Final Paper

OPTA

ANALYSIS OF COMPETITION PROBLEMS AND *EX ANTE* REGULATORY INSTRUMENTS UNDER THE EC ELECTRONIC COMMUNICATIONS DIRECTIVES

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1. Introduction

OXERA has been asked by OPTA to provide an analysis of the *ex ante* regulatory instruments under the new EC regulatory framework for electronic communications (composed of five Directives). The objective is to assist OPTA in defining its internal policy on the application of these instruments, and to contribute to the discussions that currently take place among the national regulatory authorities (NRAs) and the European Commission.

The Framework Directive[1] determines that NRAs in all Member States must conduct a review and analysis of markets and effective competition in the electronic communications markets, in accordance with the principles of competition law. There are three stages to this analysis:

- defining relevant markets;
- evaluating effective competition and the presence of significant market power (SMP) in the relevant markets; and
- assessing the need for *ex ante* regulation.

The first stage involves defining relevant product and geographic markets in the Member States in accordance with principles of competition law. The issue of market definition has already received widespread attention, and the European Commission last year issued draft guidelines on how to define markets in the electronic communications sector. The final Recommendation on which markets are likely to warrant *ex ante* regulation was published in February 2003.[2]

The second stage of the analysis required by the Framework Directive is an assessment of whether competition in the relevant markets is effective—ie, no undertaking holds (alone or jointly with other undertakings) a single or collective dominant position. The new EC regulatory framework provides specific criteria to perform the assessment of SMP, which is based on the notion of dominance. Again, guidelines for market analysis and assessing SMP have already been established by the Commission.[3]

In contrast, the third stage of the analysis—application of *ex ante* instruments—has received relatively little attention so far. In light of the market analyses and assessment of SMP, the NRAs will have to act either to reduce regulation, or to introduce or amend

[1] Directive 2000/21/EC of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive), OJEC L.108/33, 24.4.2002.

2 European Commission (2003), 'Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services', C(2003)497.

[3] European Commission (2002), 'Guidelines on Market Analysis and the Assessment of Significant Market Power under the Community Regulatory Framework for Electronic Communications Networks and Services', OJ C 165/03, July 11th.

existing regulation. In particular, where a market has been found not to be effectively competitive, there is an obligation on the NRAs to introduce *ex ante* regulation in order to minimise the adverse effects on consumers from this lack of competition.

A wide variety of regulatory measures could be introduced to attempt to overcome lack of competition, and they have different effects, according to the structure of the market into which they have been introduced and the nature of the problem they are trying to address. Therefore, in order for OPTA—and the other NRAs—to achieve regulatory best practice of efficient regulation, it is necessary to be aware of the full range and economic impact of the *ex ante* instruments that may be available for any particular competition problem.

At the same time, the range of competition problems arising from SMP is also broad, and the appropriate *ex ante* instrument depends on the nature and severity of the competition problem identified. Competition problems can occur in relation to both wholesale (network) and retail (service) markets, and can have both horizontal effects (ie, between competitors in a market or between horizontally related markets) and vertical effects (ie, between wholesale and retail markets).

This paper discusses both the range of competition problems and the range of *ex ante* instruments. It then maps the two together—ie, it identifies which instruments are most appropriate for dealing with each of the competition problems, and in which circumstances. The paper is organised as follows.

- Section 2 addresses the potential competition problems that arise from SMP. It describes the nature of the problems, their underlying causes and economic rationale. It also summarises the harm that these problems create, either in terms of their direct effects on consumers, or their effects on competition in the affected markets.

- Section 3 presents a summary of the regulatory tools that could be used to address the competition concerns described in the section 2. Section 3 not only addresses those tools that are specifically catered for in the five electronic communications Directives, but also those which are not specifically highlighted in the Directives. The section begins with an examination of structural regulatory tools, namely those that address the structure and internal organisation of the companies concerned. The second half of the section addresses regulatory tools which are directed at the conduct of the companies concerned.

- Section 4 seeks to match the competition concerns with the *ex ante* regulatory measures that are available to address those concerns. For each competition problem, the paper identifies the range of measures that a regulatory authority could introduce, and presents these in order of increasing intervention.

The content of this paper presents the analysis of OXERA, and does not necessarily represent the views of OPTA.

2. Potential Competition Concerns Arising from SMP

2.1 Types and nature of competition concerns

This section gives an overview of the potential competition concerns that can arise from SMP. In particular, these can be grouped under the following headings:

- excessive pricing;
- excessive costs or inefficiency;
- lack of investment;
- refusal to deal or to grant access;
- margin squeeze;
- price discrimination;
- predation and other unfair low-pricing practices;
- tying and bundling;
- exclusive contracts and exclusive dealing;
- unfair contract terms.

Excessive pricing, excessive costs or inefficiency and lack of investment are all general characteristics that may arise in markets that are not effectively competitive—which is the case for both individual and collective dominance. They are unsatisfactory market outcomes. In some circumstances these outcomes can be dealt with under general competition law—in particular, as abuse of dominance—but an arguably more effective approach is to deal with them through *ex ante* regulation (as discussed in section 4).

The other concerns listed above, from refusal to deal to unfair contract terms, are all forms of 'foreclosure'—ie, practices aimed at excluding competitors from the market. They usually arise with individual dominance, and probably less often in situations of collective dominance. The first three of these—refusal to deal, price discrimination and margin squeeze—are all particularly prevalent in networks markets, such as in the electronic communications sector, since they are means through which network providers with SMP can leverage their market power into downstream retail service markets. All these foreclosure practices can, in principle, be dealt with under general competition law, though again it is an arguably more effective approach to deal with them through *ex ante* regulation (as further discussed in section 4).

Each of these competition concerns is examined in greater detail below.

2.2 Specific competition concerns

2.2.1 Excessive prices

A profit-maximising strategy for a company (or a group of companies) with SMP[4] could be, through one or a variety of means, to charge a price greater than the theoretical competitive level—the marginal cost of production.

In EC competition law, excessive pricing is addressed under the abuse of dominance provisions. Under Article 82 of the EC Treaty 'directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions' may constitute an abuse of a dominant position. In its 1978 *United Brands* decision, the European Court of Justice (ECJ) stated that 'charging a price which is excessive because it has no reasonable relation to the economic value of the product supplied […] is an abuse.'[5] Economic value can be interpreted as referring to the economic cost of the product. The ECJ stated that a detailed analysis of costs would be required before any judgement could be reached, and said that the question to be asked is:

> whether the difference between the costs actually incurred and the price actually charged is excessive, and if the answer to this question is in the affirmative to consider whether a price has been charged which is either unfair in itself or when compared to other competing products.

The main case for prohibiting excessive pricing is that it creates allocative inefficiency in the form of a 'dead-weight' welfare loss to society—ie, prices are too high and output too low compared with the competitive market outcome. In this view, firms with SMP should be forced to charge prices that reflect costs, in order to approach the efficient, competitive outcome. Another case is that it is unfair to exploit customers who do not have a choice but to buy from the firm with SMP; this is more a regulatory than a competition policy concern.

However, from a longer-run perspective, prohibiting excessive pricing under competition law might be counter-productive. Such prohibition might improve allocative efficiency, but it could have a negative effect on dynamic, productive efficiency. The very prospect of profits is what drives firms to reduce costs and introduce new products and technologies to become market leader. In contrast, the prospect of these profits being regulated once market power is obtained may distort these incentives. The logic that innovative firms should be rewarded with monopoly profits is also embedded in patent law.

Over time, market power tends to be eroded by new entry into the market, with entrants being attracted by the incumbent's excessive profits. Regulatory control of those profits

[4] As the Framework Directive (Article 14.2) has aligned the definition of significant market power with the definition of dominance as determined in European jurisprudence, the terms SMP and dominance are used interchangeably in this paper.

[5] Case 27/76 *United Brands v. Commission* [1978] E.C.R. 207; [1978] 1 C.M.L.R. 429.

may distort this efficient market-signalling function, and thus actually slow down the process of erosion of market power. This issue is relevant for the discussion about whether an NRA wishes to promote competition between networks or between service providers. Tightly regulating network prices may reduce overall returns, deterring the development of rival networks—although this depends on the nature of the price control imposed (see sections 3.3.7 and 3.3.9 below). Price control to address excessive pricing is most appropriate in recently deregulated industries where the incumbent still has SMP and where effective competition is unlikely to develop in the near future, or where the market is a natural monopoly. If, in particular, the firm with SMP controls an essential resource (eg, a local telephony network), then excessive pricing for access to this resource may distort the efficient development of competition in downstream markets. This is further discussed in section 4.

It should be noted that companies can have SMP as suppliers and as buyers—ie, when they have market power as buyers of an input. An example of relevance to electronic communications is the buyer (or monopsony) power that operators of pay-TV platforms may have over content providers. The equivalent of excessive pricing where buyer power is concerned is where the buyer exerts excessively downward pressure on the prices it pays its suppliers—ie, below the competitive level. Exertion of buyer power can be a matter of concern to competition authorities on the basis that there is a detriment to the suppliers.[6]

2.2.2 Excessive costs or inefficiency

Perhaps one of the most well-known adages about monopoly is that 'the best of all monopoly profits is a quiet life',[7] a comment which was subsequently refined into the hypothesis of X-inefficiency.[8] This hypothesis postulates that the managers and employees of a company with SMP may not exert as much effort as those in companies facing stronger external pressures. As a result, the costs of producing in the presence of SMP would be higher than under competitive conditions. These higher costs create further welfare losses for society. Not only does the presence of SMP mean that output may be lower than under competitive conditions, which by itself creates a deadweight loss to society, but the profit made by the company in producing this output may be lower than if the company were minimising its costs. The lost profits represent a loss of welfare.

Problems relating to excessive costs and inefficiency are most likely to be found in those companies that were incumbent (possibly state-owned) monopolists prior to liberalisation. Indeed, the gains that have been achieved by those companies in liberalised markets are an indication of the magnitude of potential efficiency gains that can be obtained.

[6] For example, in the supermarkets inquiry in the UK. See Competition Commission (2000), 'Supermarkets: A Report on the Supply of Groceries from Multiple Stores in the United Kingdom'.
[7] Hicks, J.R. (1935), 'Annual Survey of Economic Theory: The Theory of Monopoly', *Econometrica*, **3**, 1–20.
[8] Leibenstein, H. (1966), 'Allocative Efficiency vs. X–Efficiency', *American Economic Review*, **56**, 392–415.

In the absence of any comparator information, it will be very difficult for a regulator to determine when a service is seriously inefficient, and even more difficult to show that a firm with SMP has been failing to take advantage of technical developments or that either of these represent an abuse of market power. This may be particularly the case for electronic communications networks, where technological change is rapid. On the other hand, given that there are multiple operators in Europe, it would be feasible to undertake some benchmarking exercises between different national incumbents, or between incumbents and entrants.

2.2.3 Investment

Companies with SMP may invest less than would be socially desirable. For similar reasons why firms with SMP may be inefficient, firms with SMP may face fewer incentives to innovate, or to maintain and develop their production facilities. As well as leading to productive inefficiencies, this can lead to a declining quality of service, slow development of new products and services, and less innovative activity. For example, if a local network monopolist does not upgrade its network, this may hinder the development of new services such as broadband Internet and digital television.

Article 82(2)(b) of the EC Treaty identifies 'limiting technological development to the prejudice of consumers' as a possible abuse of dominance. However, findings of this type of exploitative abuse of dominance under competition law have been rare. One example is the ECJ's *Port of Genoa* case (1994), where a refusal to adopt modern technology that led to increased costs and prolonged delays was held to constitute an abuse of dominance.[9]

The relationship between market power and investment is not, however, clear-cut. For example, consider the position of a company that is considering funding some research to innovate or improve the quality of its produce. Before committing to that research, the company expects that—even if its research is successful—the money it spends on that research will represent a fixed cost. If there is perfect competition in the eventual product market, the company will only be able to achieve a price that covers its marginal costs and it will not recover its fixed costs. This will deter it from investing in the first place.

If, however, the company expects to obtain some form of market power in the product market, it will be able to charge a price above marginal cost, recover its fixed costs and make a return on its investment. This is the principle that underlies the patent system. Therefore, the regulator would need to consider the impact of any regulation to control prices on the incentives to invest. Often there is a trade-off between these objectives.

Under certain situations, companies with SMP may over-invest in capacity, generating excess capacity in order to signal to potential entrants that the response to entry will be aggressive. Such behaviour aims to deter entry and to reduce competitive forces in the

[9] Case C–179/90 *Port of Genoa* [1991] E.C.R. I-5889, [1994] 4 C.M.L.R. 422 [1994] 1 C.E.C. 196.

market. It can also raise barriers to entry, thereby reducing future competitive strength. The ECJ accepted this argument in *Hoffman-La Roche*.[10]

Assessing the impact of over-investment is more complicated when considering an oligopolistic market. When there are two or more companies which may each hold SMP in a particular market, investment in excess capacity may be either pro- or anti-competitive. It would be pro-competitive if the spare capacity enabled each company to respond to the other company's attempts to raise prices. On the other hand, if a coordinated agreement had been reached in the market, the spare capacity could be used to punish deviations from the coordinated outcome.

2.2.4 Refusal to deal or to grant access

Refusal to deal can create competitive harm when a firm with SMP controls an input or inputs which are necessary for other players to be able to operate in (downstream) markets. In particular, a firm which operates in two vertically related markets and which has SMP in the upstream market may (unfairly) strengthen its position in the downstream market if it refuses to supply downstream competitors. Refusal to deal can also harm competition in markets where the firm with SMP is not present; however, the incentives for invoking such harm are less clear when that firm itself does not stand to benefit.

In electronic communications markets the most common service provided by upstream firms (network providers) to other operators is network carriage. These network carriage (access) services can either be supplied one-way, for example by a network provider to a retail service provider or to other network providers, or they can be two-way services between network operators. These two-way services are a particular type of access and are defined in the Access and Interconnection Directive (AID) as interconnection services between public network operators.[11]

The regulation of the provision of network services is contained in the AID, which places general obligations on operators to negotiate interconnection,[12] and is therefore the relevant legal instrument in discussions of a network provider's refusal to deal. For other products and services, refusal by a firm with SMP to supply a customer (a rival retail service provider or particular groups of customers) is subject to the general provisions of the Framework Directive. That is, *ex ante* regulation may be used to address the potential problem.

In European case law, refusal to deal covers not only situations where a company with SMP gives an absolute refusal to supply a customer, but also those circumstances in which the supplier is only prepared to supply a good or a service on unreasonable terms. Refusal to supply can also cover situations where a firm with SMP refuses to provide

[10] Case C-85/76 *Hoffman-La Roche* [1979].
[11] See Articles 2(a) and 2(b).
[12] Article 4.1.

potential competitors with information (including intellectual property) that they need to produce goods that would compete with those of the firm with SMP.

For refusal to deal to constitute an abuse of a dominant position, it must not only harm a consumer or a competitor, but it must also substantially weaken competition in the relevant downstream market.

Issues of refusal to deal are raised in relation to ownership of essential facilities. The concept of essential facilities has been applied under both American law[13] and European law.[14] In Europe, the most recent relevant case that has been to the ECJ is *Oscar Bronner*.[15] That judgement spelt out that an essential facility is a facility which must be either impossible or extremely difficult to duplicate owing to physical, geographical or legal constraints. Furthermore, for a facility or an asset to be judged to be essential, it must be demonstrated that it is totally uneconomical to duplicate the facility in the market in question, not simply that a given competitor would be unable to duplicate the facility. The European Commission has defined an essential facility in a previous Notice as a 'facility or infrastructure which is essential for reaching customers and/or enabling competitors to carry on their business, and which cannot be replicated by any reasonable means'.[16] In other words, possession of such a facility must give a company SMP in the market in question as, by definition, it will be in a *de facto* monopoly position. Refusal to provide access to that facility is likely to create competitive harm and therefore to constitute an abuse of that SMP.

In the electronic communications sector, as with other recently liberalised markets where former monopolists have retained ownership of infrastructure, certain bottleneck facilities may be considered to be essential facilities, most notably the local loop. However, there is an important difference between the approach to access under competition law and that under the Framework Directive. In competition law the relevant test is the essential facilities doctrine, which, as described above, is a stricter test than the test for dominance (or SMP). Hence, under the Framework Directive, there is greater scope for intervention than under competition law.

[13] In America, the principles were developed in a very early case, *Terminal Railroad Association v US* (1912), and have most recently (December 2002) been applied in the matter of *Verizon Communications, Inc. v. Law Offices of Curtis V. Trinko*, No. 02-682 (US S. Ct.). The case, which is currently pending before the US Supreme Court, addresses the standards for liability under Section 2 of the Sherman Antitrust Act, 15 U.S.C. § 2, with respect to claims that an alleged monopolist denied access to an "essential facility" and engaged in "monopoly leveraging" (see http://www.ftc.gov/opa/2002/12/fyi0266.htm)

[14] In Europe, the concept of essential facilities has been applied to harbour facilities (Case C–179/90 *Port of Genoa* [1991]), airline computer reservation systems (*London European-Sabena* [1988] OJ L317/47), and found not to apply to a national home delivery service (*London European-Sabena* [1988] OJ L317/47).

[15] Case C-7/97 *Oscar Bronner GmbH & Co v Mediaprint Zeitungs* [1998]. See also the opinion of the Advocate General in the same case.

[16] Notice on the application of the Competition Rules to access agreements in the telecommunications sector [1998], OJ C265/3, para. 68.

2.2.5 Price discrimination

Price discrimination can be defined as the sale of different units of the same good or service at price differentials that do not directly correspond to differences in underlying costs. This definition includes:

- selling identical products to different customers at varying prices;
- selling identical units to the same buyer at different prices (eg, electricity suppliers and water companies charging lower tariffs for each additional block of demand); and
- charging the same price for transactions entailing different costs (eg, uniform geographic pricing in postal and telecommunications services).

The seller must have some monopoly control over price to be able to discriminate on price. For this reason, the fact that a company is able to price-discriminate is sometimes taken as an indication of market power or dominance. There are three types of effects of price discrimination on welfare and competition:

- certain customers may be charged excessively high prices;
- excessively low prices to some customers may have the effect of excluding competitors from the market. This is sometimes referred to as primary-line injury to competition through price discrimination;
- charging one customer more than another may distort competition between those customers in downstream markets. This is sometimes referred to as secondary-line injury to competition.

Price discrimination is of course a common and accepted business practice, and, according to economic theory, can in many circumstances enhance economic welfare and efficiency. As a rule of thumb, economic welfare is enhanced when price discrimination enables output to be higher than it would be in the absence of price discrimination. The provision of different mobile-phone tariffs to business and leisure users is an example of how companies can provide services to those groups of customers that are relatively more price-elastic (ie, the leisure users) and therefore how price discrimination can lead to increased output. Indeed, it has also been established that some price discrimination is desirable to enable common costs to be recovered, and certain investments to be made viable, in particular for networks characterised by strong economies of scale.[17]

That price discrimination can have ambiguous effects has led to a rule of reason approach whereby competition authorities do not condemn price discrimination by firms with market power, but rather assess the effects on welfare and competition in relation to the market structure and nature of competition in order to determine whether any of the abuses above is actually occurring.

[17] See, for example, the conclusions in Laffont, J.-J. and Tirole, J. (2000), 'Competition in Telecommunications', p. xv.

In addition to the result that price discrimination can be economically desirable, it is explicitly recognised in recital 26 of the Universal Service Directive (USD) that, for social and public interest reasons, it may be necessary for operators with SMP to depart from the underlying principle that prices should reflect costs and that forms of price discrimination such as uniform geographic pricing may be used.[18]

2.2.6 Margin squeeze

Where a vertically integrated network operator and retail service provider also gives other service providers access to its network, it has the opportunity and incentive to foreclose retail service rivals by setting high access prices, leaving little or no room for profits for the downstream operators. This is known as a *price* or *margin squeeze*. The vertically integrated firm is indifferent in principle between taking its profits upstream, or passing them on to its downstream operations. By exerting a margin squeeze, it can exploit its market power in network provision while offering a non-discriminatory tariff downstream (it makes low or negative profit in its own retail service operation). Further, by keeping profits upstream, it avoids allegations of undue discrimination.

In its *Napier Brown–British Sugar* decision of 1988, the European Commission stated that:

> The maintaining by a dominant company, which is dominant in the markets for both a raw material and a corresponding derived product, of a margin between the price which it charged for a raw material to the companies which compete with the dominant company in the production of the derived product, which is insufficient to reflect that dominant company's own costs of transformation […] with the result that competition in the derived product is restricted, is an abuse of a dominant position.[19]

According to this definition, the accused firm has to be dominant in both the upstream and downstream markets. However, from an economic viewpoint, it is sufficient that the vertically integrated firm is dominant only in the upstream market in order to be able to distort competition in the downstream market. This has been recognised by the European Commission in its 1998 notice on access agreements in telecoms, and in the UK by, for example, Oftel in its guidance on the application of the Competition Act 1998 in telecoms.

Concerns relating to margin squeeze are highly relevant to the electronic communications sector because there are many markets where a network provider with SMP is also active in retail service provision. Although outside the scope of the electronic communications Directives, a good example of a company with SMP at an upstream level which also has significant retail service activities is BSkyB. Wherever this type of structure occurs, concerns about price discrimination and margin squeeze can exist. As the regulatory tools

[18] Intuitively, it may seem that uniform pricing represents a complete absence of price discrimination. However, in economic terms, uniform pricing will involve price discrimination where the costs of supply differ for different customers.

[19] Case No. IV/30.178, OJ L 284, October 19th 1988.

to address margin squeeze are the same as those that relate to issues of access and interconnection, they are discussed together in section 3.3.8.

2.2.7 Predation and other unfair low-pricing practices

Complaints about unfair low pricing by the incumbent are particularly common in industries that are gradually being opened up to competition. As with discriminatory pricing, the legal treatment of unfair low pricing has been rather ambiguous.

It is important to make a distinction between different types of unfair low-pricing practices that may need to be addressed by a regulator. All of these are of particular relevance in markets where one or more operators hold SMP.

- *Predatory pricing*—this is the most familiar form of unfair low pricing, and involves a firm deliberately incurring short-term losses in order to eliminate its competitors, so as to be able to charge monopolistic prices in the long term. Predatory pricing requires prices to be below cost and entry barriers to be high, so that the future monopolistic prices can be sustained long enough to recoup the short-term losses. Previously, the European Commission has indicated that it would need to examine long-run incremental costs ('LRIC') as the appropriate cost floor in the telecommunications sector.

  In European competition case law, other tests have been proposed. In its first judgement relating to predatory pricing,[20] the ECJ proposed a two-pronged test. If prices are set below average variable cost, they are presumed to be predatory and thus abusive. Prices set above average variable cost but below average total cost are also presumed to be predatory, but only if supported by some evidence of intention to eliminate a weaker competitor/s. Furthermore, in *Tetra Pak II* the ECJ stated that it is not necessary to prove that the predator will raise its prices following the elimination of a rival.[21]

- *Targeted discounting*—this is another form of unfair low pricing prohibited by EC competition law. It is a form of price discrimination whereby a firm with SMP specifically targets discounts at the customers of a competitor or new entrant. These discounts do not necessarily have to result in prices below cost for an abuse to take place.

- *Cross-subsidies*—an incumbent firm may subsidise losses in competitive markets through profits from monopolistic markets. For predatory pricing, it is, in principle, irrelevant how the losses are financed (ie, whether through cross-subsidisation or, say, the 'deep pockets' of a parent company). However, competition authorities and regulators consider cross-subsidisation unfair if the profits that are used are obtained by virtue of SMP in another market. An example

[20] Case C-62/86, *Akzo v Commission* [1991].
[21] *Tetra Pak II* [1992], OJ L72/1.

of where cross-subsidies may occur in the electronic communications sector is where an incumbent local monopolist in network provision subsidises its activities in the long-distance market.

2.2.8 Tying and bundling

Tying is the practice of making the sale of one good conditional on the purchase of another. Some commentators have defined 'bundling' as a specific form of tying, where the two products are sold in fixed proportions. Tying and bundling are both forms of price discrimination, and, as with the other forms of price discrimination described above, they can have ambiguous effects on competition and welfare. The intuitive concerns in relation to tying and bundling come from the fear that a company with SMP in one market may be able to 'leverage' its power from that market to another market, thereby raising the prices above the competitive level in the tied market.

There are two mechanisms through which tying can influence (and potentially harm) competition:

- a situation where a firm has SMP for one product (good X), but faces price competition in the market for a related product (good Y). If the firm makes purchases of its good Y conditional upon purchases of its good X (tying good Y to good X), this would enable it to increase the price of good Y as it differentiates good Y from its competitors' goods. There is, however, doubt whether this strategy will enable the firm to raise its total profits. This is because, unless the tying somehow adds value, consumers will be unwilling to pay more for the package than they would to purchase the goods separately.

- the second, and generally more persuasive, mechanism is that the tying firm seeks to foreclose competitors from the tied market. By tying the goods together (perhaps by selling the package at a reduced total price), the firm seeks to secure the sales to all those consumers who wish to purchase both products. Potential competitors will therefore have fewer potential customers to try to sell to. If sufficient consumers wish to purchase both products then this reduction in available customers for competitors may make their operations no longer viable.

Any analysis of tying must also consider whether the tie is a pure tying arrangement, meaning that the goods are only sold together, or whether the arrangement is one of mixed tying, meaning that, as well as being sold as a package, the products are sold separately. Mixed tying is less likely to create competitive concerns than pure tying.

Tying and bundling strategies can also lead to considerable benefits in terms of realised efficiencies. For example, tying and bundling can enable the firm to exploit economies of scope. Consumers will benefit when these benefits are passed on in the form of lower retail service prices.

Tying and bundling are prevalent in the electronic communications markets. For example, many cable companies will provide fixed-line telephony services together with a package of pay-TV channels. Generally, telephony operators bundle the 'access' service (ie, the telephone line) together with the 'call' service.

2.2.9 Exclusive contracts and exclusive dealing

A further concern relating to vertical relationships (relationships between players at different levels of the production or distribution chain) is that of exclusive arrangements between one or more firms with SMP. Vertical relationships are normally arrangements between firms, rather than between businesses and consumers.

A content supplier with SMP (eg, a company creating television channels) can require its customers (retail service providers) to purchase their supplies only from that company. Such deals can be accompanied by a commitment from the supplier to support marketing and/or other promotional activities that the retail service providers undertake, in which case there are positive efficiency effects. However, exclusivity can make it more difficult for existing competitors at the upstream level to expand their sales, or for potential competitors at the upstream level to obtain access to retail service customers.

Likewise, if a retail service provider with SMP prevents its suppliers from also selling to its competitors, this can prevent rivals (including new entrants) from increasing their competitive impact in the downstream market. An example here would be of a company with market power in the pay-TV market that requires its content providers not to supply their content to other pay-TV operators.

2.2.10 Unfair contract terms

'Unfair contract terms' is a legal, rather than an economic, description of a variety of non-price factors that can be introduced into contracts and could, either alone or together with other elements, impede competition. Regulation of unfair contract terms can, at its least interventionist, involve regulators signalling to the regulated companies that the companies should not impose unfair contract terms in their dealings with either competitors (in relation to access and interconnection) or customers. At a more interventionist level, the regulators could require the companies to provide copies of the contracts and agreements that the regulated company has with its competitors and/or customers, thereby enabling the regulator to examine and monitor the terms and conditions contained in the agreements.

The rationale for regulating unfair contract terms is to minimise the risk that the incumbent players could reduce the strength of existing or potential competition by seeking to foreclose the markets. This could occur through tying or bundling of products together, as outlined in section 2.2.8. Other relevant matters here include the length of the contracts and whether they contain restrictions that are not justified by the nature of the good or service being provided.

Unfair contract terms can also directly affect end-consumers (eg, lock-in, loyalty benefits)—ie, a provider with SMP can exploit its customers by offering unfair terms and conditions, and these customers have little opportunity to switch to competing providers. In such circumstances regulators might introduce *ex ante* regulatory measures. However certain consumer-protection mechanisms to deal with this kind of abuse are in place, in addition to the electronic communications directives.

3. Regulatory Tools

3.1 General principles

As a general principle, first regulators should seek actively to promote and to enable competition in the sectors that they regulate. This principle is set out explicitly in Article 8.2 of the Framework Directive. Regulation should only then be introduced to deal with those issues which cannot be resolved through increased competition. Where measures to liberalise and promote competition can be introduced, some temporary regulation may be required in the transitional period.

As noted in section 1, the Framework Directive obliges NRAs to impose *ex ante* regulation when they have found that market not to be effectively competitive with one or more firms having SMP.[22] Furthermore, the AID gives specific guidance on the range of regulatory obligations relating to access and interconnection for network provision markets.[23] An NRA could impose an action outside of those noted, but would require specific authorisation from the European Commission.[24] The possible obligations are:

- transparency;
- non-discrimination;
- accounting separation;
- obligations for access to, and use of, specific network facilities;
- price control and cost-accounting obligations.

The USD sets out similar requirements for operators with SMP related to retail service markets.[25] In addition, it contains a number of obligations that apply independently of whether an operator has SMP (regulatory controls on retail services, availability of the minimum set of leased lines, and carrier selection and pre-selection). These obligations on operators without SMP are not explicitly dealt with in this paper since the problems they address are different in nature from the problems arising when one or more firms has SMP.

This section addresses a broad range of possible *ex ante* regulatory instruments, which go beyond those instruments explicitly mentioned in the Directives. The objective of the paper is to present a generic overview of the full choice of regulatory options that could be adopted, in order to contribute to the policy debate. Where a regulator wishes to impose obligations on a network operator that are not specifically covered in the AID, the

[22] Article 16.4
[23] Articles 9–13.
[24] Article 8.
[25] Articles 17–19.

regulators can 'submit this request to the Commission', which shall then 'take a decision authorising or preventing the national regulatory authority from taking such measures'.[26]

Table 3.1 sets out all the instruments discussed in this section, and identifies those which are specifically allowed under the electronic communications Directives. A distinction is made between structural tools (dealt with in section 3.2) and behavioural tools (dealt with in section 3.3). Each instrument is described and then the rationale for using it is considered along with its strengths and weaknesses.

Table 3.1: Available regulatory tools

	Addressed in electronic communications Directives?	
Regulatory tools: structure		
Horizontal separation	×	
Vertical separation:		
splitting an integrated company	×	
accounting separation	✔	FD, Art 13; AID Art 11
Licence separation	×	
Mandatory merger investigations	×	
Regulatory tools: conduct		
Availability/publication of information	✔	FD Art 5.4, AID Article 9, USD Article 21 & 22,
Regulatory monitoring of:		
the effectiveness of competition	✔	FD Art 16
companies' behaviour	✔	Authorisation Directive, Art 10, USD Art 16, 17
Consumer rights and scrutiny		
Price transparency	✔	AID Art 9, USD Art 21
Quality-of-service regulation	✔	USD Art 11 & 22
Non-discrimination rules	✔	AID Art 10
Incremental cost-pricing rules (preventing predation)	✔	USD Art 17
Margin-squeeze rules	✔	AID Art 13.1
Transfer-price regulation	✔	AID Art 11.1
Access regulation and requirements	✔	AID recital 6
Price regulation	✔	AID Art 13, USD Art 17
Cost regulation	✔	AID Art 13, USD Art 17

[26] Article 8.3 of the AID.

3.2 Regulatory tools: structure

3.2.1 Horizontal separation

Horizontal separation involves the break-up of an entity into two or more separate firms, normally to be held by separate owners. Horizontal separation is perhaps the most draconian measure that can be taken to address competition concerns in a sector. The most famous example of horizontal separation in electronic communications is the 1984 break-up of AT&T into a long-distance operator (still called AT&T) and seven regional Baby operating companies (the Baby Bells).

The rationale for instigating horizontal separation is to break previously monopolistic companies into smaller firms in order to introduce structural conditions that may facilitate competition. Although market structure is not the only factor that affects the state of competition in a market, it is undoubtedly a very significant one.

One of the main points in favour of horizontal separation is that, through its direct effect on the structure of the market, it is probably one of the best means of ensuring that effective competition is introduced into the market in question. Horizontal separation and the introduction of competition should lead to improved productive efficiency and to resulting welfare gains, as companies facing competition seek to minimise their costs and to pass these savings to consumers in the form of price reductions. Competition can also create incentives for companies to speed up their innovatory activity.

A further rationale is that, even where liberalisation does not remove the need for regulation, the quality of information that is available to the regulator is likely to be significantly better when there are several operators present in a market than when there is just one operator. This higher-quality information should enable the regulator to improve the quality of its decisions.

There are a number of potential weaknesses related to a policy of horizontal separation.

- Horizontal separation can be an appropriate measure to take when the industry is not characterised by naturally monopolistic conditions. If production were characterised by economies of scale up to and including the level of production required in the economy, it would be more efficient for one firm to produce the entire output than for several firms to produce that output. A natural monopoly can also exist if economies of scale are exhausted at, for example, 90% of industry output, since the remaining 10% would not be sufficient for an alternative producer to achieve efficient production.[27]

[27] If an industry does exhibit naturally monopolistic conditions, it would be efficient to allow one company to produce the entire output. However, in such circumstances, it may also be necessary to regulate the prices charged by that monopolist to protect consumers from abuse.

- Horizontal separation can also lead to some duplication of fixed costs as there would be a number of firms where there used to be only one. The trade-off between the benefits and the additional costs will need to be considered by the regulator when determining whether to use this regulatory instrument.

- Horizontal separation and liberalisation can create costs for both the regulator and the company/companies involved. Liberalisation involves the establishment of some arbitrary structure imposed by government, which may have little bearing on the company-specific cost structures.

3.2.2 Vertical separation

Vertical separation can take different forms:

- absolute separation involves splitting the incumbent integrated company into two or more separately owned companies. This could involve one owning the infrastructure, the other(s) the retail service business; or it could involve separating local infrastructure from that used for long-distance communications (eg, local-loop unbundling and the break-up of AT&T);
- a weaker form involves a requirement for a vertically integrated firm to produce separate accounts for the different stages of its operations, with costs allocated accordingly.

The rationale for instigating a policy of vertical separation is to separate vertically related activities which have fundamentally different economic structures. For example, network provision can be naturally monopolistic, whereas service provision over that network could be best provided in a competitive environment. Vertical separation can be a precursor for policies of horizontal separation.

Vertical separation is more attractive when the terms of access to the network are not readily observable when the trade is within a vertically integrated company. One of the reasons why the US authorities decided to instigate the break-up of AT&T was the difficulty of observing what was happening internally in the company's integrated structure. The same may be the case in many vertically integrated companies in the electronic communications sector; however, there have been considerable developments in the techniques for internal accounting separation, thereby increasing transparency.

One weakness of vertical separation is that it can reduce efficiency when there are economies of scale in service provision or if the regulator expects that the market for service provision will not be effectively competitive. In that situation, vertical separation can create circumstances when both the infrastructure supplier and the service suppliers could hold positions of market power, and set their prices accordingly (this is termed 'double marginalisation'). This would lead to lower output and higher prices than when the service is provided by a vertically integrated monopolist, thereby leading to welfare losses and causing harm to consumers.

The weaknesses of accounting separation are that the form of separation applied (either by the company itself, or by the regulator) may be unrelated to the way the company organises its business. This will create additional costs for the business. Furthermore, regulatory accounts need careful monitoring as there are issues concerning, for example, the allocation of common costs, which can have a significant impact on the accounts of the regulated company and which feed into the regulators' decisions.

3.2.3 Licence separation

In some regulatory environments, operators are required to obtain a licence to operate. However, under the terms of the Authorisation Directive,[28] NRAs will be specifically prevented from operating licensing schemes. This tool is therefore not immediately available to NRAs.

Where applicable, licence separation is a tool which can be used to promote separate operation, but without enforcing full business separation (horizontal or vertical). Enforced licence separation is more frequently applied in regard to vertically integrated companies than in relation to horizontal concentrations. At the horizontal level, it may prevent newly merged companies from obtaining efficiencies in their operations. However, it may be considered necessary for maintaining comparators in yardstick regulation.

Licence separation is considerably weaker than structural separation in terms of promoting competition. It is a regulatory tool that is more frequently used to ensure that the companies are able to provide the regulator with sufficient information on the separate regulated businesses, enabling the regulator to monitor the companies' behaviour.

3.2.4 Mandatory merger investigations

Provisions could be established which enforced mandatory investigations into those mergers involving, say, those companies which the NRAs have deemed to have SMP.

The rationale for such measures is to ensure that any proposals to increase horizontal concentration or vertical integration in the sector are subject to thorough examinations by the appropriate authorities. Such provisions can seek to address purely competition matters, or, in specific circumstances (eg, the water industry in the UK), they can address the availability of comparator information and the impact this has on the regulator's ability to regulate effectively. In highly concentrated markets where SMP is known to exist, increasing concentration can be particularly problematic.

The strengths of such an approach is that many mergers do bring about significant increases to the level of concentration in a market and can enable companies either to obtain market power or to increase their market power.

Furthermore, as a company with SMP could strengthen its position by taking over a relatively small rival, a scheme for mandatory investigation could be designed in such a way that all deals involving those companies deemed to have SMP could be caught.

A disadvantage of mandatory merger reviews is that they could deter efficient mergers from taking place. There are many reasons why companies seek to merge, many of which are either beneficial to the economy or at worst benign. For example, mergers may enable companies to obtain economies of scale or scope more quickly than by means of incremental growth. Furthermore, the existence of an active market in corporate control

[28] See Article 3.2.

provides incentives on incumbent managers to improve their performance or be taken over and removed.

Rarely would there be justification for a prohibition *per se* on concentration in a sector.

3.3 Regulatory tools: conduct

3.3.1 Availability of information

Availability of information covers the provision of information to a number of groups. It involves the designated companies providing information to the regulator, to consumers or consumer representatives, and to competitors. The types of information in question are different for each of these. The regulator could require information on prices, costs, investment plans, performance, details of contractual arrangements and other accounting information. Consumers need to have access to information on the products available and their tariffs and prices, as well as on the quality of service provided by the companies, while competitors may need technical information that will enable them to design their own products and services in such a way that they are compatible and so that their products can inter-operate.

The basic rationale for providing such information is as follows. For regulators, information is vital for them to be able to regulate. Overcoming the information asymmetry inherent in the fact that regulated companies know more about their businesses than the regulator is one of the greatest challenges that regulators face.[29] For consumers, information is important because it enables them to make well-informed decisions about their suppliers, and can therefore help them to increase the competitive pressure that they exert on incumbent suppliers (see section 3.3.3). For competitors, the rationale is to try to make sure that companies with SMP do not use their technical or economic information to advantage themselves unfairly.

The Directives contain several references to information gathering. Recital 13 of the Framework Directive sets out the principle that NRAs, either on their own behalf or on behalf of the European Commission, will need to gather information from market players in order to carry out their tasks effectively. Article 11 of the Authorisation Directive specifies certain constraints on the purposes for which regulators can obtain information from undertakings operating under the general authorisation. Articles 21 and 22 of the USD detail requirements in relation to the provision of information to consumers. Finally, Article 9 of the AID enables NRAs to establish requirements for the provision of information by network operators, which may range from information on pricing, terms and conditions, to publication of technical interfaces and network information.

[29] Given the benefits of being able to compare between firms, information asymmetries are greater when a regulator is regulating a single monopolist than when several companies in the same market are facing regulation. The structure of the market therefore affects the regulator's ability to regulate.

The strengths of information gathering and provision are closely linked with the rationale for obtaining the information. Regulators are able to do their jobs more effectively if they have ready access to sufficient information to be able to investigate complaints more quickly and efficiently than if they first had to obtain information from the companies concerned.

Obtaining information, and establishing systems to obtain that information, forms part of the regulators' role of monitoring the state of competition in the electronic communications sector. As shown in section 2, many competition concerns arise not only from the structure of the markets in question, but also from the behaviour of the companies which operate in those markets. Regulators should therefore ensure that they have systems established to be able to monitor effectively the behaviour of these companies in question. These systems will allow regulators to monitor the behaviour and the performance of the companies and to identify whether their behaviour is anti-competitive.

Regulators can also require a company to make public various pieces of information, for example, about its performance, or the number and type of complaints received, without channelling this information through the regulator. In effect, this passes the monitoring role to consumers or to external bodies who collect and disseminate such information.[30]

Improving the quality of information that companies with SMP provide to the regulator can by itself have beneficial effects on the companies' behaviour—even if the regulator does not actively review and monitor that information. This is because the act of gathering and preparing the information may make the companies more aware of the manner in which they behave and alert to the possibility that the regulator is observing their behaviour.

The most significant weakness of the information-gathering process is that obtaining and presenting information can be an extremely costly operation for the companies involved. This is recognised in both the Framework and the Authorisation Directives[31] by requiring that information requests made by the regulator should be proportionate, and should not impose an undue burden on the undertakings. Furthermore, the recital sets out the principle that non-confidential information that is collected should be publicly available.

One further factor to consider in oligopolistic markets is that increasing the availability of information between the companies in the oligopoly may facilitate their task of reaching a coordinated outcome. This can provide a case for only providing the information to the regulator and not making it publicly available.

[30] USD, Articles 11 (for universal service operators) and 22 (for operators with SMP in retail service markets).
[31] Recital 13 of the Framework Directive and Article 11 of the Authorisation Directive.

3.3.2 Consumer rights and scrutiny

Regulators can take specific actions to improve, first, consumers' awareness of their rights, and, second, the ability of consumers to exercise these rights.

The rationale for increasing the say that consumers have in relation to companies with SMP is that, by ensuring that consumers have effective rights and a means to enforce these, this will increase the pressure on the companies to maintain and/or improve their performance.

Bodies representing consumers can be set up within the regulator or can be established as separate stand-alone organisations. They can perform one or all of the following functions:

- pursue individuals' complaints;
- make 'super-complaints' on behalf of whole groups of consumers;
- gather information directly from the companies;
- compile and publish comparative price information to promote consumer switching and competitive pressure;
- compile and publish information on quality of service and other performance measures of the companies;
- monitor information provided by the companies to assess performance, eg, service standards;
- establish codes of practice for companies' dealings with consumers;
- undertake independent research to assess companies' performance.

As highlighted in section 3.3.1, increased availability of information about companies' performance can, by itself, affect the performance and behaviour of those companies; these effects are likely to be greater when the pressure from consumers is channelled through a specific consumer body. This is particularly so when the information provided by the companies requires a certain degree of specific knowledge or expertise in order to understand and interpret that information. Consumer bodies can overcome this lack of knowledge.

A further strength is that a consumer body can also improve credibility in the regulatory regime by minimising the risk that the regulators are perceived to have been captured by the companies they are regulating.

3.3.3 Price transparency

Regulators can take actions to oblige the regulated companies to increase the transparency of their prices. Indeed, the Framework Directive sets out as a regulatory principle that NRAs should promote 'the provision of clear information, in particular requiring transparency of tariffs and conditions for using publicly available electronic

communications services'.[32] The USD provides more specific guidance for regulators in relation to the information that retail service providers with SMP must provide.[33] The issue of providing information to consumers has already been addressed briefly in section 3.3.1, but it warrants further attention.

The rationale for increasing price transparency is to promote competitive pressure. This is achieved through several mechanisms, including the following:

- price transparency shows existing consumers whether they are getting the best deal from their current supplier. It can therefore reduce switching costs and encourage more consumers to change supplier;
- for new customers, price transparency lowers the costs involved in finding the best deal. It can therefore reduce the advantages that incumbents may have in acquiring new customers;
- price transparency can reveal differences in prices being charged by companies, and can therefore limit the ability of those companies to discriminate unfairly.

Price transparency should therefore be promoted in sectors where there may otherwise be relatively high costs or difficulty for consumers in obtaining good quality comparative information about the services available to them. Consumers may, however, need to obtain a certain degree of technical expertise in order to understand properly the significance of the information they obtain.

As with the general information provision requirements discussed above, there are two potential weaknesses. First, there are costs involved in gathering and providing information. Second, promoting price transparency can also potentially create competitive harm in markets that are prone to collective dominance, as a high degree of transparency can make it simpler for the few companies present in the market to monitor and to coordinate their behaviour.

3.3.4 Quality-of-service regulation

Tools to address quality of service range from obliging companies to publish information on their performance according to their own standards, through to imposing specific service standards on the companies and enforcing these standards with financial penalties for failure to meet the targets.

The rationale for introducing such tools is that quality, like quantity, is a choice variable that a firm with SMP can influence so as to maximise its profits. A firm with SMP will choose the quality of its output so that the marginal revenue it obtains from an increment of quality is equal to its marginal cost. In the same way that a dominant firm's decisions with respect to price and quantity lead to lower output and higher prices than under a competitive outcome, thereby creating a welfare loss to society, a similar result exists in

[32] Article 8.4(d)
[33] Articles 21 and 22

relation to quality. Firms with SMP are therefore likely to undersupply quality from society's perspective.

A further rationale for introducing quality regulation is that this can increase the competitive pressure that is brought to bear upon the incumbent players. For example, in retail service markets, quality-of-service regulation can promote competitive pressure, as it can encourage consumers to switch away from those companies who undersupply quality.

There are certain risks involved in regulating quality. The stronger the form of quality-of-service regulation adopted, the more likely it is that undesirable distortions may result from the regulator's actions. For example, when there are several dimensions to quality of service, but the targets and standards set only relate to a subset of these, the outcome may not accurately reflect consumers' tastes.

3.3.5 Non-discrimination rules

NRAs are themselves under an obligation not to discriminate in their treatment of operators providing electronic communications networks and services.[34]

In relation to non-discriminatory obligations on operators, as highlighted in section 2.2.5, some discrimination can be beneficial. In this context it is interesting to note that the Directives provide for different obligations for retail service markets than for network service providers. Article 10 of the AID contains specific reference to obligations of non-discrimination in relation to interconnection and access, whereas the USD which contains the provisions for regulating the retail service markets, does not contain specific reference to non-discrimination, but instead refers to 'undue preference'.[35]

One adverse effect of non-discrimination obligations on a network service provider is that consumers may be discouraged from negotiating better terms, therefore allowing their input prices for the network service provision to be higher than otherwise. This would happen if the non-discrimination requirements forced the network service provider to pass on price reductions negotiated with one customer to all its customers.

3.3.6 Unfair pricing and incremental cost-pricing rules

Rules can be established to govern companies' pricing behaviour. While companies with SMP should be aware of the European case law that relates to predatory pricing and the restrictions that this bestows on their behaviour, regulators may consider that the cost basis of the pricing rules established in the *Akzo* case by the ECJ[36] are not directly relevant to the electronic communications markets. In the electronic communications markets, as the level of investment that a company has made in its existing assets may not

[34] Framework Directive, Article 8.3(c).
[35] Article 17.2.
[36] Case C-62/86, *Akzo v Commission* [1991].

represent the investment that a new entrant would have to make now (due to technological advances), an appropriate measure of costs below which prices must not fall could be the (forward-looking) LRICs.

The rationale for establishing incremental cost-pricing rules is to seek to ensure that companies do not behave in a predatory manner in order to eliminate existing competition and to raise entry barriers, thereby foreclosing the market and reducing the strength of future competition. Other rules addressing unfair pricing would also aim to ensure that foreclosure does not take place.

One possible benefit of establishing such *ex ante* rules is that incumbents may face greater certainty about their position and about how strongly they can compete on price. This may enhance the strength of competition within the bounds set by the pricing rule.

There are significant risks involved in over-regulating pricing behaviour and weaknesses in the mechanisms for establishing and monitoring pricing behaviour. First, there are significant problems proving allegations of predatory behaviour, even when that behaviour is being examined *ex post*. The fact that it can be difficult to prove that a company's pricing behaviour has been predatory, even *ex post,* brings into question the justification for regulating *ex ante* to prevent such behaviour.

All forms of *ex ante* price regulation risk distorting outcomes to a greater extent than they would be in an unregulated market. Furthermore, establishing pricing rules based on LRICs may not enhance a company's certainty about the pricing behaviour that may or may not be allowed. This is because LRICs are not simple to estimate as they require bottom-up cost models. Establishing pricing floors may also involve the regulator (unintentionally) in decisions about entry.

3.3.7 Access requirements

Providers of networks and interconnections services may be subject to regulation under the new regulatory framework, in particular, under the rules set out in the AID. As described in section 2.2.4, a network operator can provide one-way access services to both retail service providers and to other network providers. Two network providers can also supply each other with two-way access to their networks, in which case the services are known as interconnection services.

At its most active and intrusive, access regulation would involve a system of price regulation whereby the regulator sets (maximum) access prices that the network provider can charge. A less active means of regulating access would involve informing potential service providers that the network provider(s) are obliged to accept reasonable requests for access and to do so on fair, reasonable and non-discriminatory terms and conditions. The regulator would then simply deal with complaints as and when they arise.

The rationale for regulating access is to promote effective competition for retail services, to promote competition in network provision, and to ensure end-to-end connectivity. Article 5.1 of the AID contains provisions in relation to end-to-end connectivity that apply not just to those operators designated to have SMP, but to all network operators where access to and interconnection with that operator's network is essential in order to ensure end-to-end connectivity.[37]

Regulation of access raises specific issues in relation to the nature of competition that regulators are trying to promote. In particular, regulation of access to one network provider's network might reduce the incentives for others to invest in potentially competing networks. Excessive regulation of access to a network in the interests of promoting competition among service providers in the short term may therefore entrench the position of that network operator and create longer-term harm.

Conversely, if regulation does not provide for sufficient access to an incumbent's network facilities, this can create incentives for companies to invest too much in new networks.

The nature of the access price-setting mechanism can also determine whether the access regime promotes competition at the retail service level or at the network provision level (sometimes referred to as facilities-based competition). For example, two basic methodologies can be adopted for setting access prices: a 'retail-minus' methodology and a 'cost-plus' methodology.[38] The retail-minus methodology sets access prices by taking the integrated incumbent's retail prices and subtracting an amount for the costs that the incumbent no longer incurs when it loses customers at the retail service level. Alternatively, under 'cost-plus' pricing, prices can be set on the basis of the costs that the incumbent incurs in providing the network rather than retail-minus.

Retail-minus access charging is more suited to regulating those access markets where competition is increasing. Indeed, retail-minus charging can encourage investment in new networks and thereby favour facilities-based competition. On the other hand, cost-plus access pricing may be more appropriate where the upstream SMP is entrenched, and unlikely to be lessened through the introduction of competing networks. Until recently it was common practice in telecommunications regulation to make a distinction between access to providers with a network of their own (the Annex II operators) and access to service providers, whereby the latter were charged retail-minus and the former cost-plus. However, this has been subject to debate and there is now a general tendency also to give service providers access on a cost-plus basis (eg, Spain, France and the UK).

Appropriate regulation of access therefore depends on whether a network can be economically duplicated. If a regulator believes that it is feasible to duplicate then it

[37] Article 8.3 of the AID prevents NRAs from imposing the obligations contained in Articles 9–13 on the operators without SMP.

[38] These two methodologies are generic descriptions of the tools available. In practice, access charges can incorporate many different factors, such as capacity charges and peak-load prices.

should seek to regulate for entry. In the short term, this may involve less restrictive price regulation, in order to ensure that potential network providers have sufficient incentives to enter. As new networks are introduced, it may become not viable to introduce another network. At that point, it may be that there is effective competition in network provision and the regulator need take no further action. However, if the new networks have not created conditions of effective competition and there is a position of joint dominance in the market for network service provision, the regulator would need to modify the form of regulation to take into account this change. This may involve more active regulation of access and interconnection.

As this example shows, there are complicated judgements involved in determining an appropriate level of access. Regulators' actions in this field can lead to distortions in companies' investment decisions and can generate incentives either to over- or under-invest. Furthermore, the strength of access regulation adopted can influence decisions taken by firms on whether or not to enter a market.

3.3.8 Transfer-price and margin-squeeze regulation

Transfer prices are the prices that a vertically integrated company charges itself for a product or service supplied between its upstream and downstream businesses. Transfer pricing is significant in the many regulated sectors where vertically integrated companies are active.

Regulation of transfer prices can control a price-regulated company's ability to raise its cost base (and therefore its allowable prices) by artificially raising the costs of the inputs it supplies to itself.

Regulation of transfer prices is also a tool that can be used to counter discriminatory behaviour by a company with SMP. This is specifically recognised in Article 10.1 of the AID, which authorises NRAs to 'require a vertically integrated company to make transparent its network prices and its internal transfer prices *inter alia* to ensure compliance where there is a requirement for non-discrimination'.

As highlighted above, concerns about the effects on retail service competition of a network provider's actions can result from discriminatory behaviour or from margin squeeze. Three methods can be used to assess whether a vertically integrated company is imposing a margin squeeze: assessing whether the company's downstream business makes a profit; assessing whether a reasonably efficient downstream operator can make a normal profit or determining directly the price–cost margin on the network products. This last method enables regulation of the margin on network products directly, which is the optimal approach to prevent excessive network pricing, and thereby margin squeezes.

The problem of margin squeeze has been recognised by the UK regulator OFTEL, and has been addressed in two ways.

- First, Oftel determined that, as a general rule, each retail tariff offered by BT should be accompanied by a corresponding wholesale tariff with the same structure, so as to prevent margin squeeze in fixed telephony. The flat-rate Internet access (FRIACO) product, which was introduced to enable other operators to compete effectively in the provision of unmetered Internet access, is an example of this.

- Second, Oftel operated a formula to regulate margin squeeze by Vodafone and O2 in the mobile telephony market. As Vodafone and O2 had market power at the upstream network level, they could leverage this market power into the downstream service provision level by unfairly cross-subsidising their tied service providers (TSPs). Such leverage would result in the profit margin of independent service providers being squeezed as they face the same wholesale charges as TSPs and must compete with the retail prices of TSPs. Hence, Internet service providers faced the risk of being excluded from the market. The Oftel formula used a discounting technique to assess whether a TSP was making an adequate return over the life of a subscriber once the cost of acquiring that subscriber had been taken into consideration.

3.3.9 Price regulation

Price regulation is a form of incentive regulation, so-called because not only does it set limits to the prices that a company can charge, but by doing so, it creates incentives for the company to improve its level of efficiency. Cost regulation is therefore intrinsically related to the form of price regulation adopted.

There are three factors that together provide a rationale for regulating prices. Price regulation:

- enables excessive prices to be controlled.
- can generate incentives for improving productive efficiency
- enables the benefits of improved efficiency to be shared with consumers..

The strongest forms of price regulation involve some form of price determination, with the regulator determining, for example, the maximum price chargeable to consumers over a period of time. The methodologies available for NRAs to reach such a determination include the following.

- *RPI – X formula*—pure price-cap regulation involves the setting of prices over a long period of time so that a well-run company can expect to earn a fair rate of return, but the opportunity to earn higher profits gives it a greater incentive for efficiency.

- *The tariff-basket versus revenue-yield approaches*—within the basic RPI – X framework, specific options could be adopted. These include using tariff baskets (in which price caps are applied to a basket of services) or revenue yields (in which they are applied to the average level of revenue recovered per defined unit of output, such as households). These approaches have important implications for the flexibility of pricing strategies, and the incentives to load relative price increases onto particular classes of service.

- *Rate-of-return regulation*—under pure rate-of-return regulation, a company is guaranteed an agreed rate of return on capital, and its prices are adjusted as required to ensure that this rate is earned. In this situation, the company bears very little risk, as any unforeseen costs can quickly be passed on to customers. Due to the lack of risk, the agreed rate of return can be fairly low, and prices to customers can be kept down.

- *Profit sharing*—profit-sharing and sliding-scale systems have been suggested as ways of reducing problems related to RPI – X schemes, but these raise important issues regarding incentives and the measurability of profits.

- *Error-correction mechanisms*—several means of adjusting the basic price-control system could be considered to reduce the impact of information uncertainty. These could include correction mechanisms for deviations in the capital programme or the volumes of calls, or pass-through of certain types of costs, for example input costs over which the companies have no control.

- *Tariff approval*—this is a relatively weak form of price regulation as it does not involve the regulator setting allowable prices or revenues. Instead, the companies may simply need to obtain regulatory approval for their pricing schedules. The effects of tariff-approval schemes are more likely to be transmitted through the positive effects of having increased information available to the regulator (and to consumers if those tariffs are published) than through the act of regulatory approval itself.

Price regulation can be a very powerful tool to generate efficiencies over time. There are, however, difficulties in its application. First, because price regulation encourages companies to seek cost savings, this may result in a drop in service quality. Price regulation therefore needs to be underpinned by regulation of service quality.

As shown above, there are many methodologies which can be adopted to regulate prices. The appropriate choice requires an assessment of the approaches against a series of criteria reflecting the objectives of the regulatory regime and against the risks that the incumbent players face. For example, price caps can limit the prices that individual consumers pay, but, if based on estimates of demand growth that turn out to be too high, they could threaten the viability of the incumbent.

Furthermore, price regulation can create incentives for the regulated companies to distort their behaviour, for example by allocating common costs to regulated parts of its business. Price regulation can also distort a company's incentives to invest in order to satisfy the criteria of the regime.

3.3.10 Cost regulation

The form of cost regulation is intrinsically tied to the form of price regulation. Indeed, it is not apparent that there are circumstances when a regulator would wish to regulate costs without also regulating prices.

The main impact of the forms of price regulation on costs and efficiency are as follows.

- *RPI – X formula*—fixing the maximum prices that a company can charge for a period of time provides incentives for that company to reduce its costs as early as possible during that period, in order to earn higher profits for as long as possible before the following price determination.

- *Revenue caps (versus price caps)*—a variation on the basic price-cap framework, revenue caps limit the total income of the company rather than the per-unit price it charges. This system makes sense when the majority of a company's costs are

fixed rather than increasing with the number of units sold; a revenue cap reduces the risk exposure of the company without undermining cost incentives. Indeed, a revenue cap would retain the incentives to reduce total costs. On the contrary, imposing a revenue cap in the case where the costs of the regulated company are largely variable would increase significantly the risks faced by the firm, if the revenue cap is binding.

- *Rate-of-return regulation*—this provides weaker incentives for cost efficiency than price- or revenue-cap forms of regulation. In this situation, the company bears very little risk, as any unforeseen costs can quickly be passed on to customers. Due to the lack of risk, the agreed rate of return can be fairly low, and prices to customers can be kept down.

- *Error-correction mechanisms*—as these effectively weaken the absolute limits provided by price-cap regulation schemes, they may also weaken the incentives that companies face to improve their efficiency. The precise impact depends on the nature of the error-correction mechanism adopted and the factors which it covers.

Whichever form of price and cost regulation is adopted, there will be particular challenges for regulators in determining which costs should be included and where they should be allocated (especially when the regulated company operates in a range of markets with varying effectiveness of competition).

As with price regulation, cost regulation risks distorting investment decisions. In particular, if the regulated companies perceive a risk that the regulator will challenge the validity of their investments after those investments have already been made then the incentives to invest will be reduced.

4 Matching Regulatory Tools to Competition Concerns

4.1 Introduction

This section draws together the previous two sections. Identified below is the range of regulatory instruments (selected from those in section 3) that could be used as *ex ante* measures to address each of the potential competition problems outlined in section 2.

For each competition problem, there is a variety of measures that a regulatory authority could introduce, ranging from minor involvement in the market to the most interventionist involvement. The former might involve acquiring information in order to assess the conduct of firms in the market at a later stage, while the latter could be some form of structural separation of the firm(s) in question. The range of policy options for each potential competition problem is presented in order of increasing intervention (ie, with the least interventionist first).

A general distinction can be made between the instruments in terms of those that are passive and those that are active. Passive regulatory action involves regulation that does not intervene directly in the conduct of the firms in the market in advance of anti-competitive practices occurring. Rather these forms of measures attempt to influence the conduct of the firms indirectly, and so avoid the potential abuse(s), and/or they may allow the regulator to monitor the market and have readily available the relevant information to make speedy regulatory decisions should any abuse arise.

On the other hand, active regulatory practices are those where the regulator intervenes directly in the conduct or structure of the firms with SMP (and sometimes all the firms in the market). Examples could be a prohibition of a particular activity (eg, non-cost-based discounts) or a separation of multiple licences held by a firm, so that there is an arm's-length relationship between the two licensees. Active regulatory instruments are more likely to be used where the regulator has a strong belief that SMP may be abused without the *ex ante* measures.

The objective of this paper is to present the available options rather than to offer a prescriptive approach to imposing *ex ante* regulation on firms with SMP. To this end, it would be for OPTA to choose between the different regulatory instruments, according to the level of concerns in each particular market where firms have SMP. However, there are several guiding principles that can be employed to help discern the most suitable measure.

- *Regulatory best practice*—it is generally accepted regulatory best practice that any regulation introduced by an NRA should be the minimum necessary to address adequately the problem that has been identified. Indeed, the Framework Directive itself identifies the need for proportionality in the application of *ex ante* regulation.[39] Therefore, one of the criteria for determining the appropriate

[39] Article 8.1

regulatory instrument in any given market situation is the seriousness of the potential adverse competition effects that could arise if the firm with SMP were to abuse its position.

- *Liberalisation and promoting competition*—regulation will only resolve competition problems if it properly addresses the source of the SMP. That is, the potential abuses outlined in section 2 result from the exploitation of SMP, so simply attempting to stop a particular abuse does not address the root cause of the problem—the SMP itself. Therefore, where possible, the factors that allow the SMP to persist should be targeted. Only if it is not possible to remove the SMP (such as where a network is a natural monopoly), should regulators address the *consequences* of the SMP specifically. The removal or reduction of market power results from increased competition in the relevant market, and encouraging competition is emphasised throughout the guidance for the Framework Directive. Therefore regulators should seek to liberalise markets and promote competition in the first instance. Further, they should continually monitor the competitive situation within the markets in which they intervene, in order to determine whether regulation continues to be necessary, or whether there is sufficient competition to remove the position of market power that was of concern.

- *Network-versus service-based competition*—one of the most important decisions facing a regulator in considering an integrated network provider is whether they should encourage competition at the network or service level. The former implies competition *between* networks, while the latter involves competition within a *single* network. This choice of fundamental approach to encouraging competition has different implications for the regulatory instruments that are employed, and may even result in different structures of the control being adopted for the same instrument. In general, where it is considered that a rival network is unlikely to be developed, competition is based on rivalrous provision of services over that single network, which would require the specification of an access regime for third-party service providers. If competition between different networks exists, or is likely, regulation may be introduced to encourage the development of the competitive market, and, potentially, the protection of an entrant or small incumbent from abuse of SMP by a larger incumbent.

- *Single versus joint dominance*—the Framework Directive provides that the existence of SMP in a market is not limited to a single firm, but such a position can also be held by several firms jointly (collective dominance in the Article terminology). A regulator would need to take into account the different market impacts of the regulatory instruments it proposes to introduce in situations where there is joint rather than single dominance. This is because some measures may actually exacerbate the likely detriment by facilitating closer coordination of the firms. For example, a requirement to increase price transparency (often through publication of tariffs) may aid small rivals where one firm alone holds SMP, but it could enable oligopolistic firms to monitor effectively each other's pricing strategies and provide a method for reducing direct price competition.

4.2 Competition problems and regulatory instruments: network provision

Where an upstream firm has market power, there is always likely to be the possibility of anti-competitive behaviour, either towards its upstream rivals, or in terms of abusing the

downstream purchasers. Consumers may be affected if the prices in the retail service market are higher as a result of this anti-competitive activity.

This section identifies the measures that might be used to address abuses of market power aimed at rivals in the upstream market. It also considers the options that are available to a regulator when a firm is vertically integrated, or acts in a vertically related market.

Many of these competition concerns relate to situations where a vertically integrated company is in competition at the retail service level with non-integrated operators. In general, the greater the clarity of separation between operators at the different stages of production, the more likely it is that competition concerns will be identifiable, resolvable and preventable. Regulators therefore need to trade off the benefits of retaining a vertically integrated structure with the requirement to avoid anti-competitive behaviour developing.

Table 4.1 shows which competition concerns at the network provision level could be addressed by means of the regulatory tools listed.

Table 4.1: Matching network provision competition problems with available regulatory tools

	Excessive prices	Excessive costs/ inefficiency	Incentives to innovate	Foreclosure
Regulatory tools: structure				
Horizontal separation	✓	✓	✓	
Vertical separation:				
splitting an integrated company	✓			✓
accounting separation	✓	✓		✓
Mandatory merger investigations	✓	✓	✓	
Regulatory tools: conduct				
Availability/publication of information	✓	✓		
Regulatory monitoring of companies':				
behaviour	✓	✓		✓
costs and investment		✓	✓	
Consumer rights and scrutiny/ introduction of consumer body	✓			
Price transparency	✓			
Tariff approval	✓			✓
Quality-of-service regulation		✓	✓	
Non-discrimination rules	✓			✓
Incremental cost-pricing rules (preventing predation)				✓
Transfer-price regulation and margin-squeeze rules	✓			✓
Access regulation and requirements	✓			✓
Price regulation	✓	✓	✓	
Cost regulation	✓	✓	✓	
Mandating investment			✓	
Introduction of competition/ liberalisation	✓	✓	✓	✓

4.2.1 Excessive prices

In the markets for network provision, excessive pricing usually relates to situations where the upstream firm charges downstream firms an excessive price for the use of a product or service that is in some respect a bottleneck (in electronic communications markets, this is typically access to a network). The measures that are available are ordered as follows. Instrument number 1 (price transparency) is the least interventionist policy, as it only requires the companies to provide information, not for the regulator to act upon that information. Number 2 is slightly more interventionist, as it involves action by the regulator and the last four instruments given are highly interventionist.

Instruments

- *Price transparency*—this can ensure that customers are aware of their suppliers' charges, and the basis on which they determine the price for each customer (for

instance, if there is a discount structure). While a transparency measure does not directly address the problem of excessive prices, it may help facilitate competition between upstream suppliers (where this is relevant), and so could increase the pressure on the dominant firm's prices.

In circumstances of collective dominance, regulators must make sure that their actions do not have adverse effects on the market in terms of facilitating coordination. For example, improving the availability of price information to consumers in a competitive market structure may help reduce switching costs and thereby promote competition. In a market structure where there are only a few operators present, particular sensitivity has to be given to the issue of transparency and availability of information which can simplify the oligopolists' task in reaching and maintaining a collusive outcome.

- *Tariff approval*—an alternative method of addressing potential excess prices downstream is for the regulator to approve all tariffs set by the upstream firm. However, without full price regulation (see below) or extensive cost information, it will be difficult for the regulator to determine whether the prices set are excessive, and, in practice, it may only be the structure of tariffs rather than their level that is the subject of the approval process. Given these difficulties, it is unlikely that tariff approval would have a direct effect on excessive pricing. Tariff approval is suitable for situations of both dominance and joint dominance.

- *Accounting separation*—this is a means of identifying the true costs of an integrated operator's operations, and could provide the regulator with the information necessary to determine whether prices are excessive. In order to determine the relative level of the dominant firm's prices, it would be necessary to carry out further analysis on the margins that would be acceptable given the firm's cost of capital, and allowing a reasonable rate of return. Accounting separation is equally applicable in situations of both dominance and of joint dominance.

- *Access measures*—if the excess pricing concern relates to the price charged by a vertically integrated network and retail service provider, one option would be to compel the operator to offer access to the network to third-party service providers. This would create competition to provide services to consumers (over the network). Some form of regulation of the access terms would also be required (possibly including full price regulation) in order to ensure that the incumbent does not simply charge excess prices at the network provision level to all the retail service providers. An important aspect in determining the nature of this access regulation will be the likelihood of competing networks developing. Access measures are also suitable for situations of both dominance and of joint dominance.

- *Introduction of liberalisation/competition*—where a vertically integrated firm does not have SMP downstream, but is abusing its SMP at the upstream level in its pricing to downstream firms, liberalisation or the enhancement of competition upstream can increase the price pressure in that upstream market, and so reduce the likelihood that prices are excessive. For integrated firms with SMP in both of their markets (upstream and downstream), greater competition can be introduced at either or both levels. The most common form is competition downstream using

an integrated firm's upstream output, which may be regulated (in electronic communications, this often involves delivering services over a network, with some form of access regime—see above). This is predicated on the basis that there is unlikely to be competition for the supply of the upstream product or service. Where this is not the case, the regulator could encourage network competition in addition, or as an alternative, to retail service competition, if this is considered feasible or economically desirable. The choice of the markets in which liberalisation is introduced will reflect the choice made by the regulator regarding service or network competition, as discussed at the beginning of this section. Liberalisation measures are relevant in situations of both dominance and joint dominance.

- *Price regulation*—if competition cannot be introduced, or is not likely to develop for the foreseeable future, the regulator could impose some form of price control. This is a direct method of removing excess pricing, but also involves a high degree of intervention. The precise specification and structure of any price control would be determined by the expectation of whether competition is likely to develop. Price regulation is more relevant to situations of dominance than joint dominance.

- *Vertical separation*—if neither price regulation nor liberalisation is expected to provide sufficient competitive pressure on an integrated firm with SMP, a final option would be to vertically separate it. That is, to break the integrated firm into an upstream and downstream operation, each run separately and under different ownership. Clearly this is a very significant intervention in the market, and should only be considered after a detailed evaluation of the impacts and likely market outcomes following separation. In particular, it would result in the loss of the synergies that arise from integration, and, if these are large enough, they may offset the benefits of the separation itself. As with price regulation, vertical separation is more relevant to situations of single-firm dominance than of joint dominance.

4.2.2 Inefficiency

SMP at the network provision level can limit the incentives for firms to operate at maximum efficiency. This results in the prices charged to downstream firms for use of the upstream product or service being higher than they otherwise would be, and it is likely that these costs will be passed on to consumers. As the prices charged upstream become part of the downstream cost base, retail service providers add their profit margin to this inflated cost base.

Therefore inefficiency (leading to excessive costs) is similar to excessive pricing—the only difference is that the higher output cost of the upstream product or service is due to increased costs rather than a greater profit margin. The approach that can be adopted by a regulator is, therefore, similar to that for excessive pricing. That is either to introduce greater competition in the production of the upstream product (if this is economically feasible), or to impose direct measures to control costs. Thus the measures that could be adopted by regulators are as follows. The first instrument is clearly the least interventionist, the second and third are increasingly interventionist, and the final two instruments are the most interventionist for addressing cost inefficiencies.

Instruments

- *Cost monitoring*—this is not an active method of reducing costs, but allows the regulator to be aware of the cost base of those firm(s) with SMP. This would enable the degree of cost efficiency to be determined if necessary, and could also provide the firm(s) with an incentive to ensure that their costs were not excessive.

- *Quality-of-service regulation*—rather than forcing a firm to reduce its costs directly, a regulator could impose quality-of-service conditions instead. So long as this was not accompanied by a price increase, this would force the operator in question to improve its efficiency and/or reduce its costs in order to deliver the improved quality. There would be definable benefits for consumers. However the competitive impacts in the market would have to be considered carefully, as quality improvements imposed by the regulator on the firm with SMP may disadvantage rivals whose products or service may no longer appear to be equivalent.

- *Benchmarking of costs and comparative-efficiency analysis*—if the regulator wishes to go further with the *ex ante* measure than simply monitoring costs, they could perform analysis to determine the degree of efficiency being achieved by the regulated firm. This is difficult to determine as an absolute measure, so the usual regulatory approach is to use benchmarking or comparative-efficiency analysis. These methods compare the cost base and efficiency (using values such as the cost per unit of production, or capital intensity) of the firm with SMP with that of similar firms in different countries, or comparable industries, to determine the relative efficiency of the firm in question. From this statistical evaluation the regulator can determine whether further measures are required, and the degree of cost reduction that would be appropriate.

- *Introduction of liberalisation/competition*—encouraging competition is the best method of achieving greater efficiency from the firms in the market, as it is the least interventionist measure. The regulator is not required to determine issues such as the level of inefficiency or the prices that should be charged. The competitive process allows firms to make these decisions themselves, and to reduce their costs in what they consider to be the most appropriate manner. The regulator's role is limited to ensuring that fair competition develops, and that anti-competitive practices do not arise.

- *Price regulation*—controlling the prices that companies can charge generates incentives to increase efficiency, regardless of whether the regulator engages in a specific assessment of a company's cost efficiency. However, the setting of a price cap is usually accompanied by some form of efficiency analysis in order to determine the degree of price reductions that could reasonably be expected. As noted above in relation to excessive pricing, the exact design of price regulation will be determined in part by the form of competition that a regulator expects to develop. Pressure on the firm(s) with market power is likely to be greater (in the form of a stronger price control) if competition is not expected to develop, or if the regulator determines that service rather than network competition is most appropriate. Furthermore, the regulator will need to ensure that the price

regulation regime maintains investment incentives so that firms continue to develop their product or service.

4.2.3 Incentives to invest/innovate

In much the same way that SMP does not provide incentives for a company to be as efficient as it could be, it can also limit the incentives for a company to invest and to innovate. Conversely, innovative activity may be encouraged if companies believe that, as a result of the innovation, they will have some (temporary) market power, enabling them to recover their costs and to make a profit from their research.

Regulation itself can also dampen incentives to invest and to innovate. For example, if a company is price-regulated, it will seek cost savings wherever it can find them. Sometimes, these involve cutbacks in investment or spending on research and development (R&D). However, if a regulator is seeking to regulate a company's costs, and adopts a rate of return that is above the company's real rate of return, this can create incentives for that company to over-invest.

The relationship between SMP, investment, and regulation therefore warrants careful consideration to minimise the risk that any intervention produces adverse incentive effects. The instruments that are the most appropriate are presented below.

Instruments

- *Quality-of-service regulation*—setting levels of quality of service that a firm must meet can provide incentives to invest to reach these thresholds. Similar targets could be established for innovative services or infrastructure upgrades, such as the roll-out of digital telephone exchanges.

- *Benchmarking of investment*—in order to determine the appropriate level of investment for any firm(s) with SMP, the regulator could use some form of benchmarking analysis (as described above). This will provide a comparative analysis of the investment carried out by the firm(s) in question, and help the regulator identify any increase in investment that might be necessary.

- *Requirement to invest given an adequate return*—in extreme situations the regulator could force the firm(s) with SMP to invest in a particular service or infrastructure enhancement, given an adequate business case. This is a considerable intervention in the market, and is most likely to be used to support more general regulatory policies in the industry in question. For example, the regulator may consider that there is a consumer welfare benefit for a cable network to expand to a particular geographic area, and this may need to be facilitated by regulatory compunction. However, any such requirement would need to be based upon reasonable investment criteria.

4.2.4 Foreclosure

As discussed in section 2, foreclosure can be achieved through a variety of methods. At the network provision level there are likely to be concerns that a firm with SMP could impose conditions on downstream firms that could either foreclose other network providers, or disadvantage some retail service operators. These issues particularly apply when the upstream firm is integrated with its own retail service operation. In this case, it would have an interest in enacting, for example, a margin squeeze or other form of

discriminatory pricing to favour its retail service business. Similarly a firm that produces a number of different products or services may use market power in one market to foreclose another by cross-subsidising between these two markets. That is, it may charge an excessively high price in one market that is used to subsidise low prices in another market in which the firm does not have market power.

In general, problems relating to foreclosure are more likely to occur when the market power is held by one firm, rather than jointly by two or more firms.

The first two instruments given below are less interventionist, as they involve establishing monitoring mechanisms. The following three are moderately interventionist, involving restrictions on the companies' behaviour, and the structural solution of vertical separation is clearly the most interventionist.

Instruments

- *Approval of tariffs or contracts*—some forms of foreclosure, such as exclusive dealing or preferential discounts, are established through the contracts between suppliers and retail service providers. Therefore if the regulator approves all tariffs or contracts, it can check for such potential anti-competitive arrangements. However, this may be an onerous task if there are many contracts and/or price schedules, and this may be a relatively inefficient method of avoiding potential foreclosure.

- *Accounting separation*—vertically integrated or multi-output firms are difficult to monitor from standard accounting information as this does not provide data on the charges between or across different parts of the firm. Accounting separation enhances the transparency of a firm's pricing behaviour and increases the ability of the regulator to observe any discriminatory behaviour that may contribute to foreclosure.

- *Access regulation*—as noted in section 2, the AID sets out specific access obligations on network suppliers. The structure of access terms can be designed by the regulator to ensure that foreclosure through a refusal to supply, withdrawal of supply, or refusal to supply on fair and reasonable terms is avoided.

- *Prohibition of undue discrimination*—if the regulator is particularly concerned about the terms on which an upstream product may be supplied to different retail service providers, it could prohibit discrimination directly. However, as noted in section 2, some price discrimination can be welfare-enhancing, so caution should be exercised in imposing a broad measure such as this.

- *Transfer pricing regulation*—this can be used to prevent margin squeeze of downstream competitors, and to prevent misallocation of costs or cross-subsidy between services. The regulator would need to specify the basis on which outputs should be transferred benefits between the upstream and downstream businesses of the integrated firm. This price rule would then need to be monitored in some way to ensure compliance; one of the most common ways of managing compliance is to use accounting separation.

- *Vertical separation*—the strongest method for ensuring that foreclosure is avoided is to enforce vertical separation. It has advantages in reducing the incentives (and ability) for a network provider to discriminate, as the firm would no longer have a downstream operation that could benefit from the foreclosure of retail service rivals. Therefore, although a significant structural intervention, enforcing vertical separation limits the potential for either the network provision or the retail service market to be foreclosed to competition.

4.3 Competition problems and regulatory instruments: retail services

Table 4.2 shows which competition concerns at the retail service level could be addressed by means of the regulatory tools listed.

Table 4.2: Matching retail service competition problems with available regulatory tools

	Excessive prices	Excessive costs/ inefficiency	Quality of service	Foreclosure	Predatory pricing
Regulatory tools: structure					
Horizontal separation					
Vertical separation:					
splitting an integrated company	✓			✓	
accounting separation	✓			✓	
Mandatory merger investigations					
Regulatory tools: conduct					
Availability/publication of information			✓		
Regulatory monitoring of companies':					
behaviour	✓			✓	✓
costs and investment		✓	✓		
Consumer rights and scrutiny/ introduction of consumer body	✓		✓		
Price transparency	✓			✓	✓
Tariff approval	✓			✓	
Quality-of-service regulation		✓	✓		
Non-discrimination rules				✓	✓
Incremental cost-pricing rules (preventing predation)				✓	✓
Transfer-price regulation and margin-squeeze rules				✓	
Prohibition of tying				✓	
Access regulation and requirements				✓	
Price regulation	✓	✓			
Cost regulation/benchmarking		✓			✓
Mandating investment			✓		
Introduction of competition/liberalisation	✓	✓	✓	✓	

4.3.1 Excessive prices

As noted above, SMP—in the form of both single-firm and joint dominance—can produce market conditions that allow firms to set prices at a higher level than would pertain under more intensive competition. Evidence of pricing above the expected competitive level could be the result of SMP at the retail service level, or indirectly due to high input costs resulting from the exploitation of SMP at the network provision level. The latter is considered in section 4.1.

Excessive pricing can be remedied by encouraging greater competition at the retail service level. Often this involves removing any factors that may impede the development of that competition—for example, reducing switching costs for consumers (eg, information availability, number portability). Further, barriers to entry at the retail service level can also be lowered by liberalising a previously monopolistic (or otherwise restricted) market. This may also involve some form of regulation at the network provision level, such as specifying access conditions to ensure that service providers are able to provide services to consumers. The provision of access is addressed in detail below.

If however it is likely that competition will not be sufficient to control prices in the market for the foreseeable future, a regulator may decide to address the problem directly by imposing price regulation. Price regulation can have a number of forms; the least interventionist might involve the regulator simply approving the tariffs that the regulated companies propose; the most interventionist form is full price regulation.

The range of options that a regulator could adopt by a regulator when they identify that excessive pricing is a potential problem is set out below.

Instruments

- *Price transparency*—requiring firms to publish their prices, or the regulator (or other consumer bodies) producing price-comparison tables helps consumers to choose between different providers of the same service. In particular, switching costs may be reduced, and it could minimise the possibility of discriminatory pricing, where excessive charges are only made to particular sub-sections of the market. The likelihood of successful entry by new firms may also be increased as the prices of the existing firm(s) would become more evident to rivals, highlighting the potential for a lower-priced entrant. As highlighted above, increasing the flow of information between competitors in a situation of joint dominance may make it easier for the companies to coordinate their activities.

- *Introduce a consumer body*—further to the actual publication of tariff information, consumer bodies are often very good at presenting the available data in comprehensive form for consumers. Consumer bodies can create price-comparison tables and provide a consultation forum for consumers. In general, this should increase consumer awareness and confidence in the competitive process, and help reduce switching costs.

- *Tariff approval*—this is more of an intervention than a publication requirement as it involves the regulator actively checking (and approving) the tariffs proposed. This should directly address the issue of excess pricing, although its success is determined by the ability of the regulator to assess accurately the proposed tariff(s). However, as the regulator only approves the tariffs on the basis that the tariffs in question are not anti-competitive (ie, it is a negative test), without other guiding price principles, tariff approval is not likely to aid the development of competition in the market that would provide continued pressure on prices. Tariff approval can be applied in situations of both dominance and joint dominance.

- *Introduction of liberalisation/competition*—as already discussed, the introduction of competition to a market dominated by a single player, or the improvement of

competitive conditions in a market where two or more firms are jointly dominant, can increase the price pressure on the firms involved, reducing the likelihood of excessive pricing. Beyond the liberalisation of a previously monopolistic market, there is a variety of measures that could be employed to increase the degree of competition. For example, rivals can be protected by regulation to prevent targeted discounts, and consumers can be encouraged to use new rivals through an appropriate licensing or quality-approval regime. In addition, measures such as pricing transparency (discussed above) can increase consumers' awareness of competing offers in the market and increase the level of switching.

- *Price regulation*—this is the final resort for removing or preventing excessive pricing if it is considered that competition is not going to develop (at least for the period of the price control). As such, price regulation is more likely to be appropriate in situations of single-firm dominance. As outlined in section 3.2.4 there is a variety of forms of price regulation and it is for regulators to choose those which are appropriate given the market conditions and their overall regulatory strategy. Depending on the form of price regulation applied, this may involve a full investigation of a company's costs, potential cost savings, investment plans and cost of capital, leading to the regulator issuing a determination. While the process of the latter form of price regulation would impose greater costs on both the regulator and the regulated business, it is likely that the results would be more robust than under a less interventionist form of price regulation, such as tariff approval.

4.3.2 Excessive costs

Excessive costs at the retail service level are most likely to be caused by inefficiency within the firm(s) with SMP—such firms choose to be inefficient rather than take the returns to their market power as profits. To this extent, excessive costs are a corollary of excessive prices, and some of the same instruments can be employed.

The instruments to address concerns over excessive costs are outlined below.

Instruments

- *Cost monitoring*—one of the most complex issues for a regulator is to identify whether a particular firm's costs are excessive. Given the impact that regulatory intervention can have on both a firm and the market overall, it is vital that the regulator is as certain as possible that its decision is appropriate. Therefore, a period of cost monitoring, where the firm with SMP submits detailed cost information to the regulator, may be useful. This process would serve two purposes: it makes the regulated firm aware that its cost base is being scrutinised; and it allows the regulator to have detailed cost information available, should this be required, but also provides data for analysis such as comparative-efficiency tests that could reveal whether, and the degree to which, a firm's costs are excessive.

- *Quality-of-service regulation*—rather than forcing a firm to reduce its costs directly, a regulator could impose quality-of-service conditions.. So long as this was not accompanied by a price increase, this would force the operator in question to improve its efficiency and/or reduce its costs in order to deliver the improved quality. There would be definable benefits for consumers. However, the

competitive impacts in the market would have to be considered carefully, as quality improvements imposed by the regulator on the firm with SMP may disadvantage rivals whose products or service may no longer appear to be equivalent.

- *Introduction of liberalisation/competition*—given that the ability to remain in a market while having excessive costs (and reflecting those in the retail service price structure) is a function of holding a position of SMP, the optimal regulatory response is to remove the firm's market power. Therefore, the regulator could espouse policies that liberalise a market or introduce greater competition.

- *Price regulation*—price regulation is an indirect form of cost regulation as limits on a firm's allowable prices, and hence revenues, will generate incentives for improvements in its efficiency. This could operate in conjunction with quality-of-service measures (see below) to ensure that the product or service offered to consumers was downgraded in order to meet the regulated price.

4.3.3 Quality of service

In addition to having the freedom to operate at an inefficient level with excessive costs, a company with SMP may artificially reduce its costs by lowering the quality of the products or the services it sells. In addition, it may not introduce innovative services or product developments that would be beneficial for its consumers.

A regulator may wish to address quality-of-service issues in their own right. However, this may also be an issue when price regulation is being introduced, in order to ensure that the regulated company does not keep within its price controls by lowering its quality of service.

Instruments

- *Require publication of performance data*—regulators can act to improve the available information about quality of service, either by obtaining information from the regulated companies, or by requiring the companies to publish information about their quality of service. This allows the regulator to have detailed information in order to determine whether the service quality is adequate. However, publication would also enable consumer comparison of quality of service between rival firms, and facilitate complaints should quality drop.

- *Introduce a consumer body and/or a complaints mechanism*—one of the most effective methods of motivating consumer pressure on firms is to establish an independent consumer body (although this body may remain under the ambit of the regulator).

- *Set quality-of-service standards*—as a stronger and more active step, the regulator could require any firm(s) with SMP to meet specific quality-of-service standards, and impose financial penalties for failure to achieve them.

4.3.4 Foreclosure

As discussed in section 2, there are many ways in which firms could foreclose their rivals. Most of these (such as refusal to supply, or price discrimination) are usually associated with an upstream firm which has a dominant position leveraging its market power into a

downstream market or markets. The regulatory instruments that might be used in these cases have already been considered. Cases involving foreclosure and joint dominance are relatively unusual.

However, there are ways in which firms can attempt to foreclose each other in the downstream retail service market. In particular, they may tie or bundle products together, or can enforce exclusive dealing or price discrimination from a position of SMP in the retail service market. The latter two may arise where a downstream firms uses its SMP to force upstream suppliers to provide content on an exclusive basis, or to offer preferential discounts. An example might be where an incumbent retail television provider with SMP obliges channel providers to supply content on an exclusive basis, to the detriment of entrants or smaller rivals who would not be able to obtain the same content.

As the methods of foreclosure are varied, there is a range of regulatory instruments that can be brought to bear on the problem. Some are generically applicable to all types of foreclosure, while others relate specifically to particular anti-competitive activity towards rivals. This range of potential regulatory instruments is detailed below.

Instruments

- *Approval of tariffs or contracts*—if the regulator is concerned that pricing or contractual restrictions (such as price discrimination or exclusive dealing) could be imposed by the downstream firm, it could approve all tariffs or contracts, especially between the firm with SMP and its suppliers. This would allow the regulator to stop potential abuses before they arose, and could also deter the regulated firm from attempting to impose the restrictions.

- *Prohibition of undue discrimination*—as noted in section 2, some price discrimination can be welfare-enhancing, so caution should be exercised in imposing a broad measure such as this. However, some forms of price discrimination may involve targeted discounts at customers who are more likely to switch. Such behaviour can raise barriers to entry and should therefore not be permitted.

- *Prohibition of tying*—where tying is likely to be particularly problematic, the regulator could consider prohibiting the practice altogether. This may be a relatively strong response to tying, particularly as there are alternative measures such as forcing the firm(s) in question to sell the tied products individually, or by using tariff approval to avoid non-cost-based, deeply discounted bundling.

- *Accounting separation*—this can be an appropriate remedy if there is a strong possibility that the firms with SMP might cross-subsidise products in a market where it does not have market power from those where it does.

- *Licence separation or arm's-length business operation*—if the potential for tying and/or cross-subsidy is significant, the regulator could consider separating the two (or more) relevant parts of a business, only allowing transfers between them on an arm's-length basis. The separation could be either on the basis of the products produced, or the licensable activities in which they are engaged; in practice, this solution is likely to be easier for licensed services. However, business separation (whether or not it is related to licensing) is a relatively strong reaction to the

possibility of tying and bundling alone, and other remedies above may be more appropriate.

4.3.5 Predatory pricing

Predatory behaviour is harmful to the process of competition and to consumers, and there are some specific *ex ante* measures that regulators could introduce to reduce the risk that firms with SMP will engage in such behaviour. Rules to counter predatory behaviour are only applicable when the markets in question are characterised by single-firm dominance.

While it can be argued that competition law already prohibits a company with SMP from engaging in predatory behaviour, a regulator can strengthen this prohibition, or, at the very least, speed up the time in which questions of predatory behaviour are resolved, by introducing one, or a combination, of the measures listed below.

Instruments

- *Cost and profit monitoring*—through continual monitoring, the regulator will be able to reach a decision more quickly on whether predatory action is taking place. This is particularly important in situations of predation, as the adverse effect is often that the firm that is subject to the predation leaves the market. Often, even if the firm with SMP is found to be abusing its market power, remedies are difficult as the rival that has exited cannot be brought back. Monitoring by the regulator may also have a deterrent effect.

- *Requirement (licence condition) to set prices above incremental cost*—a direct method of stopping predatory pricing is to set a price test that the firm with SMP would be expected to meet. For predation, this would mean ensuring that prices are above incremental (or average variable) cost.

5. Conclusion

This paper has three main sections. Section 2 describes the competition problems that may arise when significant market power is present and as a result competition is ineffective; section 3 then summarises the regulatory tools that could be used to address those competition concerns and section 4 seeks to match the previous two sections together, identifying which regulatory tools can be used to address which competition concerns, giving specific attention to the measures that are available under the electronic communications Directives and examples where these tools may be used.

The paper has identified a number of principles which should guide regulators in their determinations. The two most important of these are as follows:

- regulators' actions should be proportional to the issue at stake, a principle which can be presented differently by saying that regulators should take the minimum necessary action to address the issues of concern; and

- regulators should seek wherever possible to introduce measures to promote competition and to ensure that their actions do not have adverse effects on the scope for introducing competition. In the electronic communications sector, this may involve trade-offs between promoting competition at the retail service level, or facilities-based competition in the provision of networks.

This paper does not present a prescriptive guide for regulators overseeing electronic communications markets. It is neither possible nor indeed desirable to provide such a prescriptive or mechanical guide. Under the new regulatory regime, not only are there challenging issues that regulators will need to address on a case-specific basis in identifying the relevant markets and the effectiveness of competition in those markets, but there will also be many factors that regulators need to consider in determining the appropriate course of action when dealing with competition problems. Ultimately, the form of regulation to adopt will depend on the circumstances of the case and on the regulator's judgement of the severity of the problems to be resolved.