

Agenda

Advancing economics in business

Oligopolies in electronic communications: more concentration, more regulation?

The consolidation trend in fixed and mobile telecoms is leading to more concentrated oligopolistic markets with fewer, larger operators. In February 2015, BEREC (the Body of European Regulators for Electronic Communications) ran a workshop to discuss the implications of this trend for regulation. Based on Oxera's contribution to the workshop, we discuss when ex ante regulation of oligopolies in the electronic communications sector might be required

The electronic communications sector has traditionally contained oligopolistic (in the case of mobile networks) and monopolistic (in the case of fixed networks) markets. These market structures are reflected in the current European regulatory framework, which focuses on the regulation of operators with significant market power (SMP)¹ in their markets.²

The regulatory framework explicitly accounts for the possibility of more than one operator having SMP. This is captured by the notion of collective or joint dominance in the form of tacit coordination.³ However, as noted by BEREC,⁴ whereas national regulatory authorities (NRAs) in Europe are experienced in regulating markets characterised by single-firm dominance, there is little precedent of findings of joint dominance and the subsequent design of regulatory remedies.

The electronic communications sector is evolving, and technological and market developments mean that there are now often two or more large networks serving end-users. This is the case in some areas and member states where cable networks are present and/or alternative operators have rolled out fibre networks. At the same time, the wave of consolidation in the European mobile sector will increase market concentration in some member states.⁵

Against this background, BEREC's workshop to discuss the implications of these trends for the application of the regulatory framework was timely. The absence of precedent in applying the framework to oligopolistic market structures could lead some NRAs to make potentially contentious decisions (such as findings of joint dominance that do not meet the accepted standards under ex post competition law). It is therefore important to discuss these issues openly, share best practice, and advance the debate with a wide range of stakeholders.

This article is based on Oxera's independent response to BEREC's call for inputs ahead of the February 2015 workshop.⁶ It explores whether ex ante regulation of oligopolies in the electronic communications sector is required and, if so, under what circumstances. We do this by revisiting the basics of oligopoly theory in the context of the competitive dynamics in the electronic communications sector. These dynamics include the increase in cross-sector competition, the growing popularity of bundles (such as triple- and quad-play offers),⁷ and the entry of over-the-top (OTT) service providers.⁸

The range of oligopolistic outcomes

Theoretically, the outcome of oligopolistic competition (in terms of final prices for end-users) can be either the same as in a competitive market, somewhere between a competitive outcome and a monopoly, or similar to a monopoly.⁹ In economic theory, when these different outcomes are possible depends on how competitive interactions between operators in the market are described. For example:

- at one end of the spectrum, a homogeneous goods Bertrand model, in which firms compete exclusively on price, is an oligopoly with a *competitive outcome* (i.e. where market prices are equal to the marginal costs of production, or—in the case of network industries—a measure of long-run average incremental costs). This assumes that there is no collusion among firms (or that there is a low likelihood of tacit collusion);
- a homogeneous goods Cournot model in which firms compete on capacity, a heterogeneous goods Bertrand model, and a dynamic model in which firms compete on both price and capacity are examples

of oligopolistic markets with *an outcome somewhere between a competitive and a monopoly outcome* (i.e. where prices are above marginal/incremental costs but potentially below those that would be observed under a monopoly). This also assumes that there is no explicit collusion among firms (although instances where firms might be tacitly coordinating cannot be ruled out);

- at the other end of the spectrum, an oligopolistic market in which firms collude (whether explicitly or not) is likely to result in *a monopoly outcome*, depending on how successful the firms' collusive strategy is.

In the first case, no regulatory intervention would be required, as the result would be the same as in a competitive market. In the third case, market outcomes are likely to reduce consumer and social welfare, and some form of intervention may be required. Explicit collusion (or cartelisation) is already covered by Article 101 TFEU and so ex ante intervention is not required in this case.

The middle cases are potentially more contentious—these are situations where there is no explicit collusion, but there could be tacit coordination, or firms might not be competing as fiercely as might be expected. Is regulation of these markets warranted? What factors and evidence need to be assessed before NRAs decide to intervene?

A balancing act: regulating oligopolistic markets with the potential for tacit coordination

There are established economic criteria for assessing the existence or likelihood of tacit collusion, such as those set out in the EU Horizontal Merger Guidelines.¹⁰ These criteria relate to the incentives and ability to collude, including factors such as transparency, stability of the market, disciplining mechanisms, and external competitive pressure.

The need for ex ante regulation on the basis of a joint dominance finding should be assessed according to these criteria. Not only is this economically sensible, but it would also be consistent with the European regulatory framework. If it is found that there is limited scope for tacit coordination, or there is a low likelihood of such coordination arising, the rationale for regulatory intervention in the market would be weak.

The case for intervention is much stronger if the assessment reveals that either tacit coordination has already been taking place in the market, or market conditions are such that there is a high likelihood of this happening in the market review period.

In any case, ex ante regulation of an oligopolistic market structure based on a prospective assessment of tacit coordination (in which the current market outcome lies somewhere between a competitive and monopoly outcome) will have to balance the following three aspects.

- The relative costs of firms exploiting their market power. These costs can be defined as welfare loss to consumers, and will depend on how 'far away' the oligopoly outcome is from the 'competitive' outcome. The greater the divergence between prices and the competitive benchmark, the higher the costs.
- The potential loss of the benefits of an oligopolistic market structure, which might include an increased ability and incentives to invest, or additional efficiency benefits due to the ability to exploit scale and scope economies.
- The administrative and efficiency costs of the intervention, such as the costs of implementing, reporting and monitoring rules for multiple operators; and potential distortion of free market competition.

The costs and benefits of oligopolistic competition

While, in theory, oligopolistic markets can lead to higher prices and/or lower output than in a 'competitive' market, there is a trade-off between economies of scale and the number of suppliers of electronic communications networks. Additional firms can therefore either increase or decrease overall welfare.¹¹ This is because, in an electronic communications industry characterised by imperfect competition (i.e. few service providers, each exercising some market power) and scale economies, entry is likely to lead to lower volumes for each service provider. There is therefore a trade-off between the benefits brought by more competition from additional network operators (which might include price or non-price elements of offers) and the exploitation of scale economies, as more operators may also mean higher average costs for each operator.

On the other hand, if the output per firm is at a level that allows significant scale economies to be exploited, a variety of benefits may arise, including lower industry-average and marginal costs that may be passed on to end-users (in the form of lower prices or higher quality) where there is sufficient competition; and increased incentives to invest in expanding networks, introduce new technologies and deliver better-quality services if operations are profitable.

It is not clear which oligopoly model would apply to the electronic communications industry, which is characterised by high sunk investment costs, substantial excess capacity, and negligible marginal costs of production. Oligopolistic competition in the sector may be closer to a Bertrand

(price-based) model, and therefore a competitive outcome, than Cournot (capacity-based) competition, especially shortly after investment in network upgrades leads to an increase in capacity (such as investment in fibre access networks or the roll-out of 4G). Over the long run, these markets are probably best described by dynamic models of competition, in which firms must invest in upgrading networks and expanding capacity to keep up with the pace of technology change, but must price services competitively in order to grow or maintain market share.

This raises a question that is relevant in several member states: 'is two enough' to arrive at a long-term competitive outcome? To answer this, it is important to recognise that an assessment of long-term welfare should not focus only on the higher prices that may result from a more concentrated oligopolistic market structure. It must also take account of:

- potential changes or innovations in services offered as a result of demand trends and investment in new technologies. For example, price indices may fail to reflect the take-up of data-driven plans as much as minute-driven plans;
- quality of service and benefits from competition on non-price features, which include broadband speed, reliability, security and privacy; customer service differentiators, such as access to technical support and installation professionals; innovative media services, such as on-demand catalogues or higher-quality broadcasts; and other initiatives such as WiFi hotspots and international roaming agreements.

It is also possible that new entrants will increase welfare by introducing new products, and this may counter some of the welfare-reducing scale effects following new entry.

Estimating the relative costs and benefits of an oligopoly in the electronic communications sector is not simple, given the increasingly complex set of interactions in the sector, including various vertical relationships.¹² In particular:

- any analysis of oligopolies in the sector should take a holistic approach across the Internet and media value chain. For example, the two- (or multi-) sided vertical relationships among platform operators and various content and service providers are likely to have important effects on the market power of platform operators;
- the increasing vertical integration between network operators, content providers and content producers adds an interesting dynamic to the assessment of oligopolistic outcomes in these markets, and should be taken into account. On the one hand, such vertical integration reduces the double (or even triple) marginalisation that occurs in multi-level supply chains. On the other hand, vertical integration may lead to input and/or market foreclosure, which may reduce competition and harm consumer welfare.

Other recent market trends can make tacit coordination difficult to sustain

Ongoing market developments mean that the electronic communications market is constantly changing, which potentially reduces the likelihood of tacit coordination and may provide incentives for network operators to compete aggressively. Recent trends that affect the scope for sustaining tacit coordination include the growing popularity of bundles, the growth of OTT services fuelled by consumer demand, and asymmetries in technology cycles and investment costs across network operators.

The popularity of bundles

Retail broadband is increasingly supplied as part of bundle offers. This means that assessing 'the price' of the broadband offered in a dual-, triple- or even quad-play bundle is not straightforward, especially given the many possible variations with respect to the other bundle elements. This complicated retail structure reduces clarity in the market, making tacit collusion less likely. If prices are difficult to compare (or, as in this case, obscured, with operators unable to tell which particular package a consumer switches to), a firm losing sales and observing churn rates cannot determine *why* this is happening. For example, it cannot identify whether it is due to an unexpected change in demand, or a deviation from the coordinated outcome by the other parties. In such cases, a punishment strategy¹³ might be mistakenly employed in instances of naturally decreasing demand, thereby destabilising the coordination.

Evolving customer demand and dynamism introduced by OTT services

Retail market developments and evolving consumer demands are an important motivation for technical development. As discussed above, consumers increasingly buy broadband services in bundles that include other services, such as media and voice. At the same time, consumer demand for higher broadband access speeds is increasing, so operators are coming under increasing pressure to deliver service upgrades to support this.¹⁴

OTT services are also an emerging challenge for network operators, as they offer innovative services on the supply side and alter consumer habits on the demand side. With the continued expansion of broadband Internet, a number of high-profile OTT services have recently entered the media market, and are increasingly imposing competitive constraints.¹⁵ The competitive pressure from OTT service providers on each network operator is independent of the presence of other network operators. From an economic perspective, these new services contribute to enhanced and more uncertain dynamics in the market.

These changes in the way that communications services are consumed, together with evolving customer demand

(for service bundles and higher speeds), add instability to the market and may be an important driver of network operators' quality and service upgrades.

Asymmetries in technology and investment costs

Asymmetry in investment costs and technology development cycles may also mean that the opportunity to gain a technical advantage through network upgrades is likely to come at different times for cable, fixed and mobile operators. This allows each network technology in turn to enjoy a period of quality leadership, before another technology catches up and exceeds the new standard. This dynamic can be expected to incentivise network operators to capitalise on their position of quality leadership while it lasts, by aggressively attracting subscribers. This is likely to increase profits and help with the recovery of (often substantial) upgrade investment costs.

This dynamic may also create further instability for any hypothetical coordination among firms.

Is there a case for intervention?

There may be a case for ex ante intervention in duopolistic or oligopolistic markets in the electronic communications sector, but any such intervention should be considered carefully.

A key question concerns the consumer benefits (in the short and long run) that network providers (as opposed to new service providers) are likely to generate—in other words, how 'far away' the oligopoly is from achieving the right balance between innovation, investment, affordable prices and consumer choice.

In intervening, it will be important for BEREC to offer guidance to NRAs on how best to measure the non-price aspects of network competition and include them in the regulatory analysis of oligopolies.

Furthermore, a case for ex ante intervention in oligopolistic markets based on a finding of joint dominance should:

- be supported by robust economic evidence that, without the regulation, tacit coordination is likely to occur;
- be based on specific reason(s) why tacit coordination is likely to occur and persist. This will help to design and target remedies to alleviate the problem(s) identified, while also preventing unnecessarily burdensome regulation from reducing the benefits that an oligopolistic market structure can provide;
- consider how other regulations, such as mandating 'net neutrality', may constrain network operators' market power;
- identify the main driver of competition among network (infrastructure) operators, and consider the incentives to offer commercial wholesale access and its possible role in promoting competition.

Finally, given the complex interdependencies in the electronic communications market and the diversity of market and regulatory structures across member states, a careful case-by-case examination should be undertaken to ensure that the full competitive effects of any resulting oligopoly structure are considered.

¹ An operator with SMP can behave largely independently of its competitors and consumers—for example, when setting prices.

² European Commission (2014), 'Commission Recommendation of 9.10.2014 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', 9 October.

³ See European Commission (2002), 'Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services', 2002/C 165/03, para. 96; and European Commission (2002), 'Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive) as amended by Directive 2009/140/EC and Regulation 544/2009', Article 14.

⁴ BEREC (2014), 'BEREC Report on Oligopoly analysis and regulation – Questions to stakeholders', BoR (14) 172, 4 December.

⁵ Recent developments include the acquisition of Telefónica by Hutchison in Ireland, and that of E-Plus by Telefónica in Germany.

⁶ BEREC (2014), 'BEREC Report on Oligopoly analysis and regulation – Questions to stakeholders', BoR (14) 172, 4 December.

⁷ A triple-play offer will typically comprise fixed voice, fixed broadband and TV. A quad-play offer will also include mobile services.

⁸ OTT service providers, such as Netflix and Skype, provide their services over telecoms networks but exercise no control over the networks themselves.

⁹ A monopolist, as the only operator in a market, can set the market price. A firm operating in a 'perfectly' competitive market is a 'price-taker' and cannot influence the market price. An oligopolist may have some market power (i.e. some ability to influence the market price), depending on the market structure.

¹⁰ European Commission (2004), 'Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings', 2004/C 31/03.

¹¹ See, for example, Church, J. and Ware, R. (2000), *Industrial Organisation, A Strategic Approach*, Irwin McGraw-Hill, pp. 249–56; and Mankiw, G.W. and Whinston, M.D. (1986), 'Free entry and social inefficiency', *Rand Journal of Economics*, 17:1.

¹² One reason vertical relationships arise in the sector is because end-user demand for access to communications networks is 'derived'—i.e. based on the demand for the services (voice, messaging and video/media) provided over the networks, rather than the networks themselves. The supply of these end-user services is made possible via vertical relationships between network operators and various content and service providers. These include TV broadcasters, OTT companies such as Netflix, and Internet companies such as Google.

¹³ Such as setting lower retail prices to force the party deviating from the coordinated outcome to (further) reduce its prices and suffer losses (or make lower profits than it would otherwise have done).

¹⁴ The demand for ever-increasing Internet bandwidth is a derived demand stemming from wide-reaching changes in the communications and entertainment technologies that consumers use. For example, voice over Internet protocol (VoIP) and video-conference technologies, OTT video and music streaming, and online gaming all require significant amounts of bandwidth.

¹⁵ Examples are Netflix and Amazon Prime, as well as OTT services launched by traditional broadcasters such as HBO. OTT providers are also active in the provision of voice services.