

Call termination

Do Mobile Operators have a Dominant Position in a Market for the Wholesale Termination of Calls from Fixed to Mobile?

A Report for Vodafone

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1. Qualifications

I am Vice Chairman of LECG Europe, Managing Director of LECG's Global Competition Policy Practice, and Visiting Professor, Faculty of Laws, University College London. I have a Ph.D. in economics from the University of Chicago where I also received B.A. and M.A. degrees in economics. I have published four books as well as many articles in professional economic journals and law reviews, including several recently on the subject of this paper.¹ My writings on competition policy have appeared recently in professional journals such as *The University of Chicago Law Review*, *European Competition Law Review*, *Yale Journal of Regulation*, and *World Competition*, as well as shorter pieces in *The Financial Times*, *The Wall Street Journal Europe* and *Les Echos*. My curriculum vitae is attached and further details, including copies of many of my publications, are available at davidsevens.com.

2. Introduction

The European Commission² and the PTS in Sweden, amongst other regulators, have claimed that mobile operators are dominant in the provision of wholesale termination for

¹ David S. Evans, "The Antitrust Economics of Multi-Sided Markets," *Yale Journal on Regulation*, Vol. 20, No. 2, (Summer 2003); David S. Evans, "Some Empirical Aspects of Multi-Sided Platform Industries," *Review of Network Economics* (RNE), Vol. 2, No. 3, (September 2003).

² Commission Recommendation of 11 February 2003 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive

voice calls, including calls from fixed networks. I consider the implications of this claim against the backdrop of the nature of competition between mobile networks.

Mobile calls are services provided by platforms that operate in what economists refer to as a 'two-sided' market. In two-sided markets competition will act to keep the overall level of prices in line with costs, as it does in other types of market; the individual prices of services supplied to the two sides, however, can differ from the individual costs, no matter how strong competition among platforms. What is more, the prices that maximize consumer welfare will often differ from cost-reflective ones. These characteristics have particular relevance to the way in which regulators and competition authorities should consider two-sided markets.³

When considering call termination on mobile networks, the European Commission, the PTS, and other regulators have adopted an approach that leads to claims that a company is dominant when it can set prices that differ from costs on only one side of a two-sided market. Yet this relies upon a competitive benchmark that is unrelated to the competition actually faced by mobile operators. And it relies upon a benchmark that is unrelated to socially optimal prices. If this approach were generally adopted by regulators and competition authorities in other markets, it would lead to an excessive number of restrictions and interventions in cases where there is quite clearly no problem to fix. The fact that we do not generally see such interventions only serves to confirm that the approach adopted by the European Commission and the PTS for mobile call termination represents a significant departure in the application of competition law and economics and confirms my view that they have erred in intervening in this case.

The rest of this statement is structured as follows. Section 3 summarises some of the important features of competition between mobile platforms. Section 4 introduces two-sided markets and show that mobile networks fit within the standard framework of two-sided markets. Section 5 discusses the optimality of prices in two-sided markets, and shows that there is no reason in general to think that cost-based prices are better for consumers than the prices set by competing platforms. Section 6 draws out the implications for assessing dominance in two-sided markets, highlighting the problems with approaches that seek to identify dominance on an individual side of a two-sided market. Section 7 concludes.

In preparing this report, I have read the Commission's Draft Recommendation of June 2002,⁴ and its final Recommendation of 11 February 2003,⁵ Ofcom's Statement on Wholesale Mobile Voice Call Termination dated 1 June 2004 ("The Statement"), as well as prior consultations leading to the statement.⁶ I have also read the decision handed down by the

2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services, OJ L 114/45 8.5.2003.

³ See Jean-Charles Rochet and Jean Tirole, "Two-Sided Markets: An Overview," mimeo, Institut D'Economie Industrielle, (2004); David S. Evans, "The Antitrust Economics of Two-Sided Markets," *Yale Journal on Regulation*, Vol. 20, No. 2, (Summer 2003); and Julian Wright, "Access Pricing Under Competition: An Application to Cellular Networks," *Journal of Industrial Economics*, Vol., No. 3, (September 2002)

⁴ Draft 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 communication networks and services, 17 June 2002 ("Draft Recommendation").

⁵ *Supra* note 2.

⁶ Competition Commission, "Cellnet and Vodafone: Reports on references under section 13 of the Telecommunications Act 1984 on the charges made by Cellnet and Vodafone for terminating calls from

telecom regulator in Sweden concerning similar issues.⁷ References to regulators throughout the paper should be understood as applying particularly to these three cases, although I understand that other European regulators have adopted a similar approach.

3. Competition between Mobile Phone Networks

A mobile network provides services to two distinct customer groups. We call the mobile network in question the “home network” and call other networks “other networks.”

- i. Subscribers receive a mobile telephone number and handset when they sign up for service. Subscribers can originate and receive calls from other subscribers on the home network and from individuals on other mobile and fixed networks that have interconnection agreements with their home network.
- ii. Subscribers on other networks can make calls to subscribers on the home network as long as those other networks have interconnection agreements with the home network.

Calls to mobile from fixed networks are the result of “joint demand” by fixed subscriber and a mobile subscriber. That is, the product can only exist if an individual puts herself in a position to receive calls and if another individual places a call. This feature means that mobile networks compete in a two-sided market.

The mobile network is remunerated for providing these services in a number of ways. Subscribers typically pay a fee to join the home network, a monthly rental charge, and per minute fees for originating calls to other members of the home network or to members of other networks. In some cases subscribers get a handset when they join, and the cost of this handset is higher than the signing fee, leading to claims that subscribers receive subsidised handsets.

Mobile networks are also paid when their subscribers receive calls. When a subscriber of another network makes a call to a subscriber of the home network, that network pays a fee to the home network for the delivery of the call to its subscriber. These are called termination charges. The other networks pass these fees on in whole or in part to their subscribers, since throughout Europe, the party who initiates the call bears the costs of the call. This is known as the calling party pays (CPP) principle. Accordingly, I will focus in this paper on the response of fixed-line subscribers to the final price of a call to a mobile network, rather than on the negotiation between the fixed network and the mobile network.

fixed-line networks,” Presented to the Director General of Telecommunications,” December 1998 (“CC Report 1998”); Competition Commission, “Vodafone, O₂, Orange and T-Mobile: Reports on references under section 13 of the Telecommunications Act 1984 on the charges made by Vodafone, O₂, Orange and T-Mobile for terminating calls from fixed and mobile networks. Presented to the Director General of Telecommunications,” December 2002 (“CC Report 2002”); Oftel, “Review of Mobile wholesale call termination markets,” 15 May 2003 (the “May Consultation”); and Oftel, “Wholesale Mobile Voice Call Termination, Proposal for the Identification and analysis of markets, determination of market power and setting of SMP conditions. Explanatory Statement and Notification,” 19 December 2003 (the “December Consultation”).

⁷ PTS (The Swedish National Post and Telecom Agency), Decision on matters 04-7287/23, 04-7228/23, and 04-6952/23, 6 July 2004 (“PTS Decision”).

In many countries competition between mobile operators is robust. In Sweden, five main mobile network operators - TeliaSonera AB, Tele2 Sverige AB, Vodafone Sverige AB, Hi3G Access AB and Telenor Mobile Sverige - all compete for subscribers,⁸ with significant numbers of customers changing their home network every year.⁹

4. Two-Sided Markets

As noted above, competition between mobile phone networks occurs within what economists have termed a two-sided market.¹⁰ A market is two-sided when there are two distinct groups of customers, those customers need each other in some way, and a “platform” can bring the two sides together and harvest the externalities between them in ways they cannot do for themselves.¹¹ It should be clear from the previous section that mobile networks have these characteristics.

Many other industries are based on platforms that compete in two-sided markets. These include:¹²

- i. Exchanges. These are platforms that facilitate trading between buyers and sellers. They include financial exchanges such as the London Stock Exchange (LSE), shopping malls such as Covent Garden, and auction sites such as eBay.
- ii. Software platforms. These are platforms that *inter alia* enable software developers to write applications that people can use and that enable people to run those applications on their computers. They include video game consoles such as Sony Playstation, computer operating systems such as Windows, and PDA and mobile phone operating systems such as the PalmOS and Symbian.
- iii. Advertising-supported media. These are platforms that enable advertisers to meet viewers.¹³ Newspapers such as the *Financial Times*, magazines, free-television stations such as TV-5, and Internet portals such as Google are platforms where advertisers can meet viewers.

⁸ PTS Decision, p. 14.

⁹ PTS, “Swedish telecommunications market first half-year 2003,” 18 December 2003, p. 36.

¹⁰ Jean-Charles Rochet and Jean Tirole, “Platform Competition in Two-Sided Markets,” *Journal of the European Economic Association*, Vol. 1, No. 4, (June 2003); Jean-Charles Rochet and Jean Tirole, “Two-Sided Markets: An Overview,” mimeo, Institut D’Economie Industrielle, (2004); Mark Armstrong, “The Theory of Access Pricing and Interconnection,” In: *Handbook of Telecommunications Economics*, (2002), Ch. 8; Julian Wright, “Access Pricing Under Competition: An Application to Cellular Networks,” *Journal of Industrial Economics*, Vol., No. 3, (September 2002).

¹¹ “Two-sided markets” differ from, and should not be confused with, what are sometimes called markets and aftermarket, an example of which would be the market for photocopiers and the aftermarket for replacement toners. As with two-sided markets, the prices of photocopiers and toners are ‘interdependent’. But in the copier case, both the photocopier and the toner are consumed *by the same customer*. Two-sided markets bring *different* groups of customers together. Furthermore, in markets and aftermarket, it is generally possible to supply only one of the markets (e.g., selling toner without also selling photocopiers). In two-sided markets, the platform cannot exist unless it meets the needs of both sides of the market.

¹² See generally, David S. Evans, “The Antitrust Economics of Two-Sided Markets,” *Yale Journal of Regulation*, Vol. 20, No. 2, (Summer 2003).

¹³ The viewers may not particularly want to meet some of these advertisers but are coaxed to do so with valuable content.

- iv. Payment–media. These are platforms that provide a medium of exchange for buyers and sellers. Payment card systems such as Visa, MasterCard, EuroCheck Eufiserv and Maestro help participating cardholders and card–accepting merchants to transact with each other.
- v. Communications networks. These are platforms that enable people to communicate with one another. They include telephone networks, whether mobile like Vodafone or fixed such as France Telecom, and instant messaging such as AOL Instant Messenger. For any particular communication there is a “caller” (or “sender”) and a “receiver” who have different preferences and could be charged different sums.

Mobile networks

A mobile phone network is a two–sided platform in the business of helping people who want to receive calls “get together” with, amongst others, people who want to make calls to them from their fixed line.¹⁴ That they fit within the standard two–sided market framework is clear from the comparison with two classic two–sided markets—shopping malls and payment cards.

Shopping malls bring together consumers and merchants. Consumers benefit from shopping at retailers in the mall, as well as from related amenities such as parking and restrooms, while retailers benefit from access to customers. Retailers pay rent to the shopping mall, while customers pay nothing to enter and often receive parking and other services for free.¹⁵

The shopping mall customers are analogous to mobile subscribers, but instead of subsidised handsets and low outgoing call charges, they receive free amenities such as parking and restrooms to encourage them to join. The retailers are similar to fixed line callers. If a retailer wants to reach those shopping mall customers, it must pay the access fee set by the mall (i.e. the rent).¹⁶ Retailers are, of course, free to reject the rents set by shopping malls and operate instead (or in addition) on the high street or the Internet. By doing so, however, they lose access to those consumers who have chosen to shop in a given mall at a given time.¹⁷

Payment cards also operate in two–sided markets. One side of the market consists of consumers who may choose to join one or more payment card networks. On the other side,

¹⁴ Market participants and industry developers are increasingly recognising the platform features and capabilities of phone networks. Regulators also increasingly recognise the platform features of mobile networks (see Ofcom’s review of progress towards a digital UK, available at http://www.ofcom.org.uk/research/industry_market_research/m_i_index/cm/overview/rmd/2_2/?a=87101; and Ofcom’s research on Driving Digital Switchover available at http://www.ofcom.org.uk/research/dso_report/section2. See also Steven Hope, “SDR Technology: What does it offer the Mobile Operator?” available at <http://www.ofcom.org.uk/static/archive/ra/topics/research/topics/converge-new-emerging/sdr/4-hope.pdf>).

¹⁵ Peter Pashigian, and Eric D. Gould, “Internalizing Externalities: The Pricing of Space in Shopping Malls,” *Journal of Law and Economics*, 41, (1998), pp. 115–142.

¹⁶ The timing differs in that fixed line callers make calls after mobile customers have signed into a mobile network, whereas retailers sign leases before customers decide where to shop. Nevertheless, the reason retailers sign leases is to gain access to customers they know the mall will attract.

¹⁷ Retailers may be able to sell to those same customers in other locations at other times (in the same way as a fixed line caller may reach a mobile receiver other than via a fixed to mobile call), but they lose the opportunity to make the sale to those customers at that time (when the customers are presumably looking seriously to make purchases).

merchants decide whether to accept cards from each network for payment. In many countries, merchant fees account for the substantial majority of total revenues for a card system.¹⁸ As with shopping malls, payment card systems facilitate transactions between retailers and consumers.

Retailers can choose to decline any given card brand. By doing so, they cannot offer customers the option of using that brand for payment. Some customers may be willing and able to pay with cash, checks, or other card brands, but others will not be. Again, as with mobile termination, retailers that want to allow payment via a card brand must pay the fees set by the system.¹⁹

5. General Economic Principles of Two-Sided Markets

Two-sided markets are more complicated to analyse than the more familiar one-sided markets. Nevertheless, economists have subjected them to intense scrutiny over the past few years, and some clear results have emerged concerning the pattern and optimality of prices.

The Pattern of Prices

In considering platform pricing policies the economics literature distinguishes between:

- i. The overall pricing levels charged by platforms. This is the weighted sum of prices to the two customer groups.
- ii. The pricing structure. That is, the relative prices charged to the two sides.

I also note that platform businesses may charge two different kinds of prices: an access charge to the platform and a usage fee based on interacting with the other side.

The characteristic that distinguishes two-sided markets from traditional one-sided markets is that the pricing structure matters.²⁰ Consider lowering the price on one side and raising it on the other by the same amount so that the price structure has changed while the price level has not. The market is said to be two-sided when this shift affects the level of output on a platform. For instance, if a shopping mall decided to lower rents and introduce an equivalent admission charge for shoppers to enter the mall, it is clear that the overall attractiveness of the mall to both shoppers and retailers will be affected. In the same way, a mobile network is two-sided because the allocation of prices between the mobile subscriber and the people

¹⁸ Jean-Charles Rochet & Jean Tirole, "Cooperation Among Competitors: Some Economics of Payment Card Associations," *Rand Journal of Economics*, 33, (2002); Richard Schmalensee, "Payment Systems and Interchange Fees," *Journal of Industrial Economics*, 50, (2002); Rochet, Jean-Charles and Jean Tirole, "An Economic Analysis of the Determination of Interchange Fees in Payment Card Systems," *Review of Network Economics*, Vol. 2(2), (2003b) pp. 69–79.

¹⁹ Proprietary systems, such as American Express or Diners Club, generally set fees directly to both cardholders and merchants. Card associations, such as MasterCard/Europay and Visa, set interchange fees that merchant banks pay to cardholder banks, which help determine the relative fees on the two sides of the system.

²⁰ Jean-Charles Rochet and Jean Tirole, "Two-Sided Markets: An Overview," mimeo, Institut D'Economie Industrielle, (2004), pp. 10–13.

who call them affects both the number of subscribers who join and the volume of calls on the network.²¹

Economics has shown that two fundamental principles apply to the prices charged to the two sides.²² These principles hold irrespective of whether the prices are set by a monopoly platform, through competition among platforms, or by a welfare-maximizing social planner:

- i. Interdependent prices. The prices to the two sides are determined interdependently. For example, if a newspaper raises the subscription price it will get fewer readers and will have to lower its advertising rates. Any change to the price on one side will change the price on the other side. We will see below that several telecom regulators accept this interdependence in the case of mobile telephony.
- ii. No cost causation. There is no direct relationship between the price on one side and the incremental cost of serving that side. For many two-sided platform services, customers consume the service "jointly," so that it is not meaningful to even talk about one side causing the cost of their consumption. For example, an eBay transaction only takes place when a buyer makes a purchase from a seller.

These principles help explain what might appear to be pricing anomalies in many real-world markets served by two-sided platforms. There are a number of platform industries in which one side pays nothing for the service or even receives inducements to take the service: application developers for computer operating systems, shoppers at shopping malls, American Express charge-card customers, and people who use Adobe Acrobat to read PDF files. There are other examples, where it is clear that one side does not make a direct contribution to profit or to the coverage of common costs: buyers of video game consoles, such as Sony Playstation, pay the manufacturing cost of the console (or sometimes less) and revenues come primarily from game developers who pay licensing fees; most of the revenues for newspapers and magazines commonly come from advertisers. Table 1 lists platform businesses and their pricing policies.

²¹ *CC Report 2002*, supra note 6, ¶ 1.7. The report notes the concern that the pricing structure in place encouraged overuse of mobile calls.

²² The optimal overall price level is determined by an analogue of the standard Lerner formula. The individual prices depend on the incremental costs of supplying each side and characteristics of the demand for each side, including the interaction between these demands. The optimal pricing structure depends on the relative demand externalities of each group of consumers. The optimal pricing conditions are shown in Rochet and Tirole (2003), *supra note 10*; Rochet and Tirole (2004), *supra note 10*. Other papers that investigate optimal pricing decisions in platform markets are Bernard Caillaud, and Bruno Jullien, "Chicken & Egg: Competition Among Intermediation Service Providers," *RAND Journal of Economics*, Vol. 34(2), (2003), pp.309–328; and Geoffrey Parker and Marshall Van Alstyne, "Information Complements, Substitutes, and Strategic Product Design" Working Paper No. 299, Tulane University and University of Michigan, (2000).

Table 1: Two-sided Platforms in Europe

Two-sided Platform	European Examples	Side One	Side Two	Side that gets charged little
Residential Property Brokerage	www.home-for-sale-uk.com	Buyer	Seller	Side One
Apartment Brokerage	www.vitrine.be (Belgium) www.agent-immobilier-france.com (France)	Renter	Owner/Landlord	Typically side one
Newspapers and Magazines	Le Soir (Belgium), Le Monde (France)	Reader	Advertiser	Side one
Network Television	RTBF (Belgium), Arte (France, Germany)	Viewer	Advertiser	Side one
Portals and Web pages	Flix.de (Germany), www.oasi.net (Italy)	Web “surfer”	Advertiser	Side one
Operating System	Windows	Application user	Application developer	Side two
Video Game Console	Xbox (Microsoft), Playstation (Sony)	Game player	Game Developer	Neither—both sides are a significant source of platform revenue.
Credit Card	Visa, EurocardMasterCard	Cardholder	Merchant	Side One

Source: Draws from David. S. Evans, “The Antitrust Economics of Multi-Sided Markets”, *Yale Journal on Regulation*, Vol. 20, No. 2, (Summer 2003), p. 337.

The Social Optimality of Prices

The pricing levels in two-sided markets do not raise any novel issues.²³ The pricing structures, on the other hand do. Prices that appear to favour one side are common in practice in platform-based businesses, as we have seen. Sometimes it seems as if one side is subsidizing the other side. It is, therefore, reasonable to ask whether pricing in two-sided markets is prone to significant market failure or, to put the question another way, whether such pricing structures can themselves be taken as evidence of market failure.

Economic theorists have examined this question and have generally found that regardless of the degree of market power there is no basis for believing that pricing in two-sided markets is subject to systematic bias. There are several related findings:

- i. The socially efficient prices are subject to the same seeming anomalies as the privately efficient prices discussed above. They, too, may be less than zero or below

²³ Platform businesses may earn risk-adjusted competitive rates of return. Or a platform business may be able to charge prices that result in profits that, measured *ex post*, exceed competitive levels. These may reflect compensation for making risky investments or rewards for risky innovation and therefore may reflect competitive returns when measured *ex ante*. Or they may reflect supra-competitive rates of return measured *ex ante*, perhaps as a result of a government grant of monopoly, luck, or anticompetitive practices. But these are the same issues that regulators and competition authorities face for many situations.

incremental cost for certain customer groups. Therefore, there is no basis for inferring from a particular pricing pattern that there is a market failure.

- ii. The theories do not find that a social planner would systematically have a more skewed or less skewed pricing structure than a profit-maximizing firm. That is, socially efficient prices are not systematically more or less tilted to one side than privately profit-maximizing prices.²⁴

Three examples highlight the prevalence of two-sided markets. The important findings are that socially efficient prices will not, in general, reflect costs, that the 'competitive benchmark' for two-sided markets cannot reflect costs; and that prices that depart from some measurement of cost cannot be adduced as evidence of market failure in two-sided markets.

Adobe Acrobat

Adobe Acrobat is, by far, the leading program for creating and reading documents, where the format is preserved.²⁵ For example, Adobe Acrobat software can be used to create a version of a Microsoft Word document that looks the way it looks in Word. This version can be viewed by anyone with Adobe Acrobat Reader, without relying on any Microsoft Word software. This is the de facto standard for disseminating formatted documents today. Adobe has chosen to give the product away to the reader side of the market and to collect revenues from the creator side.

It could be argued that the readers are paying too little, while creators are "forced" to pay if they want access to consumers with Adobe Acrobat Reader.²⁶ Yet consumers would probably be worse off if prices on the two sides reflected costs, so that readers were charged for the software. This would have the effect of lowering the willingness of readers to join the Adobe Acrobat platform, thereby lowering the value of Adobe Acrobat to document creators. Creators would then pay less for such a product, but the value of the platform would have been significantly diminished for both sides.

The Economist

Advertising-supported media provides a more common example. A magazine, such as *The Economist*, is a two-sided platform that connects subscribers and advertisers.²⁷ Consumers

²⁴ In the special case of linear demand, Rochet and Tirole find that the socially and privately optimal pricing structures are the same holding the overall price level constant (Jean-Charles Rochet and Jean Tirole, "Platform Competition in Two-Sided Markets," *Journal of the European Economic Association*, Vol. 1 Issue 4, (June 2003)).

²⁵ "Acrobat 6 Professional is a totally stunning bit of software. It took a great amount of foresight to come up with the idea of Portable Document Format (PDF) ten years ago and the fact that it has become such a de facto standard is proof of what a great original idea it was. Acrobat 6 takes this success and really embeds it into both key applications as well as the operating system. Creating a PDF is now easier than doing a screen-grab, it's even easier than doing a 'SaveAs some other file format' in any application. I think the new Acrobat turns an industry-standard into an industry-foundation, with PDF looking to be the secure 'wrapper' of choice, in which single or amalgamated project documents will be exchanged." (Martyn Day, "CADserver," July 2003)

²⁶ Many consumers today have the software installed, while others can download it for free from Adobe's web site.

²⁷ Jean-Charles Rochet and Jean Tirole "Platform Competition in Two-Sided Markets," *Journal of the European Economic Association*, Vol. 1, (2003) pp. 990-1029; Julian Wright and Ulrich Kaiser, "Price Structure in Two-sided Markets: Evidence from the magazine industry," CEPR Discussion paper, (2004-08).

subscribe to magazines for the content and may or may not find the advertising desirable.²⁸ Companies pay the magazine for access to its subscriber base. Advertisers have other means of reaching consumers, but if they want to advertise to these consumers when they read this magazine, their only choice is to pay the magazine's rates. Many advertising supported publications, such as magazines and newspapers, rely on the advertiser side for the bulk of their revenues.²⁹ Raising prices to consumers would lower the number of subscribers, with advertisers less willing to pay as much for a smaller audience.³⁰

Yellow Pages

My final example is a particular type of advertising-supported media: yellow pages directories. Companies pay suppliers to take out advertisement in the directories, which are delivered for free to households. Many households undoubtedly benefit from having a yellow pages directory they can refer to, and presumably, the companies that pay to advertise in them also believe they are getting a valuable service. However, it is also likely that many households would be unwilling to pay a price for the directory that reflected the costs involved in printing and delivering their copy. If prices on the two sides of the market reflected costs then one outcome could well be that too few households would be willing to pay at all, making the directory unprofitable and leading suppliers to exit the market, to the detriment of householders and advertisers alike.

6. Identifying Dominance in Two-Sided Markets

With this background in mind, I address a practical issue that concerns the application of competition law in two-sided markets, where entry on a single side is not possible (i.e., companies have to serve both groups of customers if they are to provide any services at all).³¹ Under what circumstances should a company be found to be dominant?

This question is important because competition law imposes restrictions and obligations on dominant companies. The answer turns on the nature of the competitive benchmark that competition law protects, since regulators often assume that dominant companies are the ones that have the freedom of action to depart from that competitive benchmark.

²⁸ Even when consumers do not want advertising, they value the content that is paid for by the advertising more than any disutility from the advertising.

²⁹ Approximately 80 percent of newspaper revenue comes from advertisers (Lisa George & Joel Waldfogel, "Whom benefits whom in daily newspaper markets?" National Bureau of Economic Research, Working Paper No. 7944, (2000)). In fact, one of the reasons some publications charge at all is because advertisers want some assurance of the quality of the subscriber base (that subscribers actually read the publication).

³⁰ Of course, as in all of these examples, further lowering prices to the low price side would further increase consumers on this side. However, two-sided platforms have already chosen prices that maximize the value of their platforms. Artificially changing the pricing structure is, therefore, likely to diminish the value of the platform.

³¹ As is clearly the case with mobile phone telephony, where no operator can realistically provide an 'incoming calls only' service or an 'outgoing calls only' service.

Lack of independence

Dominance has been defined by the Court in *United Brands* as a position of independence:

" 65. The dominant position thus referred to by Article [82] relates to a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, customers and ultimately of its consumers." (ECJ in United Brands v Commission, Case 27/76 [1978] ECR 207.)

According to this definition a firm is dominant under competition policy if it has independence of action—that is, if it is largely unconstrained by the decisions of its customers to switch to substitutes and by actual or prospective rivals who may undercut its prices and thereby vie for its customers.

In two-sided markets, one must be careful in applying the notion of dominance to a particular side, since, as noted above, prices on one side are inextricably linked to prices on the other side. An increase in prices on one side may be profitable when looked at only on that side. However, that increase in price will reduce the number of customers on that side and, therefore, reduce the value of the platform to and demand elasticity of customers on the other side. As a result, the price increase to one side may not be profitable when changes in demand on both sides are taken into account. These effects will be accentuated when there is competition from other platforms. In fact, *so long as there is competition on one side of the platform*, it is not possible to have independence of action even if a firm does not face competition on the other side (as has been claimed, for example, by the regulators with respect of mobile call termination).

This lack of independence can mean that individual mobile operators cannot set termination charges on one side of the market substantially below those of their rivals without affecting their ability to compete profitably for subscribers on the other side. Competition between mobile operators acting on both sides of the market will act to keep the overall return from recruiting a subscriber low. An individual operator that departed from market norms by setting low termination rates would earn even less from recruiting each subscriber, and so would be at a significant competitive disadvantage. If an operator tried to set cost-reflective prices while its competitors did not, it would have difficulty covering costs, if competition for subscribers were sufficiently robust.

This lack of independence also means that mobile operators would jeopardise efforts to recruit subscribers if they set termination rates that were too high. Subscribers buy mobile phones to receive calls, as well as to make them. If an operator sets a high price, which results in fewer calls, it would be less attractive to subscribers, other things equal. This constraint, which is generally recognised by regulators, will supplement the more standard, one-sided market, constraint: the prospect that customers would switch to competing suppliers in response to changes in prices.³²

³² 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).

Regulators have often accepted the existence of some or all of these effects but they have claimed that these constraints are not sufficient to prevent dominance.³³ I show below that these claims are flawed, as they are based on a fundamental misconception about the nature of competition in two-sided markets.

Competitive benchmarks

Regulators claim that mobile operators are dominant in the provision of call termination services, because the way they define relevant markets effectively identifies a dominant company as one that is able to set prices that depart from the individual costs of terminating calls on their networks. The argument is in two steps. First regulators define markets using the SSNIP test, which asks whether a hypothetical monopolist could set prices above a competitive benchmark. Ofcom describes its definition of a separate market in the December consultation:

“A product is considered to constitute a separate market if a hypothetical monopoly supplier could impose a small but significant, non-transitory price increase (“SSNIP”) above the competitive level without losing sales to such a degree as to make this unprofitable.”³⁴

The Commission makes similar statements in its guidelines on market analysis, as does PTS.³⁵ Since dominant companies are ones with strong positions on relevant markets, this definition effectively ties the notion of dominance to the ability to set prices above the competitive level. This definition makes it very important that regulators have in mind the right competitive benchmark against which to assess prices.

Second, regulators use a competitive benchmark that has very little to do with the actual competition faced by mobile operators; that is, inter-network competition. Neither the Commission nor PTS specifies the competitive benchmark they use. However, their conclusions imply that they believe competitive prices would be very different from those set in the absence of regulation.³⁶ Ofcom, on the other hand, is very clear. In its December consultation, it claims that competitive prices reflect the costs of each service, when considered individually and as measured by long-run incremental cost (LRIC):³⁷

3.19 The Director’s view is that the most appropriate basis for assessing whether charges are cost reflective is forward looking long run incremental costs (LRIC) plus a mark-up for common costs. LRIC-based charges most

³³ Both the Commission in its Draft Recommendation, and Ofcom in the consultations leading up to its Decision accept that some callers to mobile may switch to alternative means of reaching a subscriber if prices of mobile termination went up, and that some potential mobile subscribers may take into account the level of call termination. But, for example, Ofcom notes that the numbers involved are very small. “Ofcom’s February 2004 survey of mobile users (forthcoming) found that, on an unprompted basis, only 2 per cent of users mentioned that one of the reasons for choosing a particular network was that it would be cheaper for others to call them. Only 9 per cent claimed that the cost of other people calling them was a significant factor in choosing their network, and that only 11 per cent had actually found out how much it would cost people to call them.” (*The Statement, supra*, p. 13).

³⁴ *December Consultation*, ¶. 2.4.

³⁵ OJ C 165/6 11.7.2002, Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services, ¶¶ 40–42, and *PTS Decision* section 2.2

³⁶ In its Recommendation, the Commission claims that the competitive constraints on call termination are insufficient, by which it presumably means insufficient to constrain prices to competitive levels.

accurately reflect the resources consumed by the provision of services and correspond most closely to the level that would occur in a fully competitive market. Hence, the Director has carried out a detailed modelling of the LRIC of UK 2G mobile networks and has estimated the LRIC of voice call termination for a 2G operator, also taking into account cost data from the MNOs. The Director has then added a mark-up for common costs.

But if this is Ofcom's position, then it has a very unrealistic view about how competition works in two-sided markets. Prices might be related to the individual costs of call termination in a hypothetical world in which technology were different and subscribers could use their handsets to make outgoing calls on one network and receive incoming calls on another one. But in the real world, competition among mobile networks, no matter how fierce, will *never* lead to prices that match the costs of the individual services (nor would such prices be socially desirable), even though competition may mean that the overall price level set by a platform tracks overall costs.

The implications of a cost-based competitive benchmark

Not only do regulators use a very artificial benchmark, but the benchmark is also undesirable. When there is competition on at least one side of a two-sided platform market, there are good public policy reasons why the competitive benchmark used in competition law assessments of dominance and market power should be the pricing levels and structures that are established by competing platforms.

There are a number of practical problems should competition law instead identify a company as dominant whenever it is able to set prices that depart from costs.

First, courts and authorities could not cope with the competition cases arising from such a rule. Two-sided platform businesses are numerous, and prices almost never reflect the costs of the individual sides of the market. Examples include all advertising-supported media; matchmaking services, including exchanges, estate agencies, and nightclubs; transaction services ranging from payment cards, mobile phone payment devices, and personal check clearance; software platforms, including those used on mobile phones, personal digital assistants, and computers; video games; and numerous internet-based businesses.

Second, the rule would impose costly restrictions on the prices that companies set, without providing any clear benefits for consumers. Competition law restricts the ability of dominant companies to set high prices (to avoid claims of excessive pricing), and low prices (to avoid claims of predation). Perversely, these further restrictions may lead prices to depart from those that would result from unrestricted competition. As in traditional markets, one cannot be certain that the prices set by competing platforms would necessarily be the ones that an omniscient social planner, cognizant of all possible market failures and holding all relevant data, might set. However, there is no basis in economics for believing that prices that are more cost-reflective would generally be better, and they would not, by definition, be "competitive."

³⁷ *December Consultation*, ¶ 3.19.

Third, the rule would impose restrictions that are intended to prevent dominant companies using their position to exclude rivals, even though it is very hard to see how the mobile operators can use their position in call termination to prevent competition either from the fixed network, pagers, faxes or email as alternative means of reaching subscribers. Similarly, it is hard to believe that a mobile network can undermine competition from rival mobile networks through its choice of call termination price for calls from fixed to mobile.

Fourth, the rule may impose obligations that companies cannot comply with. It may be very difficult, if not impossible, for a platform facing competition to comply with restrictions that prevent it from setting prices much higher than costs unless its rivals all followed the same rule. For example, suppose a firm lowered the price on one side of the market and increased it on the other side (perhaps in an effort to make prices align with costs on both sides). If its rivals do not follow, the firm will lose sales and profits, unless it has made its platform more desirable. For example, suppose *The Times* lowered its price to advertisers but raised its price to subscribers to align costs and prices better. It would lose subscribers and become less valuable to advertisers. If newspapers and other advertising-supported media with which it competes did not adopt the same change in pricing structure, *The Times* could lose advertising revenues despite the lower advertising prices, which in a one-sided market would lead to higher advertising volume, as well as subscription revenues, since consumer demand will decrease given the higher subscription prices.

7. Conclusion

In this paper, I have shown that mobile operators compete in a two-sided market, and that in such markets neither competitive prices, nor socially optimal ones, reflect only the costs on the individual sides of the market. Against this backdrop I have considered some of the implications of the finding by various regulators that mobile operators are dominant providers of call termination from fixed networks. This finding is based on an approach to identifying dominance and a competitive benchmark that would find a company dominant whenever prices departed from costs. In doing so, I argue that telecoms regulators are misapplying a single-sided market benchmark to a two-sided market and ignoring the interdependency of pricing, which is fundamental both to a proper understanding of two-sided markets and to the proper consideration of dominance in European competition law and economics. This error would have very profound and, in my view, adverse implications for the level of regulation in Europe, if it were applied generally to two-sided markets. The very fact that we do not see such interventions in other markets suggests that the regulators have erred in the application of economics and of competition law principles to mobile telephony.