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Over the past few years, there has been a burgeoning literature on two-sided markets and economic understanding of such markets has improved hugely. Less attention has, however, been paid to how competition policy should be applied in two-sided markets.

This short note does not attempt to provide a comprehensive analysis of this issue, but merely presents a brief comment on the implications of two-sided market theory for one possible abuse of a dominant position under Article 82 of the EC Treaty: predatory pricing.

I. Pricing in Two-Sided Markets

A key finding of two-sided market theory is that the prices charged on one side of the market need not reflect the costs incurred to serve that side of the market. Rather, the price structure in a two-sided market will typically be designed to get both sides of the market on board.

If we define one side of the market as the buyer side and the other as the seller side, then the price charged to one side (say, the buyer side) will tend to be lower when either:

- each additional buyer generates significant extra revenue on the seller side; or
- it is difficult to persuade buyers to join the platform.

The author is Chief Economist, U.K. Office of Fair Trading. The views expressed here are my own, and not necessarily those of the Office of Fair Trading. The author would like to thank Peter Lukacs and Mark Armstrong for useful comments on earlier versions of this note.

In their 2006 paper, Rochet and Tirole analyze this situation more formally and show that the standard Lerner formula for monopoly profit maximization can be applied to two-sided markets.¹ That is, within a given market, a monopoly platform will price such that:

$$\frac{\text{price} - \text{'cost'}}{\text{price}} = \frac{1}{\text{elasticity of demand}} \quad (1)$$

The key difference in a two-sided market context relates to how one interprets the cost term in this equation. Under the standard Lerner formula, this is marginal cost. In a two-sided market, the cost term needs instead to be interpreted as a form of opportunity cost, which comprises the marginal cost of serving the buyer side of the market minus any extra revenue that the extra sales on the buyer side of the market generate on the seller side of the market, either through extra usage charges or by being able to increase sellers' membership fees.

II. Implications for Predatory Pricing

What does this mean for the assessment of predatory pricing in two-sided markets? The first point to make is that we might expect to often observe:

- pricing below cost on one side of the market; and
- pricing well above cost on the other.

Thus, if looked at in isolation, there is a risk that a supplier could be accused of predatory pricing on one side of the market. This issue has been highlighted by a variety of commentators, for example, Wright in his 2004 paper.²

Application of the simple *Akzo*³ test for predation, under which a presumption of abuse is formed if price lies below a cost benchmark, could clearly give erroneous results in such circumstances.⁴ When applied in a simple one-sided market,

1 For an excellent recent summary of the latest literature on two-sided markets, see J.-C. Rochet & J. Tirole, *Two-Sided Markets: A Progress Report*, RAND J. ECON. (Autumn 2006).

2 J. Wright, *One-sided Logic in Two-sided Markets*, 3(1) REV. NETWORK ECON. (2004).

3 Case 62/86, AKZO v. Commission, 1991 E.C.R. I-3359.

4 In the United States, this test is more usually known as the Areeda-Turner rule. The test has historically used an average variable cost benchmark, although many commentators have argued that average avoidable cost would be a more relevant benchmark, and this view now seems to have been accepted by the European Commission. See European Commission, DG Competition discussion paper on the application of Article 82 of the Treaty to exclusionary abuses (Dec. 2005), at <http://ec.europa.eu/comm/competition/antitrust/others/discpaper2005.pdf>.

this test provides a way of assessing whether a particular price level is likely to be anticompetitive in both intent and effect. In a two-sided market, however, prices on one side of the market may well lie below cost without the pricing structure having either anticompetitive intent or effect. This is clearly something that the competition authorities need to be aware of when assessing predation.

Does this mean, though, that predation will never occur in two-sided markets? The answer must be no. Firstly, predation can clearly occur where a platform prices its total service at a level that fails to cover its avoidable costs of providing the total service, taking revenues from both sides of the market into account. In such a case, a competing platform may be unable to make a positive profit, regardless of how it structures its pricing, and therefore may be excluded from the market.

Secondly, and more subtly, it may be possible in some circumstances for a dominant platform to predate through asymmetric pricing between the two sides of the market. This can potentially occur even where the platform is covering its avoidable costs of supply overall, taking into account all revenue streams.

This potential concern seems to have received minimal coverage in the literature on two-sided markets to date. Most current models appear to take market structure as given; n firms compete and they all compete on both sides of the

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market. By contrast, the issue here is whether a given pricing structure can affect market structure, and specifically whether low pricing on one side of a market can prevent entry into both sides.

This is unlikely to be a feasible exclusion strategy where firms are entirely symmetric. In such a situation, if one firm can gain incremental revenues on one side of a market when it wins extra business on the other side, and prices accordingly, then the same opportunities and pricing incentives will apply to its competitors.

But what if firms are not symmetric? In particular, what if some firms have less ability than the dominant incumbent to turn extra business on one side of the market into incremental revenues on the other? One might, for example, expect this to be true of smaller firms, or newer firms. Such firms could find it hard to compete against a very asymmetric pricing structure, and therefore may be excluded from both sides of the market. This in turn may restrict or eliminate competition between platforms.

In this context, it is worth noting that two-sided markets can tip easily. Buyers will tend to prefer (all other things equal) the platform that offers access to the most sellers, and sellers will tend to prefer the platform that offers access to the most buyers. Such network effects can tip the market towards being served by

just one or two platforms.⁵ There is a risk that the asymmetric pricing structure described above could further increase the likelihood of such tipping occurring.

III. Policy Implications

The above discussion suggests that asymmetric pricing between the sides of a two-sided market can potentially constitute predatory pricing and merit competition policy intervention. The question is how to distinguish between low pricing that is predatory and low pricing that is merely the optimal pricing response in a two-sided market.

One possible option, which would merit further consideration, is to adjust the simple *Akzo* test for predation for two-sided markets to employ an opportunity cost benchmark, as described above, rather than the more usual average variable (or avoidable) cost benchmarks.

In applying such a test, it would clearly be important to ensure that the incremental revenues that are generated on the other side of the market—and feed into this opportunity cost calculation—relate directly to the general volume increasing impact of the lower prices on the side of the market where the predation is alleged and do not simply equate to the monopoly profits of recoupment associated with exclusion. However, so long as consideration is given to this point, such a test may have merit. ▼

5 Such tendencies towards tipping may be ameliorated to the extent that there is platform compatibility (for example, such that buyers using one platform can access sellers using another), or that users are able to multi-home (for example, such that buyers are able to switch readily between platforms in order to reach different sellers).