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THE BRITISH UTILITY REGULATION MODEL: ITS RECENT HISTORY AND FUTURE PROSPECTS

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ABSTRACT

This paper considers the evolution of the British model of independent utility regulation from the publication of the 1983 Littlechild Report on telecom regulation. Over the last ten years, the model has faced some threats to its pro-competition emphasis, notably in energy regulation and particularly in electricity. These threats have arisen since 2008 and the onset of the Great Recession. However, with the partial exception of energy, challenges to the independence of regulators and to the role of competition have not been acute. The model seems to have generally been able successfully to meet the challenges faced and, relative to other countries, remains intact, if less distinctive. The main continuing issue is how best to handle repeat price-setting regulatory reviews where new initiatives have been tried but have not as yet reached a settled framework within which to handle the underlying strategic gaming problems.

HIGHLIGHTS

- The British independent pro-competition utility regulation model remains largely intact in the face of challenges over the last decade.
- Network energy industries, particularly in electricity, is where independence and competition have been most threatened.
- Repeat regulation and the management of strategic gaming remains a continuing major issue.
- The British utility regulation model is less distinctive from that in other OECD countries but has shown an ability to evolve successfully to meet new challenges.

Keywords: Incentive regulation, competition and regulation, strategic gaming.

JEL References: L51, K23, L14.

1. Introduction and Context[1]

The Littlechild Report on telecom regulation was published in 1983. It set out the key aspects of the regulatory framework within which Oftel, the new telecom regulator, would operate. The establishment of Oftel in 1984 was an integral element in the privatisation of British Telecom. Since then, independent economic regulators have also been established in Britain for electricity and natural gas, for airports and for railways. For water and sewerage there are separate regulators (a) in England and Wales and (b) in Scotland. Ofwat, the England and Wales water regulator, was established following the 1986 Littlechild Report. In Northern Ireland there is a combined regulator for electricity, gas and water. Postal services in the UK had their own regulator from 2000-2011, after which its responsibilities were passed to Ofcom, the telecom and broadcasting regulator.

The 1983 Littlechild Report " … was and remains a crucial landmark document. After its publication, the world of utility regulation economics and policy-making would never be the same again". I wrote those words in 2003 for a conference to celebrate the 20th anniversary of the publication of the Littlechild Report[2]. Ten years on, does the British regulatory model still seem to be a success? That was the theme of a a conference held at the London School of Economics in March 2014 to mark the 30th anniversary of its publication.

There are various related questions that arise. Have the recommendations of the 1983 Littlechild Report remained central to the operation of British utility regulation? Is the British utility regulation model still significantly different from the approaches used in other countries – and from the US model? How well has the model addressed the challenges of the Great Recession since 2008? What has changed in this area since 2003, what has remained the same and what can we expect over the next 10 years and beyond?

This paper explores the questions above. As other papers in this Special Issue will explore EU and Australian experience plus experience with utility regulation in developing countries, this paper focuses almost entirely on British utility regulation experience[3]. Section 2 of the paper outlines the key characteristics of the British utility regulation model as it currently exists. Section 3 sets out the position of British utility regulation and the Littlechild Report as it looked in 2003 at the 20th anniversary of its publication. Section 4 outlines the main pressures that have arisen over the last ten years and Section 5 outlines the main changes that have resulted in the British regulatory framework over this period. The paper concludes by asking whether and

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1 I am very grateful for helpful discussions on the issues in this paper with Chris Bolt, Martin Cave, Stephen Littlechild, Martin Lodge, Jonathan Mirrlees-Black, Cathryn Ross and Tim Tutton. However, this paper and the views expressed in it are solely my responsibility.

2 See Stern (2003). This paper was one of a set published by CRI at the University of Bath School of Management. The 2003 Conference Volume can be found at http://www.bath.ac.uk/management/cri/pubpdf/Conference_seminar/31_Model_Utility_Regulation.pdf

3 I use the term Britain/British and GB rather than United Kingdom and UK as the paper does not discuss the Northern Ireland energy and water industries and their regulation.

how far a distinctive British regulatory model still exists – and whether or not it is likely to continue to do so.

2 Key Characteristics of the Post-privatisation British Model of Utility Regulation

It is worth setting out explicitly the key characteristics of the post-privatisation British model of regulation before considering continuities and changes since 2003. I list below what I think are the key characteristics as they have developed since the Littlechild Report of 1983.

They are as follows:

1) Independence

Independent regulation is the corner-stone of British regulation. There are two key aspects of independence, firstly, independence from government; and, secondly, independence from regulated companies. Much more focus goes onto the first aspect – the boundary between policy and regulation, but the second is also important.

As regulatory systems remain in place for longer periods, there is inevitably continued regular contact between regulatory agencies and their staff with regulated companies. Particularly for regulated industries with a single monopoly company (e.g. National Grid and electricity transmission) or a dominant player (e.g. BT), there is the risk that regulators and regulated companies increasingly share a common viewpoint. In the UK, there have been no obvious major crises in this area, although the implications for the conduct of repeat regulation have been recognised – as will be discussed Sections 4 and 5.

The issue of independence from government has been a somewhat more contentious issue in Britain over the last five years or so, particularly in energy. This is discussed in Section 5 below.

2) Forward-looking Incentive Regulation

The central feature of price regulation in the British utility model is the periodic resetting of regulated prices in the light of forward looking efficiency gains and investment requirements. The price cap period has strongly tended to 5 years, but this is not a formal obligation and Ofgem have recently moved to an 8 year period between major reviews for network price resetting.

Regulators also have a financeability obligation which implies the right of regulated companies to have the expectation of earning a reasonable rate of return on their assets. This cost of capital concern has become progressively important since the 1980s. A lot of time and effort is spent on designing strong incentives to improve the efficiency of regulated companies, but within a framework where cost of capital (and RAB maintenance issues) have become increasingly important.

3) Focus on Consumers and their Welfare

A focus on consumers and the prices, quality of service and security of supply has been central to the British regulatory model since the 1980s and remains so today. The clearest statement of this is in the Utilities Act 2000 which explicitly defined consumers to include both existing and future consumers[4].

This statement is important as it establishes the obligation to ensure sufficient maintenance and investment for future consumers. A focus, as in some other countries, just on *current* consumers can be used by governments and regulators to benefit current consumers at the cost – often serious – of future consumers e.g. by driving prices down towards short run marginal costs. This has happened in other countries - especially, but not only, in developing countries. This has not been a major issue in Britain but important inter-generational issues have arisen in the regulated energy and water industries e.g. in the context of how best to manage climate change and its costs over the next 20-50 years and beyond.

4) An Emphasis on Competition

Ever since the 1983 Littlechild Report, competition has been seen as the best means of maximising the welfare of consumers of utility industry services, with regulation as a clearly inferior substitute. The role of regulation has been to address problems of major and unavoidable monopoly power e.g. the access to and pricing of monopoly network services. Even there, the focus of regulation has been to regulate networks so as to facilitate competition. Hence, the Communications Act 2003 defines the principal duty of Ofcom with respect to consumers as " [furthering] the interests of consumers in relevant markets, where relevant by promoting competition"[5].

The pro-competition focus has been shared by all British governments since the 1980s. The Communications Act of 2003 cited above was a product of the 1997-2010 Labour government (as was the Utilities Act 2000) and essentially follows 1980s Conservative government legislation for electricity, gas, water and the 1993 Railways Act.

There is, however, one recent exception to the legal primacy of competition. The Energy Act 2010 requires Ofgem to consider in the regulation of both electricity and gas "whether there is any other manner (whether or not it would promote competition …) in which the Secretary of State or the Authority [Ofgem and GEMA] … could carry out those functions which would better protect those interests [the interests of current and future consumers.]"[6] These clauses refer *not just* to the regulation of natural monopoly transmission and distribution assets, *but also* to the supply of gas and electricity. These clauses are very different from those in other legislation which require the regulator "to promote competition where relevant/appropriate".

In most cases, the relevant competition concept that has been used in British utility regulation has been competition *in* the market – both wholesale and retail markets. However, in some areas, the focus has been on competition *for* the market (e.g. train operating franchises rather than on-rail competition).

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4 See Utilities Act 2000 Clause 6(3) and elsewhere.

5 Communications Act 2003, Clause 3(1)(b)/

6 Energy Act 2010, Clauses 16 (for natural gas) and 17 (for electricity).

Importantly, British utility regulation has been firmly embedded within a competition policy framework. This is most obvious for telecoms and ICT regulation – where the EU regulatory legislation (within which UK telecom regulation operates) is also strongly pro-competitive. The role of competition is, however, strong in other British regulated infrastructure industries. The most obvious example is in airports where BAA (who owned and operated the leading British airports) was required, for competition reasons, to divest itself of Gatwick, Stansted and Edinburgh airports following the major Market Inquiry carried out by the Competition Commission in 2007-09.

The pro-competition perspective is not universal. As will be discussed below, moves towards more in-market competition in the water and sewerage industry have gone very slowly as they have in postal services and railways. The role of competition in the electricity and gas industries has also come under considerable criticism. As will be discussed in the next section, there has been considerable growth in scepticism about markets since 2008 and how fairly they function for consumers in Britain and this has inevitably affected attitudes towards the role of competition in utility markets.

5) Private Ownership

The British utility regulation model was very much a product of the 1980s privatisation programme[7]. Indeed, as set out in the Littlechild 2003 conference volume and elsewhere, the development of Oftel as the first regulator (for telecoms) was, in large part, a result of the insistence by the merchant banks handling the privatisation that an independent regulatory agency for telecoms was essential if the privatisation were to be successful in attracting investors at a sufficiently high share price[8].

Private ownership of the utilities has been very much the dominant model, even for monopoly physical networks. There have been exceptions – Royal Mail (postal services) is the most obvious but that was finally (partially) privatised in 2013. The other major exception is railways where the failure of Railtrack as a private company led to the establishment of Network Rail as a statutory corporation created as a 'not-for-dividend' company limited by guarantee – in essence, a form of quasi-public ownership.

As well as the utilities being privately owned, budgetary subsidies have been very limited and, except for railways and posts, almost entirely confined to specific investments required to meet closely defined public policy objectives (e.g. rural broadband rollout).

6) Strong Legal Processes and Well-defined Appeal Rights

Strong legal processes and appeal rights have from the start been a central feature of the British utility regulation scheme. A particular – and relatively unusual – feature

[7] See Littlechild (2003), Parker (2009).

[8] In addition, when offered the task, OFT (the Office of Fair Trading) refused to take on the role of telecom regulation as too onerous. See Stern (2003), Parker (2009) and others)

of the British system is that regulatory appeals have been handled primarily by the Competition Commission[9] and/or the CAT (Competition Appeals Tribunal).

The Competition Commission (now the CMA) handles most regulatory appeals, particularly appeals against regulators' price cap determinations. It does so by conducting an administrative rather than an adversarial process of technical economic issues. However, appeals over regulatory process are handled by the general courts under judicial review powers.

The UK is unusual in giving the competition agency the main role in regulatory appeals. It is not only a process that has worked well in general terms but it also has helped lodge the economic regulation of utilities within a competition perspective. This is very different from systems where regulatory appeals on matters of substance and on regulatory decisions are handled by the general courts.

An additional feature of the UK regulatory system is that the utility regulators had concurrent competition powers with the OFT (Office of Fair Trading)[10]. Concurrency is virtually unknown outside the UK but has been a part of the British utility regulatory model since the establishment of Oftel in 1984

Under the 2013 Enterprise and Regulatory Reform Act, the CMA has been given new powers for stronger co-operation and co-ordination between the CMA and the utility regulators. The purpose of the new powers is to promote the use by regulators of their their competition policy powers. The new law requires that regulators use their ex post competition powers whenever possible (in some cases, where appropriate) rather than their ex ante regulatory powers. Regulators' decisions under their competition powers are also appealable – to the CAT, as is the case for appeals against Competition Commission/CMA decisions on mergers and other Phase 1 competition issues[11].

7) 'Light-handed' Regulation

This was an essential feature of the 1983 Littlechild Report. Even by 2003, this looked questionable. The 1983 Littlechild Report suggested that the telecoms regulator would need a budget of around £1.5 million and around 50 staff. In the mid-1980s, Oftel already had 120 staff and by 2001-02, it had 230 staff and a budget of £17 million (£7.9 million in 1983 prices)[12].

As will be set out in Section 5, with one exception, whatever other virtues UK utility regulation may have, at least in terms of staff numbers, light-handedness is no longer one of them.

In Section 5, I will discuss changes (and the reasons for them) regarding Independence, the Role of Competition, and Light-handedness. I will also discuss the

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9 From April 2014), they are taken by the CMA (Competition and Markets Authority) under its Phase 2 responsibilities.

10 From April 2014, these have also been transferred to the CMA.

11 See Cave and Stern (2013) for further discussion of the issues discussed in this sub-section.

12 See Vickers and Yarrow (1988), p.216 and Stern (2003), p.11.

issue of repeat regulation (i.e. regular 5 year or so price reviews) and the options that have been developed to address the problems.

3 The British Utility Regulation model and the Littlechild Report as perceived in 2003

In 2003, the Littlechild-derived model of utility regulation not only seemed to be performing well in Britain but a number of its key characteristics had been or were being adopted in other OECD and developing countries. In particular, forward looking incentive regulation of prices was still the norm in the UK and had been adopted by a number of other countries. By 2003, the tide had already clearly turned towards forward looking rather than backward looking price regulation.

In addition, the RPI-X approach, for which the Littlechild Report was most famous, was still regularly referred to as the 'standard' model of price regulation, although there were already serious questions by 2003 as to how similar its use was in practice to the original 1983 Littlechild concept. This was asked even of UK telecom and energy regulators. A number of observers were at that date pointing out that price caps had become much more complicated than the simple price cap formulae envisaged in the original Littlechild report[13].

Besides the introduction of RPI-X price regulation, the 1983 Littlechild Report is also remembered for its strong advocacy of competition. The most famous (and most forthright) example of this is the following:

> "Competition is indisputably the most effective – perhaps the *only* effective means – of protecting consumers against monopoly power. Regulation is essentially the means of preventing the worst excesses of monopoly; it is not a substitute for competition. It is a means of 'holding the fort until competition comes'."[14]

This quotation refers to telecom regulation where the 'withering-away' of regulation is at least conceivable. For other regulated industries, competition can be an important aspect; but, where there are unavoidable monopoly physical networks, competition alone is insufficient to eliminate the need for permanent regulation of some kind. This was generally recognised in Britain during the 1980s as first the gas industry and then the England and Wales water industry were privatised.

The strong role of competition has been a major feature of British utility regulation since the 1980s. In 2003, competition was well-established – and unchallenged – in wholesale and retail energy as well as in telecoms (fixed and mobile). As will be discussed in Section 4, this has changed to some extent since 2008, but market-based competition remains the default option wherever possible in regulated infrastructure industries.

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13 See Bolt (2003) and this journal.

14 See Littlechild (1983), para 4.11.

The other major feature of the 1983 Littlechild Report that has regularly been cited in subsequent discussion is the call for 'light-handed' regulation – "regulation with a light-rein", as Littlechild called it. Moderately 'light-handed' regulation was arguably still present in 2003, but already under pressure, as will be discussed further below.

Although the features above showed the continuity of the British model of utility regulation as derived from the Littlechild Report, the 2003 conference already revealed significant challenges that were to become more important over the following decade. The two main ones discussed were:

(i) whether, with repeat regulation, price caps and rate of return regulation were becoming opposite sides of the same coin; and

(ii) whether regulation in general - and price reviews in particular – were becoming increasingly bureaucratic, expensive and legalistic.

Both of these relate to the issue of repeat regulation, which was not obviously essential in telecom regulation[15]. Littlechild 1986 discussed the role of RPI-X regulation in the context of the water and sewerage industry i.e. the permanent regulation of a localised monopoly industry. He wrote:

> "In deciding how far to revise X … the economic regulator needs to examine the company's production methods and investment programme. He must ascertain the scope for cost and price reductions through increased productivity and efficiency and the need for capital expenditure. He needs to predict the consequences of X on what the company will do, how it will do it, how consumers will be affected and how others will react…. So permanent regulation is more complex than temporary regulation." [Littlechild 1986, para 10.20]

Similarly, the first sentence of para 10.21 of Littlechild 1986 reads "It should now be evident that rate of return considerations are necessary implicit in setting and resetting X."

At the 2003 conference, I interpreted this statement (and the arguments in Beesley and Littlechild 1989) as recognising that price cap and rate of return regulation were very closely related in repeat regulation. Bolt also argued similarly and he suggested that "… the idea that RPI-X for networks was a form of forward-looking rate of return regulation was already present by 1989"[16]. Indeed it was. Vickers and Yarrow made the same point in their 1988 standard economic text, specifically referencing the issue of what happens at repeat regulation[17].

Not surprisingly, Littlechild took issue with the Bolt-Stern interpretation in his 2003 paper. The final section of that paper expressed considerable concern about the pressures for greater bureaucratisation and legalism in price regulation. It was these pressures which, in his view, had (very unfortunately) generated the need for much

15 See the 2003 papers by Stern, Littlechild and Bolt.

16 See Bolt (2003) p. 70.

17 See Vickers and Yarrow (1988), Chapter 8, p 207 and 240. The latter also footnotes a quote from Littlechild (1986), para 10.21.

more explicitness on resetting RPI-X formulae and making them closely related to the need for ensuring the financial viability of the company given its expected investment programme. This, in turn, had led to the establishment and the reliance by regulators on the concept of a regulatory asset base (RAB). It was these developments which led to the view that, by 2000, British regulatory regulation had essentially become a method of forward-looking, incentive-based rate of return regulation.

The issue of repeat regulation in the British regulatory model has continued to be a major concern, as will be discussed in detail below. It is worth noting that Littlechild's 2003 paper concluded with the suggestion that direct negotiation between customer groups and regulated utilities might perhaps replace price cap regulation in price reviews. At the time this was little noticed, but it has become a major theme in his writings on utility regulation since then – including in his paper published in this issue.

4. Pressures on the British Utility Model since 2003.

The main pressures on the British utility regulation model have arisen largely as a result of the Great Recession which started in 2008. However, energy (particularly electricity) and, to a lesser extent water and sewerage have also been significantly affected by a growing policy emphasis on climate change impacts - most obviously as regards the push since 2008 for significant increases in renewable electricity generation.

4.1 The Economic Context: The Impact of Squeezed Household Living Standards on Attitudes to Utility Regulation since 2008

The post-2008 recession led to a major squeeze on household incomes, particularly for low income households of working age.

Per capita real household disposable incomes were rising steadily until 2005-06 but were then broadly flat until 2009 but fell by 2.1% between 2009 and 2011. They are only forecast to reach their previous peak level by 2016. However, for low income households, the picture is much worse with a reduction of 7.1% in mean annual household income between 2009-10 and 2011-12, an income fall markedly greater than that for median households (5.8%)[18]. These reductions in real household income are unprecedented over the last 50 years.

The impact of stagnant and falling living standards has been a major factor in attitudes towards the prices of regulated utilities, particularly those where there are significant health or other externalities. This particularly applies to the energy and water industries.

Although it is theoretically possible to find ways of offsetting the impact of high household energy and water prices via social security benefits or lifeline tariffs, these are long-term structural policies rather than cyclical measures and they are not straightforward to introduce, particularly at a time when cuts in public expenditure,

[18] See Phillips, IFS, 2013. Data for low and median income family incomes comes from the annual survey of households with below average incomes (HBAI).

including social security benefits, were the fiscal policy priority. This context has had a major impact on public and political attitudes in particular to household energy prices which were rising sharply while, as shown above, household incomes were falling in real terms.

For energy, 2003 (the 20th anniversary of the Littlechild Report) marked the end of a 20 year decline in the percentage of weekly household expenditure (including housing costs) on fuel, light and heating. In 1983, this percentage was over 6%; but, by 2003, it had fallen to under 3%, primarily because of falls in fossil fuel prices but also because of major improvements in the efficiency of the privatised energy companies. However, from 2005, household energy expenditure as a percentage of income rose steadily reaching 4.5% in 2011 and 2012[19]. From 2010 onwards this ratio may have remained below the levels experienced between 1971 and 2003, but the higher level was still a major break from the previous trend.

The change was particularly marked for low income households. The share of higher energy costs on the bottom decile of households by expenditure (excluding housing costs) was 6.3% in 2003, rose to 7.8% in 2007 before peaking at 10.3% in 2009. The share of energy costs in household expenditure for the lowest decile remained at around 9-9.5% up to 2012 (the latest year for which these data currently exist)[20]. In this context, it is worth noting that the government's definition of 'fuel poverty' is when households spend at least 10% of their disposable income on household energy[21].

The significantly higher burden of "essential" energy expenditure at a time of serious recession together with the fact that regulators were unwilling and/or /unable to hold household energy prices down or reverse the increases has clearly caused serious reputational problems for the energy companies – and also for Ofgem and the British utility regulation model.

4.2 Utility Prices

With the exception of telecoms, the prices of regulated infrastructure industries have risen since 2008-2010. For railways and water, the increase has been relatively modest. For railways, this has largely been the consequence of reductions in government subsidies, which have been only partially offset by an accelerated rate of efficiency improvement.

The biggest (and most politically contentious) increases have been in household electricity and gas prices. These, like water, are unavoidable necessities which have major potential impacts on morbidity and mortality rates, particularly among the elderly and others with existing health problems. Household electricity bills rose by 79% between February 2004 and January 2011 (over 8% per year); but they did not

19 See Gray, Ofgem, 2014.

20 See Gray, Ofgem, 2014.

21 The statistics in this paragraph compare energy expenditure shares of income where incomes are measured *excluding* housing costs. They are therefore not directly comparable with those in the previous paragraph in which incomes are measured *including* housing costs. This makes a significant difference when gross household incomes are falling but housing costs are staic or rising.

increase further over the following two years, up to December 2013. The equivalent figures for natural gas are +121% 2004-2011 (12% per year) but with a further increase of 22% over the period by December 2013[22].

Although wholesale gas prices have generally risen over the whole period, spot wholesale gas markets have been broadly stable since early 2013. This has given rise to popular and political accusations of profiteering by the energy companies – accusations which the energy companies strongly deny, pointing to the role of long-term contracts in gas markets.

Following an investigation of retail energy markets and prices by Ofgem and the CMA (Competitions Market Authority), an in-depth (Phase 2) Market Inquiry was recommended. This commenced in July 2014 with the task of establishing whether or not retail energy markets are working effectively or whether there are significant anti-competitive features that help sustain prices above competitive levels. The recommendation for a CMA Market Inquiry was widely welcomed, including by many energy companies and by the government.

Other regulators have had to address similar pressures but to a much lesser extent. The most obvious example is Ofwat, the water and sewerage regulator for England and Wales. The water industry has had major investment programmes, primarily to meet progressively tougher environmental requirements. Average household water and sewerage bills rose by 21% in real terms between 2000 and 2009, an annual increase of around 2% per year – a rate which continued up to 2013[23]. However, these sustained price increases are not trivial and have led to questions as to how far the vertically integrated regional water companies operate in the best interests of consumers.

4.3 Confidence in Markets and Competition

Aside from its impact on household living standards, the Great Recession has had a significant impact on public attitudes to markets and competition in general. This appears to be less so in the UK than in some other countries (e.g. as in southern EU Member States), but is nonetheless important. It is not easy to find conclusive evidence on changes in attitudes to markets and large companies; but, for the UK there is a variety of survey evidence on such attitudes which supports this interpretation.

In the UK, the apparent change in attitudes to the role of open and competitive markets is most obvious with respect to banks and financial markets. However, there is also more an apparent rise in scepticism about whether large - particularly oligopolistic - companies can, in general, be trusted to deal fairly and openly with their customers – particularly those supplying "essential" services and with major public service obligations. This clearly affects the regulated utilities with energy as the most obvious example but also affecting water and railways. It affects telecoms and ICT much less because of continued reductions in prices (certainly in real terms) and improvements in services.

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22 See Bolton, House of Commons, 2014

23 Ofwat: Average Household Bills

The regulated energy companies have shown the greatest change in attitudes. Gray (2014) provides a selection of recent BBC social survey results and some (very irate) press quotations about the performance of energy companies and markets. He also shows how the volume of customer complaints against the energy companies has markedly risen in recent years[24]. This is the populist face of complaints about the behaviour of the six oligopolistic energy companies who dominate British wholesale and retail electricity and gas markets and operate with a substantial degree of vertical integration. The 'Big Six' energy companies appear to be earning good profits, but, as noted above their retail prices have, in recent years, been reduced markedly less than the fall in wholesale gas prices (or other fossil fuel prices)[25].

For water and sewerage, the issue has been more about transparency. In England and Wales, water and sewerage services are supplied by regional monopolies. Continuing, if moderate, increases in (mainly unmetered) retail prices coupled with a lack of transparency on household water bills has also raised questions of the legitimacy and fairness of water regulation and the (privately owned) companies' behaviour[26]. The issue of trust seems clearly to be a major reason why the introduction of competition in water has met with substantial resistance – people and politicians - fear that regional water price relativities will increase and that competitition could be used by the companies as an excuse for putting up prices. (In fact, no-one has proposed retail competition in water for household customers, but this is a question of perceptions.) In Scotland, there has been retail competition for water for all non-household customers since 2008, but the political economy condition for this was very different. There is a uniform household tariff across the whole of Scotland – unlike England and Wales where prices vary (sometimes markedly) between retail franchise areas.

An additional reason why competition and markets have been under pressure for the network energy industries is the rise in the issue of climate change as a major externality. This argument has been used by environmentalists and the government to justify significant market intervention in electricity generation markets.

Climate change was not a significant issue for energy regulators until after 2005. There were no mentions at all of climate change, carbon or renewable generation in the 2003 (20-year after) Littlechild conference volume, let alone anything in the 1980s. The Kyoto Agreement only came into force in 2005 and the EU "20-20-20" Energy Directive was only enacted in 2009. However, the post-2008 emphasis on climate change in general and renewable generation in particular has given a major new externality-based reason for active policy intervention and for 'managed' competition rather than the earlier model of light-touch regulation of energy industries under which a pro-competition perspective was dominant both in upstream and downstream markets.

Of course, tackling climate change can readily be reconciled with a pro-competitive market model if policy reliance is primarily on technology-neutral carbon taxes or

[24] See Gray (2014) op cit.

[25] Ofgem called on the companies to explain this in June 2014.

[26] Water privatisation was extremely unpopular, much more so than electricity, gas or water and was rejected in Scotland. See Parker op.cit., p.179.

tradable permits. However, EU and UK climate change policy has not been of this form but has placed considerable weight on setting and achieving renewable energy targets (mainly wind-power). This has led to greatly increased government policy intervention in energy – strongly supported by those groups sceptical about the role of competition in energy markets. This interventionist policy shift has also put significant pressure on the application of competition-based regulation in recent years.

The factors discussed in this section are clearly important. However, it is very much worth noting that the backlash against competition and markets in regulated utilities in Britain since 2008 is heavily focused on the network energy industries – and for specific reasons. In a few other sectors, these concerns may have slowed the development of greater competition. However, with the exception of the network energy industries (particularly electricity), the British regulatory model, with its emphasis on competition has so far –perhaps surprisingly - remained largely unscathed from the pressures arising from the major post-2008 recession.

5. Changes to the British Regulatory Model since 2003

The previous section discussed the main challenges to the British regulatory model over the last decade. In this section, we consider the main changes that have taken place. These concern:

(i) The degree of independence of regulators;

(ii) The degree of 'light-handedness' – the number of regulatory staff

(iii) The role of competition;

(iv) The problem of repeat regulation and proposed solutions; and

5.1 The Degree of Independence of UK Regulators

In this area, there have been some minor changes in the degree of independence of British regulators over the last ten years, but, with the debatable exception of energy, nothing major. However, the Coalition Government which came into office in 2010 carried out a review of principles for economic regulation which was published by BIS[27] in 2011. This document (entitled 'Principles for Regulation') announced a shift in the policy-regulation boundary to make it clear that policy-making was a uniquely governmental responsibility and that regulatory agencies had to operate within a policy framework defined by government. It was "for governments not regulators to set policy guidelines" and for governments to "make politically sensitive trade-offs between objectives"[28].

The main new tool announced in the BIS report was the publication of a *strategic policy statement* (SPS) once per parliament (i.e. once every five years) for each

[27] The Department for Business Innovation and Skills

[28] See BIS, "Principles for Regulation", p.6

economic regulator by the relevant overseeing Government Department. The intention was that these SPS documents would give clear, high-level and strategic guidance but not interfere with regulatory responsibilities or involve itself in detailed issues.

The first SPS published was for Ofwat (the water and sewerage regulator for England and Wales). In May 2013, a 38-page SPS (plus Annexes) was published by Defra[29], its line-Ministry. There has been an interesting debate about whether and how far the content of the SPS met the goal of being clear on high-level issues and not interfering in detailed issues.

The Defra SPS for Ofwat[30] listed four Overarching Duties and seven additional duties. The Executive Summary lists 26 different government priorities for Ofwat as regards the water sector. These indicators (and the length of the document) suggest that Defra was going rather further than just providing high-level strategic guidance. However, it is very unclear whether and how far the SPS has influenced Ofwat's decision making let alone water sector outcomes.

Until recently, the SPS for Ofwat seems to be the only one so far published on the lines signalled in the BIS document. Nothing of this type seems to have been issued for Ofcom (the ICT regulator). On energy, a draft SPS was published in August 2014 (under 1 year before the next General election). For railways, Department of Transport issued a 4-page SPS-like document in 2012. However, railways operate with ongoing subsidy and the Department issues a High-Level Output Statement as guidance for each (5-yearly) Network Rail price review.

The recent draft energy SPS follows the path of the 2013 Energy Act. It is not long and is not obviously interventionist, apart perhaps from a statement of desired *outcomes*[31]. From the BIS Principles document, one might have expected a statement of *objectives*, with Ofgem setting the outcomes. However, the issue may be primarily semantic as the SPS "outcomes" are written in such general terms as essentially to be objectives.

It is clear from the above that the railway and water strategic policy statements have, at least as yet, had little impact on the degree of independence of utility regulators in practice. However, the Energy Acts of 2010 and 2013 and the 2014 draft SPS have clearly reduced Ofgem's degree of independence on strategic issues. Similarly, debates – sometimes battles - over the boundary between policy and regulation were important in the debates and final settlement of the 2014 Water Act.

To conclude, in practice, with the notable exception of the network energy industries (particularly electricity), there seems to have been relatively little change in the effective degree of independence of British utility regulators over the last ten years,. There is inevitably continued major government involvement in major airport, railway and similar investments. There is some government intervention in major public service obligations (e.g. postal services) and inevitable regular government involvement in railways and postal services where ongoing subsidy is required.

29 The Department for the Environment, Food and Rural Affairs

30 Defra's strategic policy statement to Ofwat May 2013

31 See DECC Draft Strategic and Policy Statement, August 2014, p. 20.

However, with the exception of energy, there has been no significant obvious change in regulators' independence *either* vis-à-vis government or vis-à-vis the regulated companies.

Nevertheless, past performance is no guarantee of future performance. As Bolt warns in this issue, there is no guarantee that this benign picture will continue. Either short-term crises and/or strong pressures for large-scale infrastructure investments could significantly erode regulatory independence with major shifts in the policy-regulation boundary towards the primacy of policy[32]. This could happen quite quickly as shown by the 2001 Railtrack funding and solvency crisis when the Government threatened to pass emergency legislation to abolish the railway regulator if it were to offer an intermediate price review to prevent the company being put into administration[33].

5.2 The Decline of 'Light-Handedness' in UK Regulation?

By any standards, UK utility regulators are sizeable institutions. However, since 2003, only Ofgem has increased its size significantly. The relevant figures for the main regulatory agencies are shown in the table below.

Table: Numbers of Staff by Regulatory Agency

Regulator	**2003**	**2012-3**
Ofcom	230 in Oftel 2002 (But 1,152 in Oftel plus all TV regulators in 2003-04)	780 (Includes TV regulatory staff plus 48 postal regulatory staff)
Ofgem	291	729
Ofwat	240 (Full-time equivalents)	177 (Full-time equivalents)
ORR	117	271 – of whom 111 on economic regulation

Source: Regulators' Annual Reports

The table shows some growth in numbers, but primarily on functions other than economic regulation. The last is most obvious for Ofcom (which merged a number of regulatory agencies including those responsible for broadcast content regulation) and ORR (which has been made responsible for railway safety regulation). The other big increase is for Ofgem but again a sizable part of that reflects functions taken over from the relevant Government Department.

Staff numbers for the CAA (Civil Aviation Authority) shows how economic regulation can represent only a small part of regulatory agency activities. The CAA had around 900 staff in total but, of these, only around 60 work in economic regulation.

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32 See Bolt (2014), pp 7-8.

33 See Winsor (2004)

Although the regulatory agencies have not grown significantly since 2003 – at least in terms of staff devoted to economic regulation, they are clearly far from small. The Littlechild Report in 1983 suggested 50 staff for Oftel; Ofcom now has 48 just for postal services. In comparison to the numbers in the table above, the total number of staff in the UK competition agencies in 2011-12 was 825 – and this was to cover all economic competition issues over the whole economy.

There is one exception to the pattern above. WICS (the Scottish Water Commission) remains a 'light-handed' exemplar. In 2011-12, it had a total of 16 staff. But, WICS regulates one state-owned entity and that makes a considerable difference. In addition, WICs has a large consultancy budget; its 2013-14 expenditure statement showed that external consultancy (excluding PR and communications) made up 41% of total expenditure in that year, £9,000 more than staff and Commission remuneration costs. Hence, WICS remains the last remaining standard-bearer for light-handed regulation in the UK, albeit less light-handed than its staff numbers might suggest[34].

5.3 The Role of Competition

First impressions might suggest a significant retreat from the role of competition in British utility regulation. As discussed in the previous section that would be mistaken.

The British regulatory model remains embedded with a competition framework to a very high – and internationally unusual - extent. There is extensive horizontal competition *in* markets for the main utilities (at least for the non-network elements) as well as competition *for* the market in railways and health. As with regulation in many other countries, the regulatory agency has as a prime objective the protection of the interests of consumers. However, as discussed in Section 2, most UK regulators are also explicitly given a strong pro-competition legislative mandate.

The degree to which competition in the market has – or can be - the primary focus of regulation for the protection of consumers' interests varies considerable by industry. It is high for ICT but much lower for railway networks and water. Since 2003, there has been some attempt at increasing competition in the England and Wales water and sewerage industry, not least following the publication of the Cave Review in 2009, but it has been very slow, particularly on upstream competition and abstraction rights[35].

Electricity and gas is the one area where competition has been on the retreat in recent years. Partly this is because, as discussed in Section 2 above, the power of the competition objective in energy legislation was markedly reduced in 2010. However, it has also been reduced by the UK Government and Ofgem moving significantly towards 'managed' competition both in retail markets and in generation markets.

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[34] See http://www.watercommission.co.uk/UserFiles/Documents/PSRA%20Disclosure%20Q3%202013_14.pdf

[35] But note the development of the competitive retail water market for non-household customers post-2008, which has been an important model both for the Cave Review and subsequent discussions on water regulation in England and Wales.

In electricity generation markets, the UK system operator now effectively acts as a single buyer with obligations to procure government-determined amounts of renewable and nuclear generation, although the resulting contracts are concluded with the government-owned Low Carbon Contracts Company. Ofgem is obliged to ensure that National Grid delivers this and related objectives[36]. In retail markets, Ofgem has moved greatly to restrict the number and type of household tariffs that electricity and gas supply companies can offer. This is intended to improve consumer welfare – particularly of non-switching and low income households; but, whether or not Ofgem's initiatives are well designed to do so is a matter of acute controversy[37].

Although there have been many suggestions that the problems over energy prices and the behaviour of the companies should be addressed by extending ex ante (conduct) regulation and controls, that is far from the most common view. Many of the critics[38] have pointed to the problems arising in retail supply markets from vertical integration and also to the low level of transparency in wholesale markets. Importantly, the response to the pressures to do something radical in this area has not been a politically derived set of proposals or a Royal Commission or similar. The response, approved by the government, has been … a clear recommendation for a market inquiry by the CMA, the UK's competition agency.

The recommendation for a CMA market inquiry was widely welcomed, even though the expected time between commissioning and final report and recommendations was at least 18 months. Importantly, the Ofgem and CMA reference document proposing the inquiry lists several classic competition issues (including incumbent power, vertical integration and tacit collusion) as reasons for undertaking a full Phase 2 market inquiry. The fact that this is the approach being adopted rather than a more politically based method is a good sign that competition objectives remain central in the British utility regulation model.

The other major recent development which suggests optimism on the role of competition in regulated industries is the additional emphasis on this issue in the Enterprise and Regulatory Reform Act 2013 (ERRA). ERRA not only establishes the CMA as the new merged competition agency but it also establishes the UK Competition Network, a group which includes all the utility regulators but for which the CMA has a leading role. ERRA (and the subsequent guidance documents) place considerable weight on regulators making more use of their competition powers rather than their ex ante regulatory powers under 'concurrency, with the expectation of more joint investigations by CMA and the utility regulators.'[39].

5.4 Repeat Price Cap Regulation in the UK

As discussed in Section 2, resetting price caps was not discussed in the 1983 Littlechild report on telecoms but the need for it was discussed explicitly in the 1986 Littlechild report on water. Resetting in an RPI-X price cap – with the associated

[36] See Helm (2014) and Stern (forthcoming).
[37] See Ofgem (2013), Littlechild (2012), Waddams (2013)
[38] Including the Opposition Labour Party.
[39] See CMA '*Guidance on concurrent application of competition law to regulated industries*' March 2014

need to consider explicitly the cost (and value) of capital - has led to the rise in models which are probably best considered as a form of forward-looking, incentive-based rate of return regulation. This has raised the question of how best to structure repeat regulatory views, a major and very important question and one to which – not surprisingly - no definitive answer or approach has been found.

5.3.1. Repeat Regulation and Economic Theory

Why is repeat regulation needed? The answer is that without repeat regulation, for utilities, the degree of misalignment between costs and prices progressively increases. In all industries, prices diverge from costs over time because of (a) changes in input costs and (b) changes in the efficiency of input usage. Hence, unless utility prices are periodically reset, as costs and prices diverge, regulated monopoly companies will *either* earn growing super-normal profits *or* operate at growing financial loss.

In a well-functioning market, costs and prices are kept in alignment by competition between existing players plus entry and exit of firms. This process implies that efficient companies can expect to earn a normal rate of return. However, this market-induced adjustment process does not happen in a monopoly market setting (as for vertically integrated utilities) or where the industry contains a monopoly network as an integral part. In those circumstances, costs and prices can only be realigned by a regulatory review. Periodic repeat regulation is therefore inevitable where there is a vertically integrated monopoly industry – like water and sewerage in most countries - and/or an (unavoidable-use) monopoly physical network – as with electricity and distribution wires or railway networks.

Repeat regulation, necessary for the reasons outlined above, acutely raises the problem of information asymmetry. Given the inevitable superiority of knowledge by companies of their own costs and potential efficiency, this is a major problem for forward looking regulation – the companies (but not the regulator) know "where (and why) the bodies are buried". This makes repeated regulation into a strategic game between the regulator and the regulated company. More specifically, regulation with regular repeat price resetting becomes a *non-zero sum repeated game*.

As is well-known, non-zero sum repeated games are very complex and have many possible solutions. In general, achieving efficient and stable solutions to such games depends on establishing reputation, trust and effective signalling between the players[40]. Independent regulation – and repeat regulation - by legally established agency is the standard way of establishing a framework to address these problems where there are significant monopoly (or monopoly network) elements – 'regulation as ordered renegotiation'[41].

This looks reasonable in principle. However, in practice, it leads to major information asymmetry problems at which the regulator is at a serious disadvantage unless discussions between the regulatory agency and the regulated company are carefully structured. The more that the regulated companies can turn regulatory reviews into general negotiations with the regulatory agency, the more that they can achieve easier

[40] See Binmore (2007) and many others.

[41] Stern (2012). This is the second half of the title.

future efficiency requirements and earn higher regulatory rents. To avoid outcomes with super-normal profits for the companies, regulators need carefully to structure price resetting with common information formulae, plus common appraisal and decision-making procedures[42].

The main developments in the history of repeat regulation in Britain should be seen in this setting.

5.3.2. From Yardstick Regulation to IRDs and Direct Contracting

Repeat regulation was discussed at the 2003 Littlechild Conference but primarily in the context of the bureaucratisation of regulation and the rise of the RAB rather than as an asymmetric information problem. However, the latter has been a major topic since then.

Starting in the mid-1990s, the standard UK solution was 'yardstick' regulation (derived from the Shleifer approach) and largely based on benchmarking methods, includig econometric benchmarking of efficiency levels. This was most attractive where there were a number of regulated companies that could be compared e.g. electricity (or gas) distribution companies or for regional water companies. It was, though, much more difficult to implement for single national networks like rail or electricity transmission which required international statistical comparisons. However, even in the multi-company cases, the results were not very helpful for the regulators since the estimated equations were typically cross-sectional regressions on a relatively small number of companies[43] and only for operational expenditure (opex) and did not cover investment expenditure (capex).

From 2000 onwards, it became clear that the benchmarking approach had increasing problems as a solution to the information asymmetry problems with which UK regulators had to grapple. The underlying issue was that there were strong incentives for companies to show that they were 'special' so that the regulator's preferred benchmarking model should not be applied to them. The resulting strategic gaming led to 'wars of models' between companies and regulator, typically with no clear outcome. To handle the technical problems within the yardstick regulation framework required both much better investment data (and models) plus panel data.

Since 2005, totex (total expenditure) data sets have emerged for most UK regulated utilities as have panel data sets. This, however, does not address the underlying problems. Since 2005, UK utility regulators have increasingly turned to alternative methods. These maintain econometric benchmarking but in a much more supportive role rather than as a prime foundation.

Since 2003, two main sets of proposed solution to the problems of repeat regulation outlined above have emerged in Britain. These are:

1) *Menu Regulation* and similar Information Revelation Devices (IRDs); and

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42 See Laffont and Tirole (1993), Armstrong and Sappington (2007).

43 Under 15 electricity distribution companies and under 20 water and sewerage companies.

2) *Negotiated settlements* and similar

The first is an essentially technocratic solution which works within the framework of the standard regulatory model while the second attempts to replace the "monopsony regulator" by (assisted) customer negotiation. Both options give companies some clear, structured choices within a defined framework and therefore can reduce the expected payoffs from strategic gaming.

A Menu Regulation and IRDs

Menu regulation provides incentives to companies to reveal their current and expected futures costs by making choices on required future expenditure to meet mandated standards. Its economic basis is the theory of incentive compatible contracts as developed by Laffont and Tirole in the context of procurement contracts. In the regulated utility context, we can consider the regulator as procuring the relevant service on behalf of consumers. Menu regulation was introduced into UK regulatory practice by Ofgem in 2004 for electricity distribution companies and later extended, firstly, to gas distribution; and then to electricity transmission. In addition, Ofwat has used it since 2009 and ORR has mentioned it as a possibility for 2018

TEXT BOX

HOW MENU REGULATION OPERATES

1) *Menu regulation requires companies to choose the amount of input expenditure (capex and opex) that they need to meet mandated standards*

   Companies choose their required expenditure relative to a baseline proposed by the regulator.

   The baseline for each company is derived from outside appraisals (including benchmarking), company business plans, etc

2) *Companies choose between receiving:*

   (a) A lower expenditure allowance, but with a "higher-powered incentive" that allows them to retain significant benefits if they can deliver the required outputs more efficiently (an outcome closer to "pure" price cap); or

   (b) A higher expenditure allowance, but with a "lower-powered incentive" that gives relatively smaller reward for underspending the higher allowance (an outcome closer to cost-plus, rate of return).

UK utility regulators have since supplemented menu regulation with other information revelation devices (IRDs). Hence, since 2010 Ofgem and Ofwat have introduced "fast" and "slow-tracking". Under this procedure, strong performers with strong business plans, a good past record and effective consultation with consumers achieve "fast-tracking" of the regulatory process (or something equivalent). Conversely, poor performers get "slow-tracked" with tough, extensive scrutiny. These IRDs have similar – and arguably more powerful – incentive effects than menu regulation on its own

The most interesting feature about menu regulation is that it has often been criticised as too complex and 'wonkish' but it has survived and indeed been extended over the last 10 years. Indeed, no UK regulator that has adopted it has chosen to give it up. This is because it appears to tackle asymmetry of information problems directly and practically. It (and other IRDs) also reduces the incentives for gaming and strategic behaviour while recognising uncertainty problems in a clear and practical way.

It is worth noting that regulated companies prefer IRDs to regulator determined price cap resetting as under IRDs they are given a choice. Regulators recognise that they give choices – but bounded and structured choices. For both parties, they avoid the problems (and risks) of unbounded general renegotiations.

B Negotiated Settlements

As mentioned in Section 2, these were first promoted by Stephen Littlechild in 2003. The arguments in their favour are set out at length in Stephen Littlechild's companion paper in this volume.

Under negotiated settlements, customers directly negotiate with regulated energy and other infrastructure companies e.g. on level of X in RPI-X price cap. That implies negotiations between customers and utilities on prices, efficiency measures, quality of service etc. Florida is probably the best known example of this but negotiated settlements also exist for FERC in the US (covering Interstate natural gas pipelines and their users), Canada and Australia.

Littlechild argues that negotiated settlements provide a different philosophy of regulation - to facilitate agreement instead of regulator taking all the decisions. He argues that it brings competition as a process of 'rivalrous discovery' into utility regulation. He claims that regulatory processes are more productive, less costly & risky, leading to better understanding, with more acceptable, often innovative outcomes.

In the UK, constructive engagement, a less 'hands-off' variant of negotiated settlements, was used by UK airports regulator in 2009 and again in 2014. Under constructive engagement, the regulator makes a determination in the light of direct negotiations between the utility and the companies. In the 2009 CAA case, the negotiations were between CAA, the airports regulator and the airlines using the regulated airports (primarily Heathrow and Gatwick). However, with constructive engagement, it is up to the regulator to decide how much weight to give to the direct negotiations; the negotiations do not *determine* the regulatory outcome.

Constructive engagement has also been used recently by both Ofwat and Ofgem – not least to help decide which companies (if any) are fast-tracked. However, the closest that customer engagement has got in the UK to negotiated settlement application is the 2014 settlement between WICS (the Scottish water regulator) and the Scottish Water company. That situation is, though, somewhat special as Scottish Water is a state-owned entity, without a RAB and with a uniform household tariff across the whole of Scotland.

UK regulators have considered but not as yet adopted full-blown negotiated settlements and many remain sceptical. The WICS settlement is the closest to a negotiated settlement but the eventual price review determination is still the responsibility of the regulator.

The concerns that have been raised against negotiated settlements include the role of public service obligations and non-economic issues in utility regulation. It is also the case that the regulatory process with negotiated settlements still involves considerable input from regulator e.g. on cost of capital and various other issues. In addition, the regulatory agency has to ensure that settlement meets legal requirements, allows new entry, etc.

Perhaps the key question regarding utilities supplying household and individual consumers is how far Customer Representatives can remain as 'Representative Customers'? Most of the North American examples (and UK airline regulation) have involved contract negotiation between large and sophisticated companies, not between companies and households. In the latter case, the question of the legitimacy of the customer representatives becomes crucial.

Interestingly, in the US there are negotiated settlements between interstate gas pipelines and electricity transmission systems under the jurisdiction of FERC (the Federal Energy Regulatory Commission). However, household and other small consumers are explicitly represented in the negotiations … by state utility commissions[44].

5.3.3 Repeat Regulation and the Future of the British Utility Regulation Model

This issue was becoming the most important problem for UK regulation ten years ago. Given the nature of the problem, no definitive solution is likely, but we have seen some interesting initiatives since then. Both menu regulation (with other IRDs) and negotiated settlements seem, in practice, greatly to reduce problems arising from information asymmetry and to reduce the incentives for strategic gaming by the regulated companies.

Of the two main approaches that have been tried, menu regulation does so within the existing regulatory framework; negotiated settlements by largely replacing regulation by "a rivalrous discovery process". In practice, UK regulators have found menu regulation (and IRDs) more acceptable than full-blown negotiated settlements – and it seems to have delivered good outcomes on energy network regulation, although, unfortunately, as yet, there does not seem to be a published evaluation of its performance.

As regards negotiated settlements, all UK regulators agree that genuine customer engagement is very important (and not easy to achieve). However, that is a separate issue from direct contracting by consumers and may be limited as a solution to repeat regulation strategic gaming. A weaker version of direct customer-company negotiated settlements seems to have a found a foothold with Scottish Water but it remains to be seen what effect this has on price, quality and other economic outcomes.

As regards regulatory practice, constructive engagement has become deeper and more important. It is important to note that this can be combined with IRDs, e.g. with the final determination remaining the responsibility of the regulatory agency which sets the final stage menu of choices for the companies. This is the way that Ofgem and Ofwat have proceeded. Developing this approach may be a way in which the menu-IRD model and the negotiated settlements approach can converge. In such a model, the regulated companies have a lot more responsibility for key choices, but within a regulator-determined framework – and this should reduce the incentives for strategic gaming.

[44] See Littlechild (2011).

6 Concluding Comments: Is there still a distinctive British regulatory model?

The British model of utility regulation as derived from the 1983 Littlechild Report seems to be largely intact even if economic regulation is here to stay for the prospective future rather than just 'holding the fort until competition comes'.

Compared to 2003, threats to regulatory independence have been relatively minor in impact and its competition foundations look robust. However, although this judgement holds for telecoms and ICT, water, railways and airports – it is much more questionable for network energy, particularly electricity. For electricity, the independence of Ofgem and the role of competition have, since 2008, been seriously compromised in both generation and retail markets … but in other EU countries it has been considerably worse[45].

Although the British regulatory model remains largely intact, it has become less distinctive from utility regulation in other countries. This is partly because of changes in government priorities and the post-2008 challenges arising out of the Great Recession. It is also partly because of the evolution of European Union (EU) policy in energy, telecoms/ICT and transport. Some of the energy and electricity industry regulatory changes have directly resulted from EU policy – viz. the role of the pro-renewable energy policy targets.

The main reason, however, why the British regulatory model has become less distinctive seems to arise from the pressures from repeat regulation and how that is structured. By 2003, we had the establishment of 5-yearly price-cap resetting with heavy reliance on the cost of capital needed to maintain the value of the regulatory asset base, and considerably dependence on econometric and other benchmarking. This model was more similar to the US and other OECD country models where, in many countries, forward-looking incentive regulation had been developed.

The methods used in periodic price restting was one with which British regulators were becoming uncomfortable by 2005 and which Stephen Littlechild had explicitly challenged in 2003. There was widespread agreement that it had resulted in a costly bureaucratic and legalistic regulatory framework with which increasingly both regulators and regulated companies felt uncomfortable. In practice, this process resulted in a set of general negotiations between regulator and regulated company within which there were serious problems of information asymmetry and strategic gaming. The regulator made the price cap resetting decisions, but within the bounds of seriously limited information. The decisions were subject to appeal, *but* the companies were left as recipients of decisions by the regulators.

Dissatisfaction with that framework has led to the exploration (and use) of alternatives such as menu regulation and information revelation methods plus much enhanced customer engagement where customers are more directly involved – and, importantly, companies are given more choices. It will be interesting to see whether and how far these approaches are also adopted in other jurisdictions.

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[45] Consider Germany and the 'Energiewende' (Energy Transition) with the imposed closing down of all nuclear generating plant by 2022.

One other interesting issue is the role of competition. British utility regulation has, since the 1980s, been strongly linked into a pro-competition, pro-market approach. Other countries have adopted this for telecoms and ICT - and EU telecom legislation (within which the UK operates) have also adopted a strongly pro-competition approach. However, the UK has pursued a strongly pro-competition approach in other regulated sectors. A post-2008 backlash might have been expected but, apart from the network energy industries, this hasn't happened. Indeed, the arguments over energy prices and policies have been sent for resolution by the UK's competition authority rather than being handled by a more political forum.

Looking ahead, further changes to this model will, of course, occur over the next 10 years and beyond. Indeed, one of its major strengths has been its ability to adapt to new circumstances. There are two obvious developments already present. Firstly, following the 2013 Enterprise and Regulatory Reform Act, we can expect closer integration of UK utility regulation with competition policy and more use of ex post competition methods by regulators rather than ex ante regulatory tools. Secondly, whether or not Scotland becomes independent, there will almost certainly be greater devolution of regulatory powers to Scotland – and possibly competition policy powers as well. It remains to be seen how pro-competitive the resulting Scottish arrangements will be as well as how similar or different from those for England[46].

On the international front, there are the issues for UK regulation of EU regulatory and competition policy developments – and of the nature of the UK's future relationship with the EU, although the latter is primarily a political issue. Nevertheless, utility markets are becoming increasingly international with the larger companies operating in a number of countries; that in itself presents major pressures for regulatory convergence, and probably even more so for competition policy convergence.

Ten years ago, the question was asked as to the extent to which the British model of regulation was a pathfinder to be emulated by other countries. In general, we have gone beyond that, although the UK is still unusual in the degree of priority it gives to competition aspects of regulated utilities. The British model of regulation as derived from the 1980s and the Littlechild Report is very largely intact and it is likely to continue; but, it is likely to be less distinctive in ten years time than now. That prediction, however, assumes no major loss of independence from governments deciding to take back responsibilities over the volume and type of infrastructure investment in some or all of the regulated utilities.

Of course, the judgement above could be quite wrong. Britain (if it still exists in its current form) could move entirely to negotiated settlements and abolish monopsony regulation for the infrastructure industries. Similarly, in some or all of the regulated utilities, governments could significantly reclaim powers from regulators and make them primarily delivery agencies for government policies. However, my judgement is that these are very low probability eventualities.

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[46] I leave open the question of the implications for Wales, which is much smaller and has never previously been an independent country.

My best guess is that in ten years time, we will see an evolved version of the current framework, but with more rather than less similarity to economic regulatory frameworks for infrastructure industries in other countries. There will, certainly, be surprises. "Events" will promote unexpected change,[47] but the British regulatory model as outlined in this paper now seems to be a well-established part of the country's political economy and institutions and capable of evolving to meet new challenges.

[47] In the late 1950s, Harold Macmillan, the British Prime Minister, was asked what the main problem was for his government keeping to a consistent course. His reply (possibly apocryphal) was "*Events, dear boy, events*"

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