, there is legal and policy infrastructure and experience that might be built upon to realise devolution. However, without a concerted effort and long-term strategy, it will be just muddling through.