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Agenda

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Thoughts on UK economic regulation, 2016

Martin Cave, Visiting Professor, Imperial College Business School, **presents his views on the state of UK economic regulation. In doing so, he focuses on three core issues: regulatory independence, competition, and innovation. How can regulators assert their independence; what forms of competition are most promising in different sectors; and what does digitalisation mean for networks?**

This article deals with three aspects of current economic regulation in the UK—none of which is especially novel, but all of which are discussed in the review of regulation announced by HM Treasury in November 2015.[1] These are: the independence of regulators; the scope for competition in regulated network industries; and the innovative deregulatory potential of digitalisation.

My overall view of the UK regulatory regime remains favourable. Economic regulation is imperfect, and as regulated companies tend to look for opportunities to 'game' the outcome, there can be some cycling between imperfect solutions. But renewal also takes place—as exemplified by the RIIO (Revenue = Incentives + Innovation + Outputs) process in energy, recent changes to the water regime, and the 2016 regulatory strategy review by the UK communications regulator, Ofcom. Advances are made on a rolling basis, for instance the reduction in so-called CAPEX bias through the minimisation of total expenditure (TOTEX). But in addition, there are institutional tensions, to which I turn first.

Regulatory independence

I start from the conventional wisdom that the reduction in investment risk that regulatory independence can bring is vital to the success of regulation in the UK, where policy is subject to frequent change.

It is easy to classify certain matters as properly rendered either to 'God' (the policymaker) or to 'Caesar' (the regulator)—if they lie at one end or the other of the spectrum. But there is no clear bright line between the two categories. Expansionist behaviour by the government is inevitable during its bursts of energy, although at times of greater fatigue we may observe a disinclination to address complex issues (public service broadcasting, for example, at least for some of the time).

There is an appealing mechanism for limiting hostilities: the publication by the government of statements of strategic policy covering the course of a Parliament—but this does not always happen.[2] Perhaps this reflects the reluctance of ministers and civil servants to make such a long-term commitment to policy stability. And if this instrument were to be used successfully, the strategic guidance would have to demonstrate some selectivity across a range of legitimate 'policy' variables. This task would be made easier if the regulators had more clearly structured and more parsimonious duties set out in their statutes.

I would, however, like to draw attention to four aspects of policymaker–regulator interaction that may be sources of threat to regulators' independence.

- Where a regulated sector 'washes its face' (i.e. covers its costs through charges), the regulator is essentially passing on the policy bills to end-users.[3] Where it does not, regulatory action impinges on a Department's spending, which naturally encourages push-back. The obvious example of this is the railway sector.

- The Treasury review mentioned above refers expressly to the fact that 'Since regulators were created, their functions have grown, which can take away from this focus on consumers'.[4] The government will examine 'whether the functions of the economic regulators could be slimmed down to enable a greater focus on their core functions'. This was projected to be done in a 'Star Chamber'.[5] This could refer to a lot of things (including the role of 'social regulation'). The function that I have in mind is a situation when a regulator undertakes administrative or back-office functions for a ministry, as happens with the energy regulator for Great Britain (Ofgem) and the Department of Energy & Climate Change (DECC). I conjecture that being a Department's servant in the morning does not sit well with full independence in the afternoon.

- Thirdly, the boundary becomes more contentious when the regulated sector is in policy transition. Polish economist, Oskar Lange, described the Soviet Union as a '*sui generis* war economy'.[6] While the UK energy sector falls short on several counts of both of the objects of Lange's comparison, the hectic decarbonisation of energy supply creates a temptation for 'armchair generalship' in the ministry/military headquarters. It poses challenges to the creation of the stable and predictable regime that regulators seek. This is likely to provoke conflict.

- Finally, the politicisation of the appointment, and re-appointment, of senior regulators can undermine both the appearance and reality of independence. This should be fixable, or at least its capacity to cause damage should be capable of limitation.

However, the bottom line, as both UK and other countries' experience indicates, is that independence always has to be fought for; the sometimes hot and sometimes dormant war between policy and regulation has already lasted about Thirty Years in the UK, and looks set to be a One Hundred Years War. In this conflict, the regulators' best defence is to maintain a strong public reputation for competence (or at least a stronger one than the government).

Competition

Compared with the early 1980s, competition in UK network industries is now rampant in most sectors—water being the 'last frontier'. The key has been unbundling, which has allowed access to essential infrastructure, removed retail regulation, and encouraged innovation. But classic unbundling is a top-down rather than a market relationship. Setting access prices and terms and conditions from the regulatory office is a hazardous business, and is subject to error.

How much better, then, either to replace, where possible, top-down access price-setting with a competition among access seekers, which mobilises the information of the parties concerned, to gain access to a scarce resource; or to initiate a process of negotiation or competition between access seeker and access provider. This can be achieved by requiring the regulators of network industries systematically to ask: have all the opportunities for the development of markets been exhausted upstream, to complement the retail competition that unbundling has accomplished at retail level? If introducing effective competition in retail were designated 'Deregulation 1.0', then scouring the upstream for market or decentralised opportunities might be 'Deregulation 2.0' (of which there might be successive versions).

The hypothesis underlying this approach is expressed in the maxim: 'trust and verify'.[7] The first part of the injunction describes a preference for competition where it seems to have a prospect of working. The second is a reminder that this is a trial and error process: if market solutions do not work, a return to alternative methods may be quite appropriate or even necessary; this might well involve a strategic withdrawal to design and accomplish better outcomes—*reculer pour mieux sauter*.

In the sections below I look at the successes of this process and the prospects for the future in relation to two types of wholesale input: divisible inputs, and new lumpy assets.

Category 1: divisible inputs

It is relatively easy to introduce competition among access seekers where there are divisible inputs. Below I give seven examples of competition and markets actually or potentially replacing physical allocations or obligations to supply at regulator-determined prices (sometimes zero).

1. *Spectrum*. Once subject to 'command and control' allocation, spectrum licences are now auctioned all over the world—by governments anxious for the proceeds. Secondary trading is more patchy.[8]

2. *Wholesale electricity markets*. These now exist in a number of forms, and operate in demanding circumstances—usually using half-hour trading periods, 48 times a day, in the face of various weather-related and technical complications—without the lights going out.

3. *Airport slots*.[9] Despite substantial delay in the approval of the EU Airports Package, announced in 2011, in the UK a limited amount of slot trading at Gatwick and Heathrow airports does go ahead, including a recent transfer involving Oman Air at Heathrow for a record price.[10] But it is very episodic. Jockeying for slots among airlines, combined with the high scarcity of capacity experienced at major airports, limits its effects.

4. *TV sports rights*. In 2010, Ofcom proposed to require Sky to make its sports rights available to other broadcasters at a regulator-determined price. On appeal, the UK Competition Appeal Tribunal (CAT) set this aside. (The Appeal Court subsequently remitted the CAT's decision.) Meanwhile, competition rules concerning the sale of football rights have facilitated the development of a secondary market in broadcast sports rights. In 2015, Ofcom concluded that Sky was now supplying the relevant channels widely on commercial terms, so that 'must-offer' rules were no longer needed.[11]

5. *Water abstraction rights*. Water resources are currently both over-licensed and over-abstracted, and a new system of allocation is required to support water competition. The Department for Environment, Food & Rural Affairs (Defra) has been aware of these economic and environmental imperatives since at least 2010. It intends to complete the reform of abstraction by 'the early 2020s'[12] by means of a plan that has not yet been fully disclosed. This looks to me like procrastination.

6. *Train paths*. In 2012, a French economist first asked the interesting and challenging question: can the invisible hand (in the form of a combinatorial auction of train paths) write the railway timetable?[13] While the technical answer to this question is probably 'no', the answer to the broader question: 'can a market allocation regime (e.g. an auction) deliver a competitive service market on major long-distance routes?' is almost certainly different. Note, however, that a damaging provision in the Third Railway Package precludes the resale of train paths, thus eliminating the scope for a secondary market.[14]

7. *Roads*. These are an indispensable input into the end-user services of passenger and freight road transport. With some limited exceptions, roads are currently available free in cash terms at the point of use to cars and trucks that are appropriately licensed. Drivers are, however, subject to the costs of congestion caused by other road users. An alternative means of rationing access to the road is by charges. Existing licence plate recognition technology makes this quite feasible. Charges could either be preset to vary by stretch of road or time of day; or they could be adjusted in real time to reflect the situation at a given place and time; or permits for a specified quantity of journeys could be made available for sale in advance. Given concerns about the public acceptability of such a plan, it could start operating, as is happening in several US states, with pricing for trucks but not passenger cars.[15]

The first four examples represent successes to varying degrees in inserting wholesale competition into a regulated value chain. In each case, the market has not developed over millennia (possibly nurtured by the efficiency-seeking trends in private law-making that some discern), but has been designed by a public body. A great deal of international and domestic experience has now been accumulated, notably in relation to auctions—although such learning is not necessarily available to pioneering countries such as the UK. Cross-country and cross-sectoral comparison of such experience is very timely.

The next two (water abstraction rights and train paths) are work in progress; but in its own sector each is capable of providing indispensable support in the development of efficient and competitive markets throughout the value chain. The final example, of roads, is more speculative, but potentially has a huge impact, as suggested in the final section below.

Does this mean abandoning or overriding regulatory objectives other than simply efficient competition? I am thinking here of quite proper redistributive and other goals in essential sectors such as cross-subsidy, universal service, etc. But it is important here not to lose sight of a key result from another area of economics which reads across to regulation:[16] if a particular redistributive outcome is sought in end-user markets, the intervention to achieve it should also be sought in those markets; this is because intervening in wholesale markets usually leads to productive inefficiency. In other words: 'don't mess with input prices, if you can avoid it.'

Category 2: new indivisible investments

This is much more tricky. The Treasury document notes that a core regulatory function is 'to protect the interest of consumers through price controls that make sure that network monopolies set prices fairly and are run efficiently'.[17] My question is whether the range of assets subject to regulatory price control can be diminished. It is motivated by the belief that the regulators or government departments are not necessarily best-placed to take decisions on the timing or nature of massive new investments, their costs then being recovered through regulator-set access charges.

This question in practice can be answered only with respect to new investments, as existing ones are mostly sunk, and such things as local distribution networks do not lend themselves to the successful auctioning of capacity. So how can the timing, design and terms and conditions of access to such new investments be removed from the fallible or over-active hand of the regulator? I am not yet aware of any established recipe book, but it would include at least the following approaches.

1. *Contestability of investment projects*. Many UK (and overseas) regulators have endorsed and tried this approach, which has been widely documented. For reasons of space, I only note here that there have been some successes, but that organising such 'competitions for the market' is time-consuming and, like other regulatory 'separations', may have an ambiguous effect on efficiency.[18]

2. *Contracting, or 'bargaining in the shadow of the regulator'*. Here, the regulator encourages access seekers and access providers to work out a commercial agreement, with the regulator intervening if no such solution is reached.[19] One variant routinely used in the Antipodes involves a two-stage process. The first stage involves attempts to reach commercial agreement. If none is reached, any party can seek the 'declaration' of a facility as fit for regulation and, if that is made, a regulatory decision may follow. This type of solution seems most likely to succeed either if the regulator's likely decision can be predicted very accurately by both sides, or if the regulator's propensity for whimsical or volatile decision-making is feared by both sides. It may be that the majority of cases fall between these two stools, leaving room for the regulator's decision to have some, but not too much, surprise value.

   The UK Civil Aviation Authority (CAA) discussed at the time of the last airport price control the possibility of moving away from the traditional model to a model based on contracting between airport and airlines.[20] The advantage would be a better-defined project, and a better allocation of risks and reward. However, it is unclear whether this could apply to mammoth risk-laden airport projects such as a new runway and associated terminals at Gatwick or Heathrow. Here, there are difficulties in agreeing and gaining private finance for an investment with substantial policy risk. Looking

elsewhere, the upstream water sector may be a particularly fruitful area for the use of contracting.

3. *Marshalling effective demand*. Ofgem has developed a procedure to make the construction of new gas pipelines[21] and other infrastructure contingent on customers in aggregate exercising effective demand for a specified level of output of services. This then triggers the investment, which includes further capacity.[22] This approach has the limited but important goal of determining the timing and scale of new facilities, but not the price, which remains regulated. Its use in relation to gas pipelines has been restricted by changes in demand caused by movements in the global price of gas, but it bears consideration in a wider context.

4. *Favouring procompetitive technologies*. This may best be illustrated by an example relating to fibre networks. A comparison of the experience of different EU member states shows that regulatory choices can affect key aspects of fibre network design and exercise a powerful influence on the subsequent level of infrastructure competition, as well as generating different network performance.[23] The question becomes: is it legitimate to influence firms' technological choices on 'market failure' grounds?

These approaches show how major upstream investment decisions can, in principle, be decentralised. None of them is straightforward, but I would be inclined to put my money on bargaining and contracting (including 'customer engagement') as the option that is most promising (but by no means universally applicable).

More generally, the current Treasury review wisely notes that the regulators' goal, in addition to setting price controls, is to 'ensure that competition is promoted wherever possible for the benefit of consumers'.[24] As a means to this end, I think it is worthwhile, in the course of a regulatory cycle of five or so years, to ask each regulator systematically to address the questions: have all the opportunities in my sector for the development of markets across the whole value chain been exhausted? What more can and should be done? A thinner version of this is already a feature of the (European) regulatory regime for electronic communication services, which has sunset clauses requiring market analysis every three years (possibly too short for comfort). But what may be required on top of such regular reviews is a positive obligation proactively to consider market-opening initiatives. Such a process will also expose areas where the obstacle to reform lies elsewhere than in the regulatory office.

Innovation

No discussion of this kind can end without a section on innovation, and I end with a brief final remark on the impact on regulation of a particular aspect of innovation associated with digitalisation. This can already be seen in smart meters in energy (and possibly water), which—with appropriate data analytics—may lead to a whole new set of relationships in the relevant value chain, in particular a revamp of the supply function.

Another sector that is potentially subject to even greater change is passenger and goods transport. This has traditionally been regulated in 'silos'—buses, trains, boats, planes, etc. But several related but separable technological changes are approaching at various speeds:

- the development of autonomous vehicles (driverless cars and other road vehicles, and drones);
- the 'wiring' of highways, permitting more sophisticated road pricing;
- the development of online transport platforms that can give passengers or shippers 'by the minute' updated multi-modal information on options.

In relation to the longer-term shift to autonomous vehicles, attention is already focused on safety and licensing aspects. But other changes, such as a substantial growth in vehicle-sharing, are also possible. The wiring of roads generates much better information for competition across various modes on the online platform, and introduces opportunities for dynamic road pricing. In the face of private user resistance, road pricing can be implemented, as is happening in the USA.[25] The final outcome could be a redefined, wider market in which power shifts from the physical infrastructure to other levels of the chain, particularly the availability and control of information. This would also require a more unified regulatory approach, and the position of the online platform(s) might have to be monitored.

Martin Cave

An afterword

The March 2016 Budget Report noted the following in relation to 'markets and regulation':[26]

- Ofgem's regulatory role will be streamlined by the splitting of its E-Serve functions or delivery arm. The government will continue to consider whether economic regulators' functions can be further streamlined;
- Ofgem's statutory duties will be altered to ensure that where appropriate it considers competition levers first;
- the CMA will enhance its Annual Concurrency Report to cover new regulations put in place during the year which might significantly affect competition and innovation. It will also propose areas where changes to regulation might allow competition and innovation to work better.

The views expressed in this article belong to the author alone. This article is based on a presentation made to the European Policy Forum on 17 February 2016.

[1] See HM Treasury (2015), 'A better deal: boosting competition to bring down bills for families and firms', Cm 9164, November, para. 4.15.

[2] The Department for Environment, Food & Rural Affairs 2013 strategy statement for Ofwat notes: 'The [Department for Business, Innovation & Skills' 2011 Principles for Economic Regulation] require that Government puts in place a strategic policy statement for each of the economic regulators to provide transparency regarding priorities and desired outcomes'. Department for Environment, Food & Rural Affairs (2013), 'Defra's strategic policy statement to Ofwat: Incorporating social and environmental guidance', May. It would be nice if, in the future, such things happened more often.

[3] This can be done successfully only up to a point. An accumulation of straws can break any camel's back.

[4] HM Treasury (2015), 'A better deal: boosting competition to bring down bills for families and firms', Cm 9164, November, para. 4.15.

[5] According to some accounts, the English courts known as Star Chambers lacked powers of capital punishment, even in their prime, but they could impose mutilations, such as the cutting off of ears.

[6] Lange, O. (1970), *Papers in economics and sociology 1930–1960*, Pergamon Press and Polish Scientific Publishers, p. 102.

[7] The same slogan was employed at opposite ends of the 20th century by the unlikely combination of Ronald Reagan (in relation to nuclear disarmament) and Feliks Dzierżyński, the first head of the organisation that became the KGB (in relation to the reliability of communist party members).

[8] Cave, M. and Webb, W. (2015), *Spectrum management: using the airwaves for maximum social and economic benefit*, Cambridge University Press, chapters 4–6.

[9] This refers to the scarcity value of gaining access to an airport, not to the remuneration of runway and terminal services, which is discussed below.

[10] *Sunday Times*, 14 February 2016.

[11] Ofcom (2015), 'Review of the pay TV wholesale must-offer obligation: statement', November. This decision is under appeal by a party other than Sky.

[12] Department for Environment, Food & Rural Affairs (2016), 'UK Government response to consultation on reforming the Water Abstraction Management System', 15 January, p. 36.

[13] See Perennes, P. (2012), 'Use of combinatorial auctions in the railroad industry: can the invisible hand draw the railroad timetable?', 5th Annual CRNI conference, 30 November, http://crninet.com/2012/C9d-2.pdf.

[14] On this further, see Competition and Markets Authority (2016), 'Competition in passenger rail services in GB – a policy document', March.

[15] Barker, G. and Cave, M. (2016), 'The future of transport regulation', March.

[16] Diamond, P. and Mirrlees, J. (1971), 'Optimal taxation and public production', *American Economic Review*, **61**, pp. 8–27 and 261–78.

[17] HM Treasury (2015), 'A better deal: boosting competition to bring down bills for families and firms', Cm 9164, November, para. 4.15.

[18] For general evidence of the efficiency of integration and separation, see Lafontaine, F. and Slade, M. (2007), 'Vertical integration and firm boundaries: the evidence', *Journal of Economic Literature*, **45**:3, pp. 629–85.

[19] This can be seen as the same as, or a close relative to, the widely discussed phenomenon of 'customer engagement'.

[20] Osborne, I. (2014), 'Economic regulation of new runway capacity', Beesley lecture, 23 October.

[21] On the general question of whether pipeline regulation is necessary, see Makholm, J. (2012), *The Political Economy of Pipelines*, University of Chicago Press.

[22] Exactly how much extra capacity is appropriate requires a careful balance of risk and reward in each case, although perhaps less so for energy than for digital networks.

[23] Cave, M. and Shortall, T. (2016), 'How incumbents can shape technological choice and market structure – the case of fixed broadband in Europe', *Info*, **18**:2. The procompetitive approach is explicitly adopted in Ofcom's strategy review, 'Making communications work for everyone', February 2016.

[24] HM Treasury (2015), 'A better deal: boosting competition to bring down bills for families and firms', Cm 9164, November, para. 4.15.

[25] Barker, G. and Cave, M. (2016), 'The future of transport regulation', March. In the USA, there are also opt-in pricing schemes for private motorists.

[26] HM Treasury (2016), 'Budget Report', March, HC 901, paras 2.347–2.350, https://www.gov.uk/government/publications/budget-2016-documents.