Comment on ''A note on N. Economides: The Incentive for Non-Price Discrimination by an Input Monopolist,'' by Mats Bergman

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Bergman (2000) comments on Economides (1998) who discusses the incentive for non-price discrimination of a monopolist in an input market who also sells in an oligopoly downstream market through a subsidiary. Bergman alludes to various industrial structures where a monopolist can extract all potential rent from a single stage of production. However, Economides (1998) focuses on the most common case when the downstream market is oligopolistic, in which it is well understood (and Bergman agrees) that a monopolist participating in a downstream market is generally unable to extract all potential rent from the monopolized stage of production. Moreover, the focus of the Economides (1998) paper was in regulated industries, especially in the telecommunications sector, where the price that the monopolist quotes to downstream firms is set below the unregulated monopoly level. Thus, almost all the criticisms advanced by Bergman are not relevant to Economides (1998).

Bergman (2000) makes a correct criticism of Proposition 3 in Economides (1998). This proposition is proved in Economides (1998) for three cases: (i) when the monopolist has the same costs as the independents; (ii) when the monopolist has a cost advantage, and (iii) when the monopolist has a cost disadvantage. The last case is proved as long as the independents do not go out of business when they are faced with increased costs equal to twice the cost disadvantage of the monopolist (that is, at $r = 2x$, where r is the discriminatory raise in the costs of the monopolist's rivals and x is the cost disadvantage of the monopolist). Bergman correctly points out that, in the exceptional case when the monopolist is severely

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cost disadvantaged and the independents go out of business when they are faced with increased costs equal to twice the cost disadvantage of the monopolist, it may be possible that the cost-disadvantaged monopolist will prefer not to increase the costs of its downstream rivals.

This exceptional case arises only when the monopolist is severely cost-disadvantaged, as I prove below. It can only occur if, when the independents are faced with discriminatorily increased costs equal to twice the cost disadvantage of the monopolist, they close down. This means that, at $r = 2x$, $q_i^*(x, 2x) < 0$, where $q_i^*(x, r)$ is the equilibrium production level of an independent firm when the monopolist's cost disadvantage is x and the monopolist increases the costs of its rivals by r, as given by Eq. (24) in Economides (1998).[1] Now

$$q_i^*(x, 2x) < 0 \Leftrightarrow x > (a + c - s - 2w)/3 = b(n + 1)q_i^*(0, 0)/3$$
$$= [b(n - 1)q_i^*(0, 0)][(n + 1)/(3(n - 1))], \tag{A}$$

where $q_i^*(0, 0)$ is the production level of each independent in the benchmark case when $x = r = 0$, i.e., when there is no cost disadvantage and no discriminatory raising of rivals' costs. Notice that, since the demand is linear, $P = a - bq_1^* - b(n - 1)q_i^*$, the first brackets of Eq. (A) represent the decrease below the monopoly price precipitated by the existence and production of independent firms in the benchmark case. The second brackets is a proportionality factor that ranges from 1 to 0.41 as the number of downstream competitors ranges from 1 to 10 and asymptotes to $1/3$ from above as $n \to \infty$. Thus, for even the possibility to exist for non-price discrimination to be undesirable to the monopolist, the monopolist must be very severely disadvantaged with a cost disadvantage of at least 33% of the price decrease below monopoly price precipitated by the existence of independents. For a low number of independents, this cost disadvantage of the monopolist needs to be at significantly higher levels, for example, at least 50% for five competitors and 100% for two competitors of the price decrease below the monopoly price precipitated by the existence of independents.[2] Such very significant cost disadvantages are very unlikely in the telecommunications where the technology is well known.

Even if the monopolist is very cost disadvantaged and the independents go out of business when they are faced with increased costs equal to twice the cost disadvantage of the monopolist, the monopolist may still be better off by driving the independents out of business by raising their costs. This is because the

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[1] The presentation here is for zero fixed costs. If the independents have positive fixed costs, they can be foreclosed more easily while their production is positive.

[2] In Bergman's example, the cost disadvantage of the monopolist is 300% of the price decrease below monopoly price precipitated by the existence of independents: $x = s = 0.1$, $a = b = 1$, $c = 0.2$, $w = 0.5$, $n = 2$, so that $a + c - s - 2w = 0.1$, $[(n + 1)/(3(n - 1))] = 1$, $[b(n - 1)q_i^*(0,0)] = 0.1/3$, and $x = 3[b(n - 1)q_i^*(0,0)]$.

condition that the independents do not go out of business when they are faced with increased costs equal to twice the cost disadvantage of the monopolist is sufficient but not necessary for a positive incentive to raise rivals costs. This condition is based on an assumption that the number of competitors remains the same as rivals' costs are increased. But, once rivals are foreclosed, the number of active firms falls to one, and the monopolist's profits increase over and above those used in the above comparison, thereby allowing for an additional incentive to raise the costs of rivals.

References

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