

Competition Law in Telecommunications and its Implications for Common Carriage of Water

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Abstract

As with most water companies in the world UK water companies face very little competition for the delivery of water within their area. However, recently both the government and the regulator, Ofwat, have indicated that they wish to see a major change in the industry through a significant growth of competition. The pricing of common carriage of water will be central to whether this objective can be achieved. The aim of this paper is assess UK and European competition policy in telecommunications and the lessons that can be learnt from this for the regulation of common carriage in the water industry.

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1. Background

Currently the UK water industry consists of regional incumbent water and sewerage companies and water only utility companies who are licensed to perform specific duties. The structure of these licence holders is little different from that of the industry when privatised in 1989 although the ownership has changed significantly since that time. They are regulated by a sector specific regulator, the Office of Water Services (Ofwat) and the main regulatory process is a price control regime that has five year price caps based loosely on a yardstick competition model. Water quality and service standards are set and policed by Ofwat and an environmental regulator, the Environment Agency.

As with most water companies in the world these companies face very little competition for the delivery of water within their area. Recently, both the government and Ofwat have indicated that they wish to see a major change in the industry through a significant growth of competition. In particular they wish to see independent suppliers and water companies outside the incumbent's footprint supplying water to customers within the incumbent's market. For this to happen there will need to be common carriage of water by the incumbent operators. Given the nature of the water transmission system the water pumped into a grid by an independent supplier will not in general be the water that is consumed by the relevant customer. This will cause problems of monitoring standards and even defining what the common carriage actually is. However, at the end of the day, whether competition develops or not will depend mostly on the cost structure of the industry and the access prices that are charged by the incumbents.

There are many who are sceptical as to whether the water industry has the underlying economics to justify and sustain enough competition of this type to have anything other than peripheral impact in the industry. Hand in hand with this view goes a fear that competition may be 'falsely' promoted. On the other if true competition can be sustained this will have major implications for the water industry throughout the world. Therefore, the framework that governs the access-pricing regime is critical. The water regulator has already stated that it intends to deal with common carriage using competition law rather than sector specific regulation through company licences

and that when it comes to pricing of common carriage 'it supports the underlying objective of the Economic Component Pricing Rule'.¹ In contrast to water, telecommunications has seen enormous development of competition in the last twenty years and has a long history of regulation of access pricing both through competition law and sector specific regulation. The aim of this paper is to assess competition policy in telecommunications and its implications for the regulation of the pricing of common carriage in the water industry.

Section 2 of the paper compares competition law and sector specific regulation as it has developed in the UK and shows that there is a tension between these two models. Their objectives are different and this is very clear when one compares the history of the two regulatory frameworks in the UK. Therefore, it is likely to be important which framework is used to regulate prices. Section 3 of the paper outlines UK and EC competition law in telecommunications. This section discusses excessive pricing but focuses on the recent emphasis in competition law on price squeeze as a form of abuse. It is shown how price squeeze as a test can conflict with efficiency but shows that this conflict is very dependent on the interpretation of acceptable undue discrimination. Currently, these issues remain untested in competition law.

Section 4 looks at sector specific regulation in the UK telecommunications market and provides a close discussion of the LRIC model. It is shown that this model is not incremental cost in the traditional sense but operates instead as a price squeeze test on upstream prices. It is argued that this difference in the increment concept arose because the LRIC model was introduced to deal with a special situation, namely to ensure that the incumbent is not discriminating in favour of its own downstream operation and to promote competition rather than simply protecting it. This situation is contrasted with the service provider regime in the industry.

Finally, Section 5 addresses the implications for the pricing of common carriage. It is argued that the water sector has little to gain from the LRIC model as used in the UK telecommunications sector. We suggest that it is the recent focus by the European Commission and the UK authorities on price squeeze as a form of abuse that is the

¹ Ofwat (2001).

most important carryover from telecommunications competition law since the guidelines and law on excessive pricing are unlikely to be very helpful. When applying a price squeeze test it is the interpretation of discrimination will be critical. Deciding whether to apply a price squeeze test and, if so the definition of acceptable discrimination, is likely to be the most important component in providing a neutral common carriage pricing framework that will provide the basis for a true ‘test’ of the feasibility of competition in water. The telecommunications regulator, Oftel, has adopted a tight interpretation of undue discrimination whereas Ofwat appear to be adopting a looser one. However, these agencies are both supposed to be implementing the same Competition Act. The article closes with a few comments on the implication of this for the current UK policy of concurrent application of the Competition Act by the Office of Fair Trading and the sector specific regulators.

2. The competition law and regulatory background

This section provides a brief summary of competition law and sector specific regulation in the UK. A central concern is that there is a tension between these two regulatory models in terms of what they seek to achieve and as a result how they are implemented. This is clearly evident from the UK experience.

2.1 Competition law

Since April 2000 UK and EC competition law is basically similar.² The main thrust behind the 1998 Competition Act is to create an Article 81/82 of the EC Treaty look-alike within the UK. Indeed, somewhat unusually, this congruence goes well beyond the decision to adopt identical wording. The 1998 Act includes a section, Section 60, which specifies that the 1998 Act is to be interpreted in the light of relevant European case law. In particular, the UK court must act with a view to securing that there is no inconsistency with any relevant decision of the European Court and have regard to

² For a detailed statement of the Competition Act see Freeman and Whish (1999); for a brief introduction see Grout (1999).

any relevant decision or statement by the Commission. Access pricing is covered both by competition law on agreements and abuse of a dominant position. However, it is likely to be the latter that is most relevant for regulation of common carriage of water.

The abuse of dominance is covered in Article 82 of the EC Treaty and Chapter II of the 1998 Competition Act. The wording of Chapter II and Article 82 is sparse; no more than half a page. It essentially prohibits the abuse of a dominant position by one or more undertakings and provides examples of conduct that may be considered an abuse. Of particular relevance for access pricing is 'imposing unfair purchase or selling prices' and 'applying dissimilar conditions to equivalent transactions ... thereby placing them at a competitive disadvantage'. An undertaking is dominant if it can make decisions 'to an appreciable extent independently of its competitors and customers and ultimately of consumers'.³ The standard mechanism for implementing Chapter II or Article 82 has three-stages. First the market is defined, then it is determined whether the firm is dominant on that market and finally, if so, there is an assessment whether the company is abusing its dominance. It is only the last stage, i.e., the abuse of a dominant position, which is prohibited, i.e., in theory being dominant is not in itself a problem.

Competition law is essentially about preventing abusive behaviour rather than controlling prices directly. As the current DGFT recently outlined 'making markets work well for consumers is what the OFT is all about' and 'markets work well for consumers when fair-dealing businesses are in vigorous competition for custom'. Essentially, the drive is to improve competition, productivity and choice; lower prices should follow and lower profitability is likely to follow but this is not the direct target. The distinction between dominance and abuse reflects this. That is, the Office of Fair Trading's definition of market power is '...the ability to raise prices consistently and profitably above competitive levels' but the guidelines explicitly state that normally evidence of supra-normal profit is not sufficient evidence on its own to justify a finding of abuse. In particular, 'it is unlikely, however, that the Director General

³ Case 27/76 United Brands v Commission [1978] ECR 207, [1978] 1 CMLR 429

would conclude that an undertaking was abusing a dominant position solely on the evidence of supra-normal profit.’⁴

The drive to productivity has been a central issue at the heart of the current government’s approach of competition policy. Margaret Beckett (when President of the Board) stated that ‘Effective and fair competition is essential to ensure value for customers.’ This is also reflected in European competition policy. For example, the European Commission’s 28th Report on Competition Policy (1998) pointed out that ‘competition policy has an important role to play in safeguarding or enhancing flexibility of product and service markets’. Thus at the centre of competition policy is the focus on preventing unacceptable behaviour through ex post punishment rather than a focus on controlling prices to ensure returns fall within a specific band.

2.2 Sector specific regulation

In contrast to general competition law, most sector specific regulation of utilities in the UK has been devised for a specific purpose, primarily to prevent privatised utilities from taking advantage of their post-privatisation position. There are two obvious ways that regulation can seek to achieve this goal. One is to actively promote competition, leaving the competitive process to bring pressure on prices and costs. The other is to achieve the same effect on prices and costs by regulating prices. That is, curb the problem directly where there is an absence of effective competition.

The regulatory structure has adopted both routes. In the case of telecommunications the 1984 Act specifies regulatory duties which include promoting the interests of consumers, purchasers and other users in respect of prices, quality and variety of telecommunications services and to promote effective competition. In the water industry regulatory duties include ensuring that the interests of customers or potential customers are protected in respect to companies charges and to facilitate effective competition, with respect to such matters as he considers appropriate, between persons holding or seeking appointments. Here the powers relate directly to prices

⁴ 2.15 of Office of Fair Trading (2000). This section of the guidelines emphasises the problems with using the cost of capital in this context. For a discussion of the cost of capital in a regulatory context see Grout (1995, 1998).

and the promotion of competition as opposed to the protection of competition. The powers of the sector specific regulator over the companies in the sector stem to a large extent through the requirement that companies be licensed by the regulator before they can operate.

Given these duties the regulatory model that has developed has, not surprisingly, been strong on ex ante regulation of behaviour and prices, particularly the latter.⁵ All sector specific regulators impose price caps on companies and the process of removing these has been slow. For example, the view of the previous telecommunications regulator that the price cap implemented in 1997 would be the last has not come to pass. The price controls are designed so that a company's expected return is equal to the cost of capital. In general sector specific regulators have tended to perceive returns above the cost of capital as a sign of error in the regulatory system or abnormal unexpected efficiency gain by the company and as a mark that the regulatory controls should be tightened. The framework is one where returns are expected to be close to the cost of capital and deviations from this are typically taken as clear indications of excessive prices. For example, comments in a recent mobile review by Oftel (Oftel (2001)) capture the approach: 'in a competitive market, Oftel would expect prices, and consequently profits, to reflect efficiently incurred costs plus an adequate return on capital'.

2.3 The tension between competition law and sector specific regulation

The sector specific focus on 'tight' price bands and promotion of competition is in marked contrast to the competition law approach. While it is too soon to know how the 1998 Competition Act will manifest itself in the prevention of excessive pricing some guide can be gauged by looking at cases under the 1973 Fair Trading Act. Looking at these cases that have appeared before the MMC we find a very different position. Average rate of return on capital employed has been 44%, with an average of 45% for cases where there was an adverse finding and 41% for those where there was no adverse finding. Looking at cases where the primary concern was potential

⁵ We are side stepping the issue of whether regulators can actually precommit themselves to decisions and the effect on investment (e.g., Grout (1984), Hart and Holmstrom (1987)).

monopoly pricing the figures are 61%, 67% and 48% respectively. For cases where the primary concern was abuse of vertical integration the figures are 52%, 54% and 51%. Furthermore, across all cases there is no statistical relationship between profitability and the Commission's finding.

That is, there appears to be a large wedge between the ex ante sector specific regulation approach and the ex post competition law approach. A similar wedge appears in the US framework. The US Department of Justice's Merger guidelines, although somewhat mechanistic, do not adopt a narrow approach of assessing returns above the cost of capital. The Guidelines use the Herfindahl-Hirschman index (HHI). This ranges from 0 (perfectly competitive industry) to 10,000 (a pure monopoly). The guidelines indicate that a merger will ordinarily be approved in an industry with an initial HHI measure of 1000 or less. Only with a HHI over 1,800 and a merger that raises the index by more than a 100 more do they feel the merger is likely to create or enhance market power. A HHI measure below 1000 is perfectly compatible with returns on physical and financial capital employed well in excess of the cost of capital.⁶

Overall, there is a tension between ex post competition law and the ex ante regulation model in term of what they are seeking to achieve. This is not merely one of wording but clearly manifests itself in the behaviour of the relevant regulatory agencies. Furthermore, in Europe an additional objective, the single market agenda, is also at the heart of competition policy. This adds to the distance between the competition law approach and the sector specific regulation model.

This distance implies that the implications for access pricing levels may be very different depending on whether the access-pricing problem is seen to be a pure competition law issue or whether it should be brought into the sector specific regulatory framework.⁷ This decision over which approach to use is non-trivial and it is not obvious what the ground rules are. Evidence from the other utility sectors is not helpful for the current water context since the other utility regulators did not have the

⁶ Note EC merger policy has similar characteristics and is often criticised for failing to prevent price rises or doing so through strange routes such as in the Airtours case (see Motta (2000)).

⁷ In the case of water this will require a licence amendment.

1998 Competition Act as an alternative to the sector specific model when they opted for sector specific regulation of access pricing.

2.4 Efficiency

Before moving onto competition law and regulation in telecommunications it is useful to provide a brief summary of efficient access pricing rules. The core problem arises from fixed and common costs. Each customer pays the incumbent for the marginal cost of consumption plus a contribution to the fixed and common costs of the system that is used to deliver the product. If an entrant takes demand away from the incumbent then the entrant's price for access to the system should reflect a contribution to the fixed and common costs of the system. The problem is to determine how much this should be.

In a simple static model the final prices charged to customers should reflect general Ramsey prices, i.e., the prices should be highest where demand is most inelastic.⁸ Such prices will dictate the contribution that the new entrant's customers should make to the network and as such will determine the access price. In almost all cases this will imply an access price that is greater than marginal cost. Thus marginal cost will not be the appropriate access pricing rule even where long run marginal cost is the appropriate variable.⁹ In certain simple cases the access pricing rule is simply the incremental cost plus the full contribution to the network that the customer had been making. This is the Economic Component Pricing or Baumol-Willig rule (ECPR). If the incumbent is regulated, or profit is constrained through competitive forces, then this rule takes the form of an access price that is equal to the incumbent's retail price minus the costs that the incumbent forgoes when it loses a customer.

Baumol (1995, 2001) provides a justification for this rule. Armstrong (1998), Laffont and Tirole (1996) and Laffont, Tirole and Rey (1998) provide excellent discussion of optimal access pricing and the relation to ECPR. This paper contains a brief technical

⁸ Formally, the elasticities should be superelasticities.

⁹ We are side-stepping some timing issues here. The differences between long run and short run marginal costs are discussed in Hern (2001).

appendix that shows the formal relationship between access pricing rules determined by Ramsey prices and the ECPR in a simple model.

3. Competition Law in Telecommunications

For the problem at hand many of the germane aspects of UK and EU competition law are not based in case law. Rather they sit within the guidelines of the 1998 Competition Act and notices provided by the European Commission as to how they will interpret competition law in the context of access to essential facilities. As indicated in the previous section, under Section 60 the UK courts are not bound by the views of the Commission in this context but must have regard to any relevant statement by the Commission. In addition, the guidelines of the 1998 Competition Act remain relatively untested so a great deal is ‘up for grabs’ at present. An excellent discussion of the implications of essential facilities law is available in Aitman (2001) and will not be pursued here. This section briefly assesses the OFT guidelines on excessive pricing before focussing on the price squeeze which seems most pertinent of the potential crossovers from telecommunications. We argue that in the context of utilities both excessive pricing and the price squeeze are in need of more clarification as forms of abuse.

3.1 Excessive pricing.

The European court of Justice views ‘charging a price which is excessive because it has no reasonable relation to the economic value of the product supplied is an abuse’.¹⁰ This is a somewhat vague notion. In practice, the earning of supra-normal profit has been interpreted as an indication of potential excessive pricing. Of course, the earning of supra-normal profit is not in itself a sign of excessive pricing since it may arise from many sources. The OFT are clear on this but point out that ‘excessive pricing will be regarded as an abuse only where it is clear that high profits will not stimulate successful new entry within a reasonable period’.¹¹ This view appears to be

¹⁰ Case 27/76 United Brands v Commission [1978] ECR 207, [1978] 1 CMLR 429.

¹¹ 2.13 Office of Fair Trading (2000).

drifting away from the traditional protection of competition approach towards promotion of competition inherent in the utility sector acts. It is stated even more strongly in the Oftel guidelines: ‘essential prices will be abusive if they have persisted ... without stimulating new entry or significant loss of market share’.¹² However, if the natural economic state of a market is a single supplier then it is not clear how this test will help determine excessive pricing in a sensible manner.

A feature common to all utility sectors is the prevalence of fixed and common costs. This causes no problems for the definition of profitability for the enterprise as a whole but can cause problems for the definition of parts of the business. Since common costs are covered by the prices of several activities, the definition of profitability for any individual activity is not well defined. It is possible to impose certain restrictions on prices that arise from a simplistic theoretical model of a static competitive equilibrium. In particular, the price of any activity would not be above the standalone cost of producing that activity since competitors could then enter and underprice the existing firm. Therefore, in a simple equilibrium, a potential test for excessive pricing of a particular activity is that the price is in excess of standalone cost. If competition ensures that there is no overall excess return then a consequence of this relationship is that there should be no activity with a price below incremental cost. This latter corollary of the excessive pricing ‘requirement’ is the predation test in the presence of common costs.¹³

The guidelines to the Competition Act recognise the standalone ‘test’: ‘revenues of an undertaking significantly and consistently exceeding its standalone cost in a particular activity may indicate that excessive prices have been charged’.¹⁴ However, the guidelines step back from using this as a test of supra-normal profit by stating that ‘the standalone cost assumes that the hypothetical efficient competitor will not be able to cover the common costs from another activity’.¹⁵ This strong hint that only part of

¹² 7.35 of Oftel (2000).

¹³ This interpretation is consistent with the EC’s more recent views on predatory pricing (see Grout (2001) for a detailed discussion of predation in EC and UK competition policy).

¹⁴ 2.16 of Office of Fair Trading (2000).

¹⁵ 2.17 of Office of Fair Trading (2000).

the common cost ought to be taken into account leaves the treatment of excessive prices in the presence of fixed and common costs rather vague.¹⁶

3.2 Price squeeze

The most important potential crossover from telecommunications competition law for common carriage of water is the recent focus on the concept of a price squeeze in both EC and UK policy. Essentially, a price squeeze test ties retail and upstream prices together to prevent competitors being squeezed out of the market.¹⁷ While not a method of establishing the correct cost of common carriage it does in theory set a precise ceiling on the cost of common carriage once retail prices are given. However, although the price squeeze is now well documented in the UK guidelines and EC notices and decisions it is almost non-existent in case law. For this reason it is useful to provide some background.

The initial application of the notion of a price squeeze in antitrust law arose in the *United States v Alcoa* case in the 1930s and 1940s. Judge Hand found against Alcoa in the Court of Appeals in 1945 suggesting that, amongst other things, they were guilty of raising the price of competitors' essential inputs - ingot - so that they could not compete with Alcoa in sheet rolling, i.e., the downstream market. The price squeeze in European Community competition policy has very limited history. It arose briefly in *National Carbonising Company* and *Napier Brown/British Sugar* but recently has received considerable emphasis in a series of speeches and articles.¹⁸ For example, John Temple Lang has stated: 'It is contrary to Article 86 if a dominant company sells both a raw material and an end product at prices that are so close to one another that a reasonably efficient competitor buying the raw material cannot make a profit and would be forced out of business. This can be regarded as a price squeeze or as raising competitors' costs or providing an essential facility at an un-economic price. A defence that the dominant company's downstream operations are

¹⁶ There is also a conceptual problem if the company is non-dominant in some markets but is deemed dominant in others. If a common cost covers some products that are dominant and others that are not then it becomes difficult to apply Chapter II to the dominant markets alone.

¹⁷ A price squeeze test is sometimes referred to as an imputation rule.

¹⁸ See Commission Decision 76/185/ECSC of 29 October 1975, *National Carbonising Company* and Commission Decision 88/518/EEC of 18 July 1988, *Napier Brown/British*

exceptionally competitive is admissible, but exceptionally clear cost accounts would be essential to prove it.’¹⁹ Similar ideas can be found elsewhere.²⁰

Most significantly, the recent notice on application of competition rules to access agreements in the telecommunications sector the Commission has taken a significant step beyond the existing US and EC position by raising the price squeeze as an explicit abuse and formulating precisely what may constitute a price squeeze.²¹ In the Notice the Commission provides two ways that a price squeeze could be demonstrated. These are:

‘a price squeeze could be demonstrated by showing that the dominant company’s own downstream operations could not trade profitably on the basis of the upstream price charged to its competitors by the operating arm of the dominant company’

and

‘the margin between price charged to competitors on the downstream market for access and the price which the network operator charges in the downstream market is sufficient to allow a reasonably efficient service provider to obtain a normal profit’.

We can think of these as similar approaches appear in the Oftel sector specific guidelines.

The Commission has gone further, however, than simply issuing notices on their interpretation of price squeeze in telecommunications. For example, it has used the possibility of a price squeeze, along with other potential abuses, to intervene against Deutsche Telekom. ‘In a provisional assessment of the proposed tariff scheme the Commission concluded that the new tariffs were incompatible with the competition rules of the Treaty. It was clear in particular that they would discriminate in favour of business customers vis a vis residential customers, that they would have price squeezing effects on competitors and that they represented bundling i.e. the undue linking of the provision of the monopoly and competitive services. The Commission required a number of conditions to be fulfilled including the granting of infrastructure

¹⁹ John Temple Lang (1996). Note Article 86 refers to Article 86 of the Treaty of Rome (identical to Article 82 of the revised and consolidated EC Treaty).

²⁰ See for example, Schaub (1996) and Ungerer (1996)..

²¹ European Commission (1998).

licences before the tariff scheme came into operation and the prevention of the tariff scheme being applied retroactively. This is an excellent example of how the competition rules can be used to encourage competition to lower interconnection rates.²²

A price squeeze is often presented as a special case of raising rivals costs. Raising rivals costs is a general concept referring to any situation where the vertically integrated firm acts to raise upstream prices with the purpose, implicitly if not explicitly, to eliminate or chill downstream competition. Actions to limit competitors access to the independent supply of upstream inputs, hence raising the competitor's cost and reducing downstream competition, fall into this category. Indeed, a significant proportion of the Alcoa case concerns Alcoa's attempts to restrict the supply of competitors' essential inputs, notably electricity and bauxite, in the upstream market by entering long contracts and commitments over that supply. For example, the Deputy Assistant Attorney General of the Antitrust Division of the US Department of Justice states: 'The 1984 Guidelines recognise that integrated firms may also engage in price or supply "squeezes" against their non-integrated rivals (1984 Merger Guidelines S4.211, n.31). This is of course a form of raising rivals costs.'²³

There is a subtle difference, however, between a price squeeze and raising rivals costs. The former is a statement that compares the difference between two prices, input and output prices, and costs. It tells one something about the ease with which potential competitors may be able to enter a downstream market but in its literal form it is no more than a static technical comparison of levels. In contrast, raising rivals costs carries with it an indication of intent that almost inevitably achieves a chilling of downstream competition even if this is not the prime motivation. This may appear to be a trivial distinction but could be important. Defining a price squeeze as automatically abusive raises a potential conflict with economically efficient pricing structures.

²² Pons (1998).

²³ Sunshine (1995), Deputy Assistant Attorney General, Antitrust Division, US Department of Justice.

Consider the following simple example. A company is the sole supplier of water transportation in an area and sells ten units of water at the retail level and one unit to a competitor who sells it on to a customer located close to the water source (i.e., there is no need for transportation). The cost technology of producing water consists of a fixed cost of 11 and a marginal cost of one per unit. The cost technology of transporting water has a fixed cost of 10 and marginal cost of unity. Finally, there is a downstream (say retail) cost of one per unit. If the company's pricing policy just covers cost then the final price per unit at the retail level is 5 and the consumer at source pays 2. Suppose now that a competitor wishes to transport water over the system to compete for a retail customer consuming one unit. The ECPR price for transportation is 3. This is derived by deducting from the retail price the full reduction in cost that the company with the essential facility faces. That is, the company will save one unit of marginal cost at the retail level and one unit at the water supply level so the ECPR price is $5 - 1 - 1$.

This price, however, will fail the price squeeze test. Using the EC terminology the dominant company's own downstream operations could not trade profitably on the basis of the upstream price charged to its competitors by the operating arm of the dominant company. The dominant company is selling water at a cost per unit for water of 2 and a downstream cost of 1 and as such will only be able to operate profitably if it paid a price of 2 for transportation. That is, the price squeeze indicates that the transportation price is capped at 2.

Note that the conflict depends on part on the cost structure. If the fixed cost is variable in the long run then taking a very long run view of costs will remove the problem since the 10 units will then become variable in the very long run. However, if the company has a set up cost of 10 units regardless of output, i.e., the costs are fixed for technical reasons, then the problem does not go away. Furthermore, the same problem arises if instead of fixed costs of 10 and 11 there is a common cost of 21 across the two upstream components. In this case the time frame would be irrelevant.

The contradiction between ECPR and the price squeeze arises because a price squeeze test is purely concerned with protecting the potential entrant and not

concerned with whether it is efficient to do so. It is not concerned with the contribution to the existing network nor whether the price squeeze causes stranded assets. Interestingly, the history of price squeeze cases in the US electricity market has not been one of success in proving violation of Section 2 of the Sherman Act. This may in part be because of the conflict with efficient pricing although Joskow (1985) suggests that this is in part due to the need to establish intent to monopolise these markets.

In the example explored above, as with many price squeeze cases, this conflict between efficiency and a price squeeze test can be resolved by having sufficient discrimination in the markets. For example, in the case above, if one is allowed to distinguish between the unit of water sold to the competitor, charged at 2, and water sold to a competitor who wishes to compete downstream, sold at 1, then the problem goes away. This is because the competitor buys water upstream at 1 and common carriage at 3 giving a total upstream cost of 4. Such a competitor can compete in the downstream market providing their downstream cost is no higher than the incumbent's. It is a general feature of price squeeze tests that the conflict between the test and the efficient outcomes is greater the tighter the definition of discrimination. In this context a competition law has a tighter definition of discrimination if it rules out more pricing differences as unduly discriminatory. This conflict is an example of the standard conflict that arises in economics between efficiency and prices that are not allowed to reflect differences in demand (see Grout (1996)).

There is an unusual feature of this pricing framework that is worth mentioning in passing. This is we resolve the inefficiency by ensuring that water sold to firms who wish to compete with the incumbent downstream should be sold at a price that is charged to a company that does not compete with the incumbent. This is opposed to the one of the traditional implications of ECPR: that inputs are sold at higher prices the more the purchaser's sales displace incumbent sales. This apparent contradiction with the standard implication arises because the downstream competitor is paying the full ECPR price for common carriage.

The example given above is a special case of a large class of problems that arise for price squeeze tests in anything other than single product markets with simple

upstream and downstream cost technologies. That is, despite the apparent clarity of the Commission's definition, problems begin to emerge as soon as one thinks of practical application in access markets. Here we provide an example where the simple application of the price squeeze causes a conflict with efficiency objectives because there are many products.

In a world with several inputs and retail products the price squeeze test will dictate where common costs have to be recouped. For example, suppose a particular retail product only uses two upstream inputs of a vertically integrated company but the market for the product will only sustain a price marginally above incremental cost. The price squeeze test will indicate that the prices in the upstream market for these two inputs must be set virtually at their incremental cost. That is, sales of these inputs to third parties wishing to compete in this downstream market cannot recover any of the upstream common costs, i.e., costs that are common between inputs. If the vertically integrated company is to cover its full upstream costs then the upstream common costs will need to be covered in prices of other inputs. The application of a price squeeze test on products using these other higher priced inputs implies that the retail prices for these products must cover all the upstream common costs.

It is easy to see the difficulties that can emerge by considering a simple situation where the vertically integrated company, has two other retail products in addition to the one that barely covers incremental costs of its inputs. If these two retail products use in the same proportion the inputs that are carrying the common cost then changing the method of recovery of common cost between these inputs does not help to provide any flexibility between the retail prices. That is, if one input is made more expensive and the other cheaper this will not change the relative price of the two services that are covering the common costs. To move the price of one of these retail products relative to the other the price of inputs going into the barely profitable retail product need to be raised but the price squeeze test prevents any allocation of common costs to these inputs. That is, application of the price squeeze test to the markets has tied the prices of retail products together.

The vertically integrated company is then faced with a choice between either accepting limitations on its pricing flexibility or no longer offering the less profitable

product. If the costs associated with losing pricing flexibility are large then the company may decide to stop providing the marginally profitable retail product. It is important to note that the reason that the company may no longer wish to offer it is not because the price squeeze limits how high the company can raise prices for the other retail products but merely that the cost to the vertically integrated company of the loss of flexibility is too great to justify continuing to supply the marginal retail product. The effect is that it may prove impossible to sustain certain products in the market even though the products are capable of covering their average incremental cost. Clearly, this problem is more severe the more sophisticated the market.

In the above example, it has been implicitly assumed that, because the vertically integrated firm is forced to sell particular inputs to a retail product at prices close to their incremental cost, this price should carry over to price squeeze tests for other retail products. If this is not the case then the problem goes away. So the issue is one of the appropriate interpretation of discrimination in a price squeeze context. An alternative interpretation of discrimination in this context is one that ties the price of a retail product to the price of inputs used to compete in that market. That is, a price squeeze can be invoked as an abuse if a vertically integrated company refused to supply inputs to a competitor in market A at prices that allowed the competitor to make a reasonable margin in market A. A similar test could exist for market B but without the additional restriction that the prices for inputs into different market must always be the same. The decision as to how the joint application of several price squeeze tests will work should be dictated by the specifics of the case. A blanket rule that assumes that all input prices are tied together across price squeeze tests will be extremely restrictive.

The general point is that the price squeeze, although naturally appealing, can have an inappropriate effect on efficiency. This is part of a greater conflict between competition law and efficiency objectives that is frequently levied at EC competition law, most notably in the context of mergers. The two examples show that the conflict can be severe, if the price squeeze is narrowly defined. At present these issues remain unresolved in the telecommunications sector. How big a problem this may be for any particular sector and issue depends on the cost structure of the industry. Exactly what

implications can be drawn from this for common carriage of water are discussed in section 5.

4. Sector specific regulation

The process of sector specific regulation in telecommunications operates under specific regulatory duties which include promoting the interests of consumers in respect of prices, quality and variety of telecommunications services and promoting effective competition. The discussion in this section draws the distinction between access to the local loop and access to the network. Those that access the network are further separated into licensed operators and service providers since they face a very different regulatory framework.²⁴

4.1 Access to the local loop

At the time of privatisation of BT it was generally agreed that there was an imbalance of prices between calls and rentals. In particular, BT argued that it failed to recover the cost of provision and running of local lines through its connection and rental charges. This deficit was referred as the Access Deficit. In order to prevent BT from re-balancing prices too rapidly in its attempt to offset these losses, restrictions were added to the basket of BT's telecommunications services. In particular, over and above the restriction of RPI - 3% on the basket of services during the period 1984 to 1989, BT was also prevented from raising the price of residential exchange line rentals by more than RPI + 2% per year. This restriction continued to be in force for the second and third price controls.

In 1991 the rebalancing issue became a central concern as the government proposed to open up the UK telecommunications market (the so-called Duopoly Review). Prior to this Mercury Communications was the only national company licensed to compete with BT. As part of the Duopoly Review, Oftel formally recognised the access deficit and introduced an Access Deficit Charge (ADC). Essentially payments by licensed

²⁴ See Cave (1997) and Valletti (1999) for a good discussion of the development of telecommunications regulation in the UK.

operators to convey a call over BT's local loop would include a component designed to compensate BT for the contribution the call would have made to the access deficit had the customer remained with BT. The ADC was in essence an ECPR applied to the local loop. It was not exactly a pure ECPR because the access deficit was based on accounting cost. That is, the access deficit only included the section of common costs that were allocated to the local loop. In other respects it was a straightforward application of the opportunity cost principle underlying the ECPR.

In practice, however, the Access Deficit Contributions were almost all waived by DGT. The DGT justified the waiver as part of the regulatory objective to promote competition. Specifically, the licence amendments allowed the DGT to reduce the ADC 'where and to the extent that the Director considers it necessary, in order to enable a person wishing to enter a particular market for the provision of telecommunications services to do so, or to enable a person engaged in such a market to establish or maintain a presence'. Finally, in 1996 the company agreed to the removal of ADCs in exchange for the removal of the constraint of RPI + 2% on rentals. The access deficit, however, have not entirely disappeared. In 1998 the Monopolies and Mergers Commission investigated the charges that BT made to its customers for calls to mobiles which until that point had been unregulated. The Commission agreed with the regulator that the calls to mobile should be price capped but allowed the company to include a charge to reflect the access deficit.

The imposition of an ADC reflects the application of relatively conventional ECPR opportunity cost approaches to access pricing. However, the choice and ability to waive them for entrants until they had sufficient market power emphasises again the distinction between the objectives of competition law and sector specific regulation.

4.2 Network Access

BT's Licence requires that BT provide interconnection between the BT network and any other licensed operator. Initially interconnection charges were left for the companies to agree. For example, BT would negotiate with Mercury to set the price that BT would charge to deliver Mercury calls to BT customers and the price that Mercury would charge BT to deliver BT calls to Mercury customers. If parties could

not agree then the regulator determines the price. In the early 1990s Oftel embarked on a programme of moving away from negotiated and determined access charges to standard charges. This started through the Interconnection and Accounting Separation proposals and ended with the detailed Network Charge Control pricing structure. A driver behind this process was that ‘arrangements should not be unduly discriminatory either between competing operators or between BT and other operators’.²⁵ There is a network price cap that fixes BT’s charges to other licensed operators and to BT Retail. BT Retail is required to demonstrate that its retail tariffs cover costs after taking account of transfer charges from BT Network.

At the core of the network charge regime is the concept of long run incremental cost. This is a detailed procedure that breaks down the cost structure of the network and is the base for all access pricing to BT’s network. An unusual and little recognised feature of LRIC is that it does not follow the standard economist’s concept of the incremental cost of a service and is not always consistent with the type of incremental cost that lies at the heart of competition law. This has strong implications for access pricing that is not always recognised.

Telecommunication services comprise of many inputs or components, e.g., an outgoing international call typically includes a call origination local exchange segment, a local to tandem transmission segment, an inter-tandem IDD conveyance segment and an outgoing IDD conveyance segment. Consider a simplified view of a telecommunications system where there are three services. Each service uses two network (upstream) components, 1 and 2, and a retail (downstream) element. Now consider the incremental cost of adding service C to a telecommunication company that is already supplying Services A and B. The common costs do not enter the incremental cost since the service is viewed as an increment to the other services. This is the basic notion of the incremental cost of a service that, for example, is relevant for the definition of predatory pricing in the EC access notice.

²⁵ Oftel (1993).

The LRIC used in the UK telecommunications sector, which for clarity will be called Oftel LRIC, differs from the notion of increment described above.²⁶ It does not look at the incremental cost of each service in the way that was outlined above. There is a good reason why it does not – namely that it was introduced to meet other needs, that of ensuring that regulated access prices does not favour BT's downstream operations and to promote competition. We return to this point later.

Instead of looking at the incremental cost of final services, the Oftel LRIC looks at the notion of increment in terms of adding components to other components. It starts with a distinction between Access and Network and looks at the cost of adding a Network to the Access Business. Within the Network Business it then considers the increment of components to a company with other components and brings these together to determine restrictions such as price floors for services. When component 1 is viewed as an increment to component 2, the costs that are common across services and lie in component 1 now enter the incremental cost. Once these increments are aggregated to determine the LRIC part of the common costs enter the incremental cost the service. It is clear that this provides a completely different incremental cost to the incremental cost of a service. The choice of increment as a component taking the other components as given, instead of the conventional increment as a product or service taking other services as given, is the main difference between Oftel's Network LRIC and the conventional economic incremental cost.

The practical difference between an economic notion of incremental cost and the Oftel approach can be seen, for example, if we consider outgoing international calls. These consist of a call origination local exchange segment, a local to tandem transmission segment, an inter-tandem IDD conveyance segment and an outgoing IDD conveyance segment. Oftel's Network LRIC takes the call origination local exchange segment as an increment to a company, which has all the other components in place. This gives an incremental cost floor for the call origination local exchange segment. This is used to set a lower bound on the price for this component. This charge goes straight into the price floor for the price of an international call.

²⁶Full details of the Network LRIC are contained in BT's Accounting Documents (13 November 1998) and full details of the Retail LRIC are available the BT's Methodology for the Derivation of Long Run Incremental Costs for BT's Retail Business and the associated guidance notes (December 1998).

Following a similar process for all other components and applying the combinatorial tests provides a cost floor for international outgoing calls.

In contrast, a standard service based economic notion of incremental cost would look at the addition to the cost when outgoing international calls are added to the other services offered by the company. The standard economic incremental cost would look at the increase in cost of the call origination local exchange segment caused by the extra demand that arises because the company now offers international outgoing calls. The call origination local exchange segment would already be in place because the company is offering other services, such as national and local calls, and it is only the extra cost caused by international outgoing calls that is relevant. Note that this figure is likely to be far lower than the Oftel LRIC figure for the call origination local exchange segment. Following a similar process through each component and aggregating gives the ‘incremental cost’ of the service.²⁷

This detailed LRIC model forms the basis of BT’s network charges to other operators and the transfer charges within BT (the Network Charge Control). The central point about the Oftel LRIC model is that it is designed to meet particular regulatory requirements. Essentially, the regulatory framework based on LRIC operates far more closely to a price squeeze test than may appear at first glance. An ECPR approach to access pricing will deliver very different prices depending on the notion of incremental cost is based on Figure 2 or Figure 4. The LRIC of a service is necessary if a precise ECPR is to be implemented. Using an Oftel LRIC will produce far lower access prices and far higher predatory price floors than will arise with a conventional notion of the incremental cost of a service. Which is the appropriate incremental notion depends on the job at hand. We return to this issue in section 5.

Finally, before turning to the implications for the pricing of common carriage in water the provision of network services water requires consideration. The Network Charge control applies to licensed telecommunications operators. However, there are many

²⁷ There are additional differences that arise because there are many components within the network. To simplify the application of Oftel’s LRIC the common cost of a large part of the network, called the Core, are treated as if they are not common. The common costs of the components in the core are split up and added to the actual incremental costs of each component in the core, i.e., these common costs are treated as if they were part of the incremental cost of a component and not common.

resellers and users of telecommunications that are not operators. These are referred to as service providers. Service providers include companies providing or reselling basic telephony switched services and companies providing information or content delivered entirely by means of telecommunications. These users do not pay LRIC prices and BT is able to set prices to independent service providers for network services that are below prices charged to end users to take due account of the net cost savings in providing services to independent service providers (see Oftel (1997)). Examples of cost savings are billing, finance, marketing and sales, customer service, and operator services depending on what the service provider requires. Oftel do not consider such pricing to be undue discrimination within the terms of the licence. However, Oftel insist that independent service providers should not normally be obliged to pay for services or elements of a service that they do not use. The service provider model allows a form of pricing that is far closer to ECPR.

5. Implications for Common Carriage of Water

As indicated in the introduction the water sector regulator in the UK, Ofwat, has stated that it will deal with common carriage using its powers under the 1998 Competition Act and that when it comes to pricing of common carriage it is sympathetic to Economic Component Pricing Rule'. Against this background we first assess this standpoint against the history of sector specific regulation in the UK and then look at the problems that will arise in using competition law to regulate access prices.

5.1 Sector specific legislation

One message that arises from the experience of access pricing in the UK is that ECPR type rules have been acceptable to telecommunications regulators in particular situations and in this sense there is consistency between Ofwat's proposals and Oftel's experience. The initial ADC regime and the service provision regime are

example. Globally, the Clear case in New Zealand is probably the most well known example.²⁸

In contrast, the developments of the network charge control, which is used to charge other operators for BT's network, has not moved in this direction. The LRIC methodology that has been developed by Oftel is not, in its current form, consistent with ECPR and does not provide the evidence that is required by Ofwat. To establish an ECPR price it is the long run incremental cost of a service that is required. To determine the price it is the avoidable cost as defined using a service as the increment that is required. Using Oftel LRIC costs as the measure of unavoidable costs will provide lower input prices than those dictated by ECPR. However, in telecommunications the LRIC model is not used this way. Loosely, charges in BT's Network Charge Control are based on two components. The first part of the charge for an upstream component represents the LRIC for that element. Over and above this LRIC charge there may be an addition. These additions, in total, are allowed to cover the costs that are common across the components. That is the costs that are common across upstream components are allocated across the components and enter the price for that component for all uses. Using the LRIC model in this way provides prices that are below ECPR access prices.

Therefore, whether the LRIC model is used as it is in telecommunications or is used to define avoidable costs, the consequent prices are below ECPR. The reason that the LRIC model fails to match ECPR prices is that the Network Charge Control is a strong type of price squeeze. In particular, there is no scope for discrimination between end uses. This is deliberate in that it was introduced to deal with a special situation, namely to ensure that the incumbent is not discriminating in favour of its own downstream operation and to promote competition rather than simply protecting it. However, if a price squeeze approach is to be adopted then this can be implemented directly without reference to many of the upstream costs since it is the upstream prices charged to others that are relevant for the test not the underlying costs. Therefore, there is no obvious attraction for the Oftel LRIC model in the

²⁸ UK Privy Council Judicial Committee, 'Telecom Corporation of New Zealand Ltd. v. Clear Communications Ltd.' NZLR 385 (1995).

common carriage context for the water sector.

There is also a potential pitfall in embarking too far down the route of prescriptive, detailed cost modelling. The UK telecommunications evidence suggests that there is a genuine danger that the processes can fail to adjust to the changing circumstances. Because of the particular structure of the LRIC machinery it is not relevant to all competition act issues and should be limited to those where it is. However, what has happened in the introduction of the 1998 Competition Act is that the LRIC notion of increment and the more traditional notion of the increment of a service have been intertwined. Indeed, it LRIC may have very limited use in the context of the competition act since the price squeeze is now explicit within the guidelines of the 1998 Competition Act and EC notices. The position is confused, however, by the semi-separated structure that is common in telecommunications. Where sectors of a business are neither fully vertically integrated nor fully separate there remains some uncertainty whether it is appropriate to use upstream prices or service incremental costs for conventional law tests such as an Akzo -type predation test.

In summary, the Network Charge Control in telecommunications is a regime that fits with an objective of promoting rather than simply protecting competition. In an industry where there it was anticipated that there would be an enormous degree of competition then one can see how a regulator with duties that include promoting the interests of consumers in respect of prices, quality and variety of telecommunications services and to promote effective competition would be attracted to a LRIC model that positively enhances competitors. In contrast, the feasibility of common carriage of water as a real force in the market is far from clear. It may be beneficial in some areas but it is difficult to be confident that it will take a major presence in the industry. Therefore, it is particularly important not to adopt pricing strategies that deliberately promote entry since it may not be viable in the long term and so there is good reason not to follow the telecommunications example.

5.2 Competition Law

Section 2 of the paper has emphasised the differences between the objectives and basic structure of UK competition law and sector specific regulation. The evidence given in Section 2 related to the 1973 Fair Trading Act not the 1998 Competition Act

and to date insufficient practical experience to know how regulators will apply competition law to access issues. If, however, in the application of the Competition Act, the regulators adhere to the objectives of competition law as opposed to the duties of sector specific regulation and continue to reflect the historic empirical differences between competition law and the regulatory model, then one will expect outcomes to be different if common carriage is treated under the Competition Act rather than under sector specific regulation such as Oftel's Network Charge Control. Even if, as expected, the 1998 Competition Act represents a tightening of competition law in the UK, the evidence of the 1973 Fair Trading Act suggests that competition law is likely to provide significant flexibility relative to sector specific regulation. This may not in itself be harmful to efficiency but may limit the scope for common carriage to those areas where it is clearly beneficial.

Turning first to excessive pricing, the UK Competition Act guidelines on excessive pricing appear to leave significant flexibility. In particular, they offer little evidence of how to deal with the problem of common cost. The guidelines seem to imply that the existing approach to abusive excessive pricing is perfectly consistent with access pricing rules based on the ECPR. However, it is not clear that they automatically lead in this direction. Time will tell whether a regulatory agency that favours ECPR will find that companies have too much scope within the Competition Act. It could be that the excessive pricing rules allow firms to set prices that exceed, albeit not by too much, ECPR based prices.

It is the growing interest and application of the price squeeze in competition law, however, that appears to have more direct application to the determination of access pricing policy. If Ofwat import this from the UK telecommunications guidelines and EC notices, and apply the concept with a tight interpretation of discrimination, then this could impose quite tight restrictions on acceptable access pricing regimes. In particular there would be a strong contradiction with static economic based pricing rules such as the ECPR although this depends on the specific cost structure and will need teasing out on a case by case basis. On the other hand, there is a pure practical attraction in using such an approach since it side steps many of the problems of modelling transmission costs since much of the test is based on comparison of prices not costs.

The central point here is how much discrimination is allowed interpreted in the presence of significant fixed and common costs; initially by Ofwat in their application of the Competition Act but ultimately by the Competition Commission in its role as appeal court. If charges for up stream carriage are allowed to reflect the different markets that the water is supplied to then the price squeeze will provide less conflict with ECPR. However, if all common carriage must be charged at the same price for all users in a price squeeze test then there will be a conflict.

The problem with the price squeeze is that, as currently defined by the EC and the UK, it can conflict with efficient pricing and it is far from clear how it will be interpreted. The difficulty arises to a large extent because there is almost no case law. Until there are a series of appeals the precise nature of a price squeeze remains uncertain. The problem may be less extreme in the context of water because there is neither the diversity of product or technology that exists in telecommunications. However, as has been shown in Section 3 the conflict with economic pricing rules can still arise. One assumes that the companies will start with prices that pass price squeeze tests under an appropriate definition of discrimination but will fail under others. If Ofwat find this position acceptable, and there are good economic reasons why they should find some degree of discrimination acceptable in this context, then this will go some way to clarifying the picture on price squeeze but this will remain untested until a few cases in telecommunications and water go to appeal.

This implies that competition law as currently defined given EC case law leaves some uncertainty both for the providers of common carriage and the potential entrants. It is very likely that the price squeeze will take an important position in the assessment of appropriate prices for common carriage therefore current competition law in telecommunications will have significant impact on the interpretation of pricing for common carriage in water.

Finally, this comparison of competition law in telecommunications and water may throw some light on how to implement competition law. The view that ECPR is fully consistent with the Competition Act in the water sector will not mesh in directly with the competition law approaches that have recently been applied to

telecommunications sector by the EC or Oftel. But this is a single act that has to be applied in a consistent manner to all by the courts. So there is a conflict. The problem arises from the way that the 1998 Competition Act is implemented in the UK. Each sector specific regulator applies the Competition Act to companies within their sector and the OFT apply the Act elsewhere in the economy. This is referred to as concurrent application of the Competition Act. Disparity of regulatory approach has always been a potential problem and has led some to argue that the concurrent approach is flawed. This conflict between application of the Act in the telecommunications and water sectors give strength to the view that concurrent application is defective.

Appendix

Ramsey prices relate the final price to marginal costs and elasticities. In general, if there are fixed and common costs these prices will be a 'mark-up' on marginal cost to provide revenues to cover the fixed and common cost. If we denote c as the marginal cost of transporting water, c_i as the marginal cost of water for the incumbent network owner and c_e as the marginal cost of water for the entrant then the optimal final prices will satisfy

$$(1) \quad \frac{p_i - c - c_i}{p_i} = \frac{\mu}{\varepsilon_i}$$

$$(2) \quad \frac{p_e - c - c_e}{p_e} = \frac{\mu}{\varepsilon_e}$$

where p_i (p_e) and ε_i (ε_e) are the final price and elasticity of the incumbent (entrant). μ is a positive constant that is determined by how much money is to be raised. If entry is competitive (i.e., the entrant makes no abnormal profit) then the access price is determined by equations (1) and (2) and

$$(3) \quad p_e = p_a + c_e$$

i.e.

$$(4) \quad p_a = p_e - c_e.$$

Substituting (4) into (2) gives:

$$(5) \quad \frac{p_a - c}{p_e} = \frac{\mu}{\varepsilon_e}$$

or

$$(6) \quad p_a = c + \frac{\mu p_e}{\varepsilon_e}$$

Therefore, p_a is greater than the marginal cost as long as there is a fixed or common cost to recover (i.e. $\mu > 0$) and ϵ_c is finite. (6) shows that in general setting the access price equal to marginal cost underestimates the optimal access charge.

An important special case arises when the entrant's and incumbent's products have identical elasticity (i.e. $\epsilon_i = \epsilon_c$). (6) and (1) gives:

$$(7) \quad \frac{p_a - c}{p_c} = \frac{p_i - c - c_i}{p_i}$$

Providing the incumbent is not able to manipulate the market (e.g., if it is regulated) then equal elasticities will imply $p_i = p_c$ which reduces (7) to

$$p_a - c = p_i - c - c_i$$

or

$$p_a = p_i - c$$

That is, the access price is set equal to the incumbent's final price minus the cost that the incumbent saves because the entrant provides supply. Note that this does not assume that the demand is incremental to existing demand. The underlying assumption is that the entrant's customers should contribute to the fixed and common cost of the system even if the new demand is incremental.

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