The Microsoft Antitrust Case
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Martina Lawless guides us through some of the findings of the Microsoft Antitrust case to the extent to which it corresponds to the theory of competition economics. She discusses competition issues of specific interest to high technology industries and the extent to which a firm's monopolistic power can be abused. She concludes by questioning the significance of the damage done to consumers in such a dynamic market.

It may appear a trifle premature to embark on an analysis of the Microsoft antitrust case when the legal processes and appeals are by no means over and the Judge has not yet decided whether or not antitrust laws were breached. Despite this, the Findings of Fact published last November cannot be questioned by an Appeals Court and must form the basis of any final decision, and these findings paint a bleak picture for Microsoft.[1] Therefore an examination of how the conclusions were reached is important, as this case is already being regarded as a benchmark for future applications of antitrust law to high technology industries.[2]

The case revolves around the allegedly illegal actions taken by Microsoft to safeguard its Windows monopoly, when two technological treats emerged around 1995. One of these was Java, which would allow software developers to write a programme which could run regardless of the underlying operating system. Microsoft is alleged to have made changes to this so that it would run best on Windows instead of exercising its potential to make the Windows operating system unnecessary. This aspect of the case will not be analysed in this essay, which shall instead deal with what was the main focus of the case: Microsoft's response to the emergence of Netscape's Navigator browser. To deal with this threat Microsoft invested heavily in developing their own browser (Internet Explorer) and then gave it away for free. In addition, they told PC makers to install their browser as a condition of their licence to sell Windows, and recruited Internet service and content providers as exclusive distributors of Internet Explorer.[3] These actions against Netscape were behind the identification of Microsoft by the Findings of Fact as a predatory monopolist whose actions damaged consumer welfare and future innovation.[4]

[1] The Economist (13/11/99a)
[2] The Economist (13/11/99b)
[3] The Economist (10/10/98)
[4] Findings of Fact

There were a number of issues and strategies that came under investigation in this case, but to keep the analysis straightforward, this essay will focus on the key areas of the case and attempt to weigh up the extent to which the legal findings correspond to the economic theory. The first section will look at how the relevant market was defined and how much power Microsoft has in this market. The next section looks at the main abuse Microsoft is accused of, namely predatory activities against Netscape's Navigator Internet browser, and at agreements between Microsoft and distributors. The third section will consider the question of how the analysis is affected by the nature of high technology markets. Two issues will be raised here; the existence of network externalities and the degree to which innovation and market structure are linked. The final section will draw together the arguments presented but will not enter the discussion of proposed solutions, as finding the optimal remedy would involve an entirely different set of economic arguments and concerns.

Market Definition and Monopoly Power

The most common approach to measuring market power in antitrust cases is to determine the percentage of market sales accounted for by a particular firm. Before this can be done, the market relevant to the case must be defined. Unfortunately this is far from being a simple procedure and as yet there is no universally agreed procedure for defining a market. The approach used by the court was to base its definition of a market on whether or not products could be considered close substitutes.[5]

The relevant market was deemed to be that for "*Intel-compatible PC operation systems*"[6], on the grounds that there are no products or potential products which could be substituted without incurring significant costs for consumers, either because they would have to purchase a new system or devote time and money to learning new skills if they wanted to switch to an alternative. The question of Microsoft's power was examined by looking at its current share of this market and at entry barriers facing possible competitors. Microsoft's share of the market was found to be "*extremely large and stable*" and protected by a high entry barrier so "*Microsoft's customers lack a commercially viable alternative to Windows*".[7] For

[5] Shy (1995)
[6] Findings of Fact
[7] Findings of Fact

almost the last ten years Microsoft has had above 90% share of the defined market, and even if the market definition was widened to include the Mac OS, Microsoft's share remains above 80%.[8] The price-cost mark-up test, whereby monopoly power is measured by ability to hold price above marginal cost, could not be rigorously applied in this instance because marginal cost in software is effectively zero.

The barrier to entry which was judged to protect Microsoft's dominant position combines elements of the barriers of sunk costs and economies of scale, known as the '*applications*' barrier. This is peculiar to high technology industries and comes about because consumers' benefit from operating systems is derived not from the system itself but from its ability to run applications. As the development of software applications involves extremely high sunk costs in preparation but very low marginal costs in production and distribution, developers aim to maximise sales. Therefore, application developers will write for the operating system with the most users i.e. Windows. This caused problems for potential operating system rivals as consumers want to buy the product with most applications available, but applications will only be written for the operating system with an already substantial consumer base. This '*network externality*' effect will be returned to in a later section.

Microsoft was found to be a monopolist because of its high market share and the existence of the applications barrier. However, there are questions as to how appropriate this analysis was. The first issue in this regard is the choice of market definition, since the main thrust of this case revolves around Microsoft's attempts to exclude Netscape by using its monopoly power in an anti-competitive way. However Netscape produces Internet browsers, not operating systems. The key therefore is to what extent the Microsoft monopoly in operating systems allowed it to control downstream distributors and use its position in one market to gain control of another. This cross-market aspect of the alleged anti-competitive behaviour makes the case more complicated and therefore makes standard models less applicable.
The most influential view regarding the relevance of a dominant position in operating systems for the accusation of anti-competitive actions in the browser market was put forward by Franklin Fisher[9]:

[8] ibid
[9] Fisher (1999)

> *"Because of the central and essential role the personal computer (PC) operating system plays (and is expected to play) in both commercial and consumer endeavours (including access to the Internet and the World Wide Web), the costs of improperly maintaining monopoly power over the operating system, and the danger that Microsoft's existing monopoly power will be used to monopolize [sic] other critical markets that are linked to the operating system are very great"*.

There also exists the more theoretical question of how good market share is as a measure of long and short run monopoly power. A firm may have short-run power to control prices without any long-run ability to restrict competition.[10] The strength of the barriers to entry is an important consideration here, especially given the speed of technological innovation in this industry.

Predatory Activities and Vertical Agreements

Section Two of the Sherman Act, under which Microsoft were charged, prohibits the acquisition or maintenance of monopoly power through means *other than* superior efficiency, the production of a superior product or historic accident. It also outlaws the exploitation of monopoly power to the disadvantage of rivals in the primary market or in another market. Thus, the use of predatory practices is illegal in the US. A classic definition of what constitutes predatory behaviour was given by Robert Bork.[11]

> *"… Predation may be defined, provisionally, as a firm's deliberate aggression against one or more rivals through the employment of business practices that would not be considered profit maximising except for the expectation either that (1) rivals will be driven from the market, leaving the predator with a market share sufficient to command monopoly profits, or (2) rivals will be chastened sufficiently to abandon competitive behaviour the predator finds inconvenient or threatening*."

It is important to emphasise that monopoly power in itself is not illegal. What are illegal are anti-competitive activities designed to unfairly restrict competition and

[10] Schmalensee (1979)
[11] Quoted in McGee (1980)

artificially maintain monopoly power.[12] Microsoft was found to have done this through the bundling of its Internet browser with its monopoly operating system, and by initiating restrictive agreements with distributors.

The Court's Findings of Fact found that Microsoft had abused its monopoly position because the strategies it followed when dealing with the competitive threat from Netscape could only be advantageous if they reinforced its monopoly power. If a firm is to depart from its optimal short run profit maximising strategy, such behaviour is rational only if its aim is to alter the structure of the industry in its favour. The Chicago School approach to economics used this rationality proviso to argue that predation would never occur in a market with full information and free entry because of the high risks involved in this strategy.[13] However the development of strategic game theoretic analysis of imperfect competition since the 1980s has led to a reassessment of the theory of strategic interactions in general, and of anti-competitive and predatory actions in particular. These models show that such strategies can be rational and also that they do not depend on pricing rules. There are several approaches taken by the game theoretic framework, but the one closest to the facts of this particular case appears to be the '*reputation model*' put forward by Milgrom and Roberts.[14] In this model, a firm operating in a number of related markets will prey on all early entrants to these markets, regardless of whether or not this is a profit-maximising strategy. By doing this, the firm establishes a reputation for toughness, which will deter future entrants to any of the markets it operates in since they will expect a similar response. The result has a deterrent effect on entry, which will have consequences for dynamic efficiency in the market. This model does not require that the incumbent's actions impose losses on the entrant, just that they force profits to a low enough level not to justify expending the sunk costs of entry.

Microsoft was found to have used its monopoly power in the operating systems market to exert influence on the ability of firms such as Netscape and Sun to introduce products to related markets. Evidence given by both sides indicates that Microsoft's actions were aimed at protecting its applications barrier to entry by discouraging firms from investing in '*middleware*' technologies, which could run on any operating system and would therefore make Windows obsolete or indistinguishable from rivals. The methods used were twofold: bundling Internet

[12] Shy (1995)
[13] McGee (1980)
[14] Milgrom & Roberts (1990)

Explorer with the Windows operating system and arranging restrictive distribution agreements.

Bundling is the practice under which the seller insists that the buyer purchase a package of products at a single price and does not make them available for sale separately. This can be done for sound technological or cost reasons. However:

> *"if buyers have differing and imperfectly correlated reservation prices for two or more goods, bundling the goods and selling them at a package price often permits a multi-product monopolist to extract greater profits than it would if each product were priced separately"*[15].

Shy[16] proves that a monopoly engaging in bundling can extract all consumer surplus and that this is therefore a profitable strategy, equivalent to a perfectly discriminating monopolist. In this case, evidence[17] was offered that the consumer demand for operating systems and browsers differed, with various groups of consumers preferring an operating system without a browser, an operating system with a choice of browsers and browsers as a stand-alone product. By bundling its browser with its operating system and thus giving it away "*free*", Microsoft tried to prevent competition for its browser by making it difficult for rivals to enter this market without also entering the operating systems market.

As Netscape had entered the browser market before Microsoft, it had already established a significant installed base before Microsoft recognised the Internet as a possible threat to its monopoly power in operating systems. It was identified by Microsoft that the two most important distribution channels for browsers were pre-installation on new computers by the original equipment manufacturers (OEMs) who make the actual PCs, and secondly bundling with the software of Internet Access Providers (IAPs). Microsoft refused to license its operating system without its own browser, and imposed restrictions (both contractual and technical) that prevented OEMs and consumers from removing the browser. Evidence from company e-mails and memos show that this decision to bundle the products was made only after they had recognised Netscape as a potential threat to the applications barrier to entry. When the browser was originally developed, they had

[15] Scherer & Ross (1990)
[16] Shy (1995)
[17] Fisher (1999)

intended to sell it as an '*add-on*' optional product at a positive price. Although Microsoft did not explicitly ban OEMs from pre-installing Netscape's product, they imposed restrictions on where icons could be placed, and prevented Netscape from being set as the default browser. These restrictions would make the PCs more difficult to use, would reduce consumer satisfaction and increase the number of helpline calls, which could erode the profits of the OEMs. None of them saw any alternative but to comply because of Microsoft's monopoly position in operating systems; if their Windows license was revoked they would be unable to continue in business. Microsoft also initiated deals with IAPs giving them preferential treatment for promoting its browser.[18]

The use of contracts, which restrict the distributors' control over the range or specification of the products they stock, can have the possibly undesirable effect of closing a distribution channel to competing sellers. Control of downstream markets and its effect on efficiency and welfare is an area of industrial economics still to be explored in any great depth. Two models with conflicting predictions could be applied to this particular case and I will mention them briefly.

Ahgion & Boulton[19] find that it is possible for long-term contracts to inefficiently deter entry and that this can occur despite buyers' concerns that the upstream market will thus become monopolised. The two parties to the contract can realise the vertically integrated outcome if the contract is long-term enough and if there is a penalty for breach. This type of contract results in a low probability of entry and is thus inefficient from a social point of view.

Telser[20] examined the effect of vertical restraints where there is downstream moral hazard whereby some of the downstream retailers free-ride on services offered by others and are thus able to sell at lower prices. Although the model referred to retail price maintenance, it could be used to justify the technical restrictions imposed by Microsoft, which they argue were to maintain the quality of the product. There are, however, two problems with this explanation. Firstly, in this case, bundling two technically independent products is not the same as maintaining the quality of a central and integrated function. Secondly, as regards the model itself, welfare is only increased if the restraints improve quality to the extent that they shift the demand

[18] Findings of Fact
[19] Tirole (1992)
[20] ibid

curve outwards. There is no guarantee that the vertical externality or moral hazard will be fully internalised so that the effect on welfare can also be negative.

High Technology Firms: Network Externalities and Innovation

Microsoft's monopoly position has been aided by the existence of network externalities in this market. A network effect means that the more people who use a product, the more attractive that product becomes to others.[21] This occurs mainly because of a desire for compatibility, e.g. being able to transfer computer files and share data in this case. With network effects, the first firm in the market is likely to become a monopoly as it becomes more and more difficult for a rival to persuade consumers to buy a product that does not give them access to the benefits of the network. This can lead to a '*natural*' monopoly in the sense that the firm gains market power without necessarily engaging in anti-competitive behaviours. However, this does not justify anti-competitive acts to protect market power or to extend it into new markets and therefore cannot be used as a viable defence of Microsoft's actions towards Netscape.

The final issue I will touch on is how innovation is affected by market structure and whether Microsoft harmed consumers by slowing down the development of new products. The logic behind patent law is that granting a firm a monopoly for its new invention will act as an incentive to research and development (R&D). There also exists the view that only a monopoly is in a position to invest in R&D given the risks involved, and Microsoft used their high R&D expenditure as a defence of their monopoly position. However, the story is not quite that clear-cut. The evidence suggests a non-linear relationship between innovation and market structure. Some market power and structural concentration acts as a positive stimulus, but excessive monopoly power is inclined to encourage complacency and restrict the sources of initiative once R&D competition is not necessary to improve market position.[22] Microsoft is therefore mistaken in putting forward their record of innovation in the past as a reason to excuse their behaviour towards rivals, as monopoly firms will continue innovation generally only when there is some threat and they must work to retain their position.

[21] Tirole (1992)
[22] Scherer & Ross (1990)

Conclusion

The restraints that sellers attempt to impose on their customers and on the conduct of those customers towards buyers even further downstream are extremely complex, with equally complex economic consequences and highly ambiguous net effects on welfare.[23] Taking a longer-term view, the software industry is extremely dynamic, and threats to the dominance of any particular firm are more likely to come from technological advance, that makes a category irrelevant, than from competition within the category. Some commentators therefore argue that no action needs to be taken by the court because emerging technologies make imposed remedy unnecessary.[24] However, this makes halting extension of monopoly power into the new technology markets all the more important. Just because "*new paradigms exist in embryonic form*" does not mean Microsoft is not a monopoly today.[25] As to the question of how much damage has been done to consumers,

> *"when, as in the Microsoft case, a monopolist's conduct seems to be chilling innovation in markets in which the competition is largely defined by innovation, the argument for antitrust intervention is compelling"*[26].

Although this essay has not delved deeply into any one of the many issues brought up by this trial, by providing an overview of the main arguments presented it has found a sound economic basis for the legal findings of the court. The main lesson evident is that high technology firms cannot act as though they are immune to traditional methods of economic analysis; the speed of development within this industry makes it more, and not less, important that abuses of power are identified, and that consumers' interests and future innovation are protected.

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