Inviting Competition to Achieve Critical Mass

Amir Etziony[a]

and

Avi Weiss[a,b]

Abstract

In this paper we analyze a network market in which it is beneficial for a producer to invite competitors to share a market, even when this is not needed in order to affect consumer beliefs. Because of the nature of such goods, the demand curve for network markets typically rises and then falls. If the marginal cost curve of the producer is also upwardly sloping, the firm may be either unable to profitably produce a sufficient quantity to satisfy demand at any price, or may be able to, but benefit more if there are other producers also. Interestingly, optimal behavior by the producer is independent of the type of competition that will exist between the firms after the competitors have entered the market. Because the firm controls the number of entrants, it can always guarantee that it will receive maximal profits given the demand function and its technology. Implications for antitrust legislation and for strategic behavior by the firm are discussed.

[a] Department of Economics, Bar-Ilan University, 52900 Ramat-Gan, Israel
[b] IZA

I. Introduction

In a network market, the utility derived by each consumer from consumption of the good depends positively on how many other consumers also buy the product. Consequently, consumers will abstain from purchasing such a good unless they believe that a sufficient quantity of that good will be sold to justify paying the market price. This requirement to attain a certain minimal market size has been termed the "critical mass" problem, and was the focus of several pioneering studies of network markets (see, for example, Rohlfs, 1974, and Oren and Smith, 1981). Because of the critical mass problem, a producer interested in *introducing* a network good to a market requires consumer expectations to be sufficiently high to guarantee existence of a non-zero equilibrium.[1] The task of convincing consumers that critical mass will be attained is complicated by the fact that producers have a clear incentive to overstate the size they expect the market will obtain, so some declarations they make may not be credible (Economides, 1996, Etziony and Weiss, 2001).

Rohlfs (1974), in addressing the critical mass problem, offered a few solution, including suggesting that since the size of the critical mass increases with the price, the firm should subsidize the good (or even give it away) to a subset of consumers for a limited period of time, thus attaining critical mass, and once this mass has been attained the equilibrium is self sustaining and prices can be raised. Katz and Shapiro (1985) and Economides (1996) considered the credibility problem and not the critical mass problem, and came up with a radical solution. They suggest that the firm should voluntarily give up its monopoly position, and invite competitors to enter the market and use the firm's technology. They show that such a strategy causes consumer expectations to increase, and may result in increased profitability for the firm. Etziony and Weiss (2001) compare this strategy with one of pre-production by the monopolist of a large quantity of the good. This has the effect of lowering marginal costs (since the product is already produced), which, in turn, increases consumer expectation regarding market size.

In all these studies, the only reason the firm takes the recommended steps is because of a lack of credibility. If the producer could convince consumers that it

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[1] See Economides and Himmelberg (1995a, 1995b) for an explicit consideration of consumer expectations in a network market.

intended to create a large market, and in fact did so, all parties would be better off. In particular, with respect to inviting competition, they would certainly prefer remaining monopolists to opening the market to competition. This competition is no more than a necessary evil from the producer's perspective – an evil that could well backfire. As Hill (1995) states "A major drawback with licensing is that having licensed core technology to competitors, one or more licensees may subsequently alter this technology in such a way that it supersedes the licensors' technology." Thus, the creation of competition may be beneficial in the short run, but in the long run the presence of the competitors may well erode the firm's market power.

In this paper we consider cases in which, even in the absence of the credibility concern, i.e., even if consumers know with certainty the quantity that will be sold in the market, it is in the firm's benefit to invite competition.[2] Because of the nature of network goods, the price each consumer is willing to pay rises with an increase in the number of consumers. When quantities are low, the price each consumer is willing to pay is near zero, and this price rises initially with quantity. Thus, the demand curve tends to be initially upward sloping (although, for an equilibrium to exist, it must eventually become downward sloping). If, at the same time, the firm's technology is decreasing returns-to-scale, so that the firm's marginal cost curve is rising, two scenarios can ensue in which inviting competition becomes attractive. In the first scenario the firm's marginal cost curve is everywhere above the demand curve, so there is no price at which the firm can profitably produce the amount necessary to convince consumers to purchase. In this case, it will be in the firm's interest to invite competitors into the industry in order to allow the industry to reach critical mass.[3]

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[2] All of our findings are also appropriate when there is also a credibility problem. Our intention is not to discount the importance of the credibility problem. However, there may be numerous ways in which a firm can credibly convince consumers with regards to intentions aside from inviting competition. For example the firm may be able to post a bond. In addition, the firm's desire to protect its reputation may lend credibility to its statements.

[3] A natural question that arises is why can't the monopolist mimic what would be done by competitors by creating a multi-plant firm. One way to approach this question is to acknowledge, indeed, that the monopolist may be able to do so, but that they invite competitors because of antitrust concerns, as discussed below. Other answers are available, with the most immediate answer found in the realm of organizational economics, in the non-

Even if, in the long run, the industry develops in such a way that the firm ends up an insignificant player in the market, the very existence of the industry is dependent on the presence of competitors, and so the action is optimal. In the second scenario the firm *can* profitably attain critical mass, i.e., the marginal cost curve is initially less steep than the demand curve. Despite this, we show that it may still be in its interest to invite competition in order to increase profits and to reach a stable equilibrium.

One instance in which this seemingly occurred was in the licensing in the mid-nineties by Apple to other companies of the Macintosh to cloning companies such as Motorola, Unmax Computer Corporation and Power Computing. The licensing was carried out because "Apple could not cover every market niche by itself, but a group of computer makers could."[4] The cloning agreements seem not to have lived up to expectations, possibly because the new firms competed for the existing customers instead of selling in new markets,[5] and, as said by the Chief Financial Officer of Apple, "[a]ny new licensing agreements must expand the Apple platform, not merely redistribute existing market share."[6] It has been suggested that this failure occurred because Apple chose the wrong companies to work with.[7] Whatever the reason for the failure, the plan indicates a situation in which Apple alone could not serve the entire market, and therefore invited competition.

This has some interesting implications for antitrust litigation, since a lessening of market concentration in a network market may actually lead to increased prices and profitability in network markets. Thus, the firm can increase profitability and decrease antitrust concerns simultaneously. This does not mean, however, that antitrust officials should limit competition in such an industry in order to lower prices, because

duplicability of the entrepreneurial input, and in the loss of information within large hierarchies. As Wiggins (1995) states "a large, integrated firm cannot replicate the performance of a small, entrepreneurial firm."

[4] George A. Fisher, 2000, http://www.zaimoni.com/George/CloneWars.htm. See http://www.wormintheapple.gr/articles/MacHardware.html for a comprehensive analysis of this case.

[5] Ibid.

[6] Tom Karlo, Cnet News.com, August 6, 1997.

[7] George A. Fisher, 2000, http://www.zaimoni.com/George/CloneWars.htm.

the price increase that results from entry is also accompanied by an increase in consumer welfare. Thus, the entry is a Pareto improvement.

Inviting competitors can also serve as a means of limit pricing. As Gallini (1984) points out, sharing one's technology with other producers may create a disincentive for competitors to invest in developing alternative, and perhaps superior, technologies. This will allow the firm to hang on to market power for a longer period. This is particularly true with competing standards. An example in which the creator of one standard allowed competitors to use the standard freely, and as a result that standard won out is the success of Matsushita's VHS videocassette recorder standard and the failure of Sony's BETA system, considered by many to be superior. Matsushita licensed the VHS format to other consumer electronics enterprises including Hitachi, Sharp, Mitsubishi, and Philips NV (Hill, 1995). Sony was not as giving, and its technology eventually lost out. While we have no indication that the reason for allowing use of the standard was because of capacity limitations, the story is consistent with this possibility. This was not a case of limit pricing since both standards already existed, and this strategy is even more likely to succeed before alternative technologies are created. In fact, in the example just presented, "the decision by Philips NV to license the VHS format from Matsushita, rather than continue to push ahead with its own V2000 videocassette recorder technology, reduced the number of technologically incompatible VCR formats in the market place from three to two and helped to build momentum behind the VHS format" (Hill, 1995). As we will show, in a network industry this can possibly be done without sacrificing profits, and may concurrently lower antitrust concerns.

The paper proceeds as follows. The model is presented in Section II. We begin by considering a situation in which the firm is unable to profitably produce a sufficient quantity to justify the existence of the industry, show why inviting competition helps, and show how the firm determines how many competitors to invite and how much to produce. We consider different forms of competition between the firms, and demonstrate that the market outcome is independent of the type of competition that ensues between the firms. We then demonstrate that even when the firm can profitably produce on its own, it may be able to benefit from inviting competition. In Section III we show how inviting competition can be used to deter R&D efforts by other firms, thus playing the role of limit-pricing. We also consider more fully the antitrust implications of our model. Section IV concludes.

II. The Model

At the center of our model will stand the usual demand correspondence for network goods (see, for example, Economides, 1996). In general terms, the price consumers are willing to pay for any positive quantity of the network good is a separable function of the direct effect of price on quantity, $f(Q)$, and the network effect, $g(Q)$, as follows:

(1) $\quad D^{-1}(Q) = \begin{cases} [0,\infty] & \text{if} \quad Q = 0 \\ P(f(Q),g(Q)) = f(Q) + g(Q) & \text{if} \quad Q \geq 0 \end{cases}$

$f(Q)$ is the normal demand curve, and so we assume that $\dfrac{\partial f(Q)}{\partial Q} \leq 0$. $g(Q)$ is the network effect, and we therefore assume that $g(0)=0$, and that $\dfrac{\partial g(Q)}{\partial Q} \geq 0$. In addition, in order to guarantee that a finite quantity exists in equilibrium, we assume that $\lim\limits_{Q \to \infty} \dfrac{dP(f(Q),g(Q))}{dQ} < 0$.

Without loss of generality we will refer, for now, only to the bottom part of the correspondence in (1), i.e., to positive quantities. The other portion of the correspondence refers to a situation in which the firm does not produce. Nevertheless, this part of the correspondence will play a part when we discuss stability below. For now, we assume that the firm faces the following inverse demand curve:

(2) $\quad P(f(Q),g(Q)) = f(Q) + g(Q)$.

For tractability, we specify the demand curve used by Rohlfs (1974) and Oren and Smith (1981), which is similar to that used by Economides and Himmelberg (1995a, 1995b)[8]:

(3) $\quad P(Q) = -bQ^2 + eQ \quad :b,e \geq 0$.

e is the positive network effect.

The firm and any competitors entering the industry have identical upward sloping supply curves:

(4) $\quad \dfrac{dTC}{dq_i} = mc(q_i) > 0; \quad \dfrac{d^2TC}{dq_i^2} > 0$.

Again, we will use a simple form to allow for tractability:

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[8] The functional form in Economides and Himmelberg (1995a, 1995b) is slightly different because they are concerned with the formulation of consumer expectations.

$$(5) \quad TC\,(q_i) = \frac{cq_i^2}{2}; \qquad mc\,(q_i) = cq_i \ : c \geq 0.$$

The problem faced by the firm is depicted in Figure 1. Note that if the firms' marginal cost curve lies strictly above the demand curve (as depicted in the figure), the profit maximizing production level is zero.
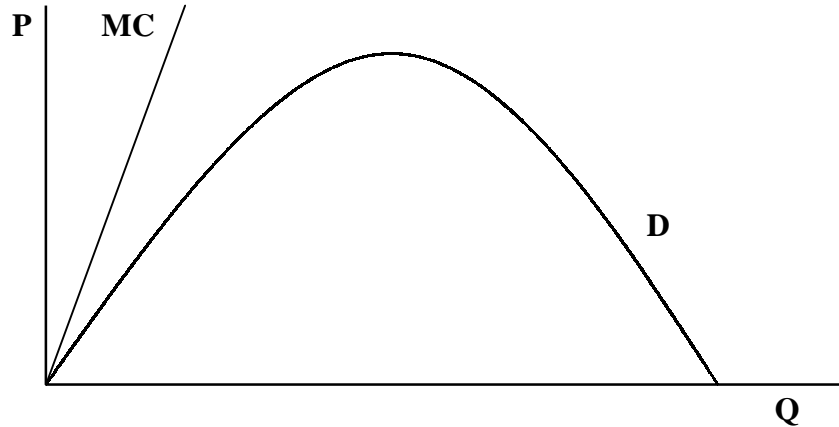

Figure 1. The demand and marginal cost curves.

A. Quantity Competition

To determine the firm's optimal strategy, we must first specify the type of competition that will exist between the firms once entry has been accomplished. We begin by assuming that the firm will be a Stackelberg leader vis-à-vis the other producers. Assuming the firm invites n firms with identical technologies to enter the industry. The total amount produced will be:

$$(6) \quad Q = q_L + \sum_{i=1}^{n} q_i \,,$$

where q_L is the amount produced by the leader and q_i the amount produced by each of the followers. The followers each solve the following maximization problem:

$$(7) \quad \underset{q_i}{\text{Max}}\, \Pi_i\left(q_i, q_L^*, n^*\right) = \underset{q_i}{\text{Max}}\left[-b\left(q_L + \sum_{j=1}^{n} q_j\right)^2 + e\left(q_L + \sum_{j=1}^{n} q_j\right)\right]q_i - \frac{1}{2}cq_i^2,\ i = 1,...,n$$
$$\text{s.t. } q_i \geq 0$$

Where q_L^* and n^* are the quantity and number of firms chosen by the leader. These are taken as parameters by the followers. The leader, in turn, determines his production quantity and the number of competitors by solving:

$$(8) \quad \underset{q_L, n}{\text{Max}}\, \Pi_L(q_L, n, R_F(q_L, n)) = \underset{q_L, n}{\text{Max}}\left[-b\left(q_L + \sum_{i=1}^{n} q_i\right)^2 + e\left(q_L + \sum_{i=1}^{n} q_i\right)\right]q_L - \frac{1}{2}cq_L^2.$$
$$\text{s.t. } q_L, n \geq 0$$

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Solving this system yields the following results[9]:

$$(9) \qquad q_L^* = q_f^* = \frac{e^2}{4bc}; \quad n^* = \frac{2c}{e} - 1; \quad Q^* = \frac{e}{2b}; \quad P^* = \frac{e^2}{4b}; \quad \Pi^* = \frac{e^4}{32cb^2} = \frac{P^*}{2c}.$$

A condition for this to be the profit maximizing solution is that $2c > e$. This condition will be discussed below.

Surprisingly, the quantities produced by the leader and by the followers are identical. This means that this result is also the result that would pertain if the firms were Cournot competitors instead of Stackelberg competitors. This observation requires explanation.

Figure 2 demonstrates the solution. The key to understanding this solution is found in the firm's ability to choose any price it desires from the demand schedule by manipulating n, the number of firms. The price the firm receives becomes, therefore, independent of the quantity it produces. Thus, the firm sees, in essence, a perfectly elastic demand curve, and decides how much to produce based solely on a comparison between the price and the marginal cost. Consequently, the firm chooses the price to be as high as possible, as given by point M in Figure 2.
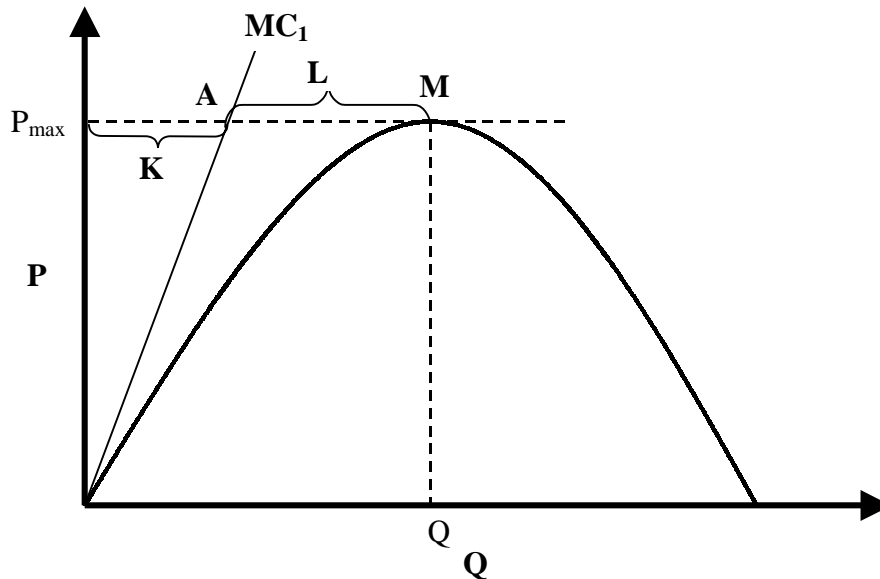
Figure 2. Equilibrium.

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[9] The equations were solved using the program Maple. This solution assumes that the number of competitors is a continuous variable. If it is not, the optimal number of firms to invite into the industry will be given by $\hat{n}^* : \Pi_L(\hat{n}^*) = \text{Max}[\Pi_L(\text{int}(n^*)), \Pi_L(\text{int}(n^* + 1))]$.

Note in Figure 2 that this strategy means producing an amount that corresponds to point A, and inviting L/K competitors. Since, from (2), the amount that corresponds to point M equals $e/2b$, from (3) we see that the price at this point equals $e^2/4b$, and from (5) we find that the amount the firm would like to produce at this price (where P=mc) is $e^2/4bc$. Dividing the total amount at point M with the amount produced by each firm yields the number of invited firms in (9).

From this figure the condition $2c>e$ mentioned above is also clear. If $2c=e$, the firm's marginal cost curve will intersect the demand curve precisely at point M, so the firm has no interest in inviting competition. When the inequality holds the firm optimally produces less than this quantity, so in order to boost the price, the firm invites competition. If the inequality is reversed, the firm will not invite competition.

This also leads to another distinction. Note from (3) that the slope of the demand curve when $Q \rightarrow 0$ equals e. Thus if $c \leq e$ the firm will not produce without competitors in the industry, while if $e/2<c<e$ the firm would produce even without competitors, but will increase profits by inviting competition. This latter possibility is shown in Figure 3. Note that the firm profits at point A, but it can increase profits by inviting sufficient competitors to reach point M.
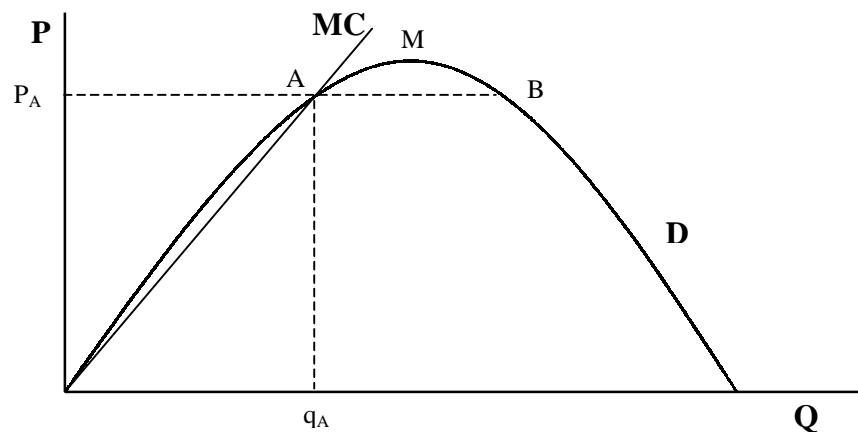
Figure 3. Unstable Equilibrium.

However, as analyzed by Rohlfs (1974), the equilibrium without inviting competitors is on the upward sloping portion of the demand curve, and is thus inherently unstable. This is because given a price, any movement from the equilibrium point will, in a dynamic sense, push the equilibrium towards zero or towards the quantity on the right side of the curve at the same price. Consider point A

in Figure 3. The price is P_A, and the quantity q_A. If the quantity should fall slightly the value to consumers will fall, so consumers will no longer be interested in purchasing, and equilibrium will fall towards zero. If, conversely, the quantity should rise past the equilibrium level, more consumers will want to purchase the good, and this will continue until point B is reached.

Thus, in this instance, inviting competition achieves several goals simultaneously. First, it attains stability in demand. Second, it leads to higher prices and more profitability. Finally, by increasing competition in the market, it lessens the likelihood of becoming the subject of antitrust litigation. This final point will be discussed more at length in Section III.

B. Price Competition

It seems fairly clear from the discussion above that the solution should be independent of the type of competition that prevails in the industry. We now demonstrate that this is so in the case of a price leader facing a competitive fringe. To this end, we must find the residual demand curve facing the leader after taking into account the production levels of the other firms. Inverting (3), the demand curve is:

(10) $Q(P) = \dfrac{e + \sqrt{e^2 - 4bP}}{2b}$.

If the fringe firms set marginal cost equal to price, their supply function is:

(11) $S_F(P,n) = \dfrac{nP}{c}$,

and the residual demand curve facing the leader is:

(12) $Q_R(P,n) = Q(P) - S_F(P,n) = \dfrac{e + \sqrt{e^2 - 4bP}}{2b} - \dfrac{nP}{c}$.

The firm's objective function is then:

(13)

$$\underset{q_L,n}{\text{Max}} \; \Pi(q_L,n) = \underset{q_L,n}{\text{Max}} \; -\frac{q_L c \left(2q_L b - e - \dfrac{-c + \sqrt{c^2 + 4bcnq_L - 2nce + n^2 e^2}}{n} \right)}{2nb} - \frac{cq_L^2}{2} .$$

s.t. $q_L,n \geq 0$

Solving this problem yields the same results presented in (9) above.

C. Comparative Statics

The comparative statics of the system are given in the following matrix:

$$(14) \quad \begin{bmatrix} \dfrac{\partial \Pi^*}{\partial e} & \dfrac{\partial \Pi^*}{\partial b} & \dfrac{\partial \Pi^*}{\partial c} \\[2ex] \dfrac{\partial n^*}{\partial e} & \dfrac{\partial n^*}{\partial b} & \dfrac{\partial n^*}{\partial c} \\[2ex] \dfrac{\partial q_L^*}{\partial e} & \dfrac{\partial q_L^*}{\partial b} & \dfrac{\partial q_L^*}{\partial c} \end{bmatrix} = \begin{bmatrix} \dfrac{e^3}{8cb^2} & -\dfrac{e^4}{16cb^3} & -\dfrac{e^4}{32c^2b^2} \\[2ex] -\dfrac{2c}{e^2} & 0 & \dfrac{2}{e} \\[2ex] \dfrac{e}{2cb} & -\dfrac{e^2}{4cb^2} & -\dfrac{e^2}{4c^2b} \end{bmatrix}$$

The effects with respect to profits and quantity produced by the leader are straightforward. An increase in *e*, the network effect, increases both profits and production, while an increase in costs, *c*, or an increase in the demand parameter *b* will decrease them.

The effect on the number of firms the monopolist optimally invites into the industry is not as obvious, and will be demonstrated graphically. To this end, we redraw Figure 2, while adding in a reference line that goes from the origin through the peak of the demand correspondence. Note that this line has a slope of *e*/2.
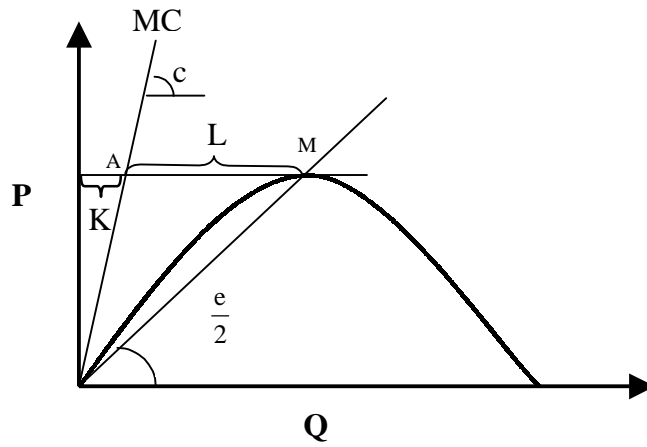
Figure 4. **The optimal number of firms.**

Recall that equilibrium is always given by point A for the original producer and point M for the entire industry, and that the number of competitors is given by the ratio L/K in Figure 4. Consider now an increase in marginal costs. This has the effect of shifting the MC curve to the left, as in Figure 5. Clearly K will fall and L will rise, so L/K will rise, and the number of competitors will increase.
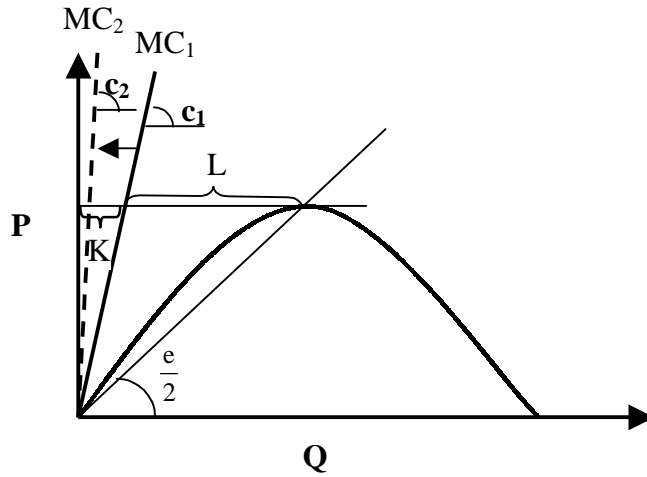
Figure 5. **An increase in marginal costs.**

A stronger network effect (i.e., an increase in *e)*, decreases the number of competitors. As shown in Figure 6, this increase causes the slope of the ray through the peak to increase. The ratio L/K would remain constant if the movement were along both rays, but what occurs is that this ratio falls, so that L'/K'<L/K, and there are fewer competitors invited into the industry.
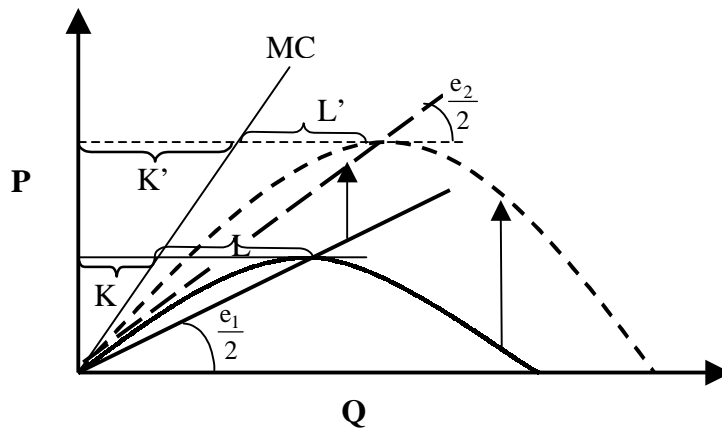

Figure 6. **An increase in the network effect.**

Finally, a change in the slope of the inverse demand curve, *b*, does not affect the number amount of competition. Note in Figure 7 that a decrease in *b* moves the entire demand curve up, but the slope of the ray through the peak does not change. Thus, the ratio between L and K remains constant, although both the price and the amount produced will increase.
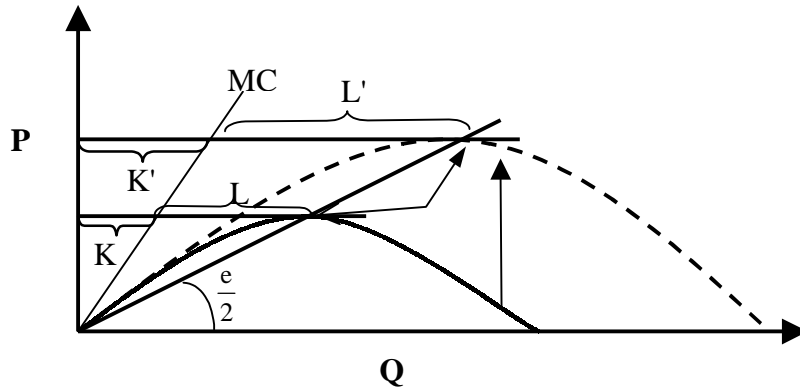
Figure 7. A decrease in the slope of the demand curve.

III. Strategic Uses of Inviting Competition

A. Inviting Competition as Limit Pricing

Consider a situation (in a non-network market) in which a monopolist is concerned about the creation of a new production process, which, if successful, could, over time, replace the existing technology. In this situation, the firm may benefit from a limit pricing strategy, in which, by cornering a large enough portion of the potential market by lowering prices, it causes expenditures on R&D to be unprofitable, and, as a result, entry is deterred. If, however, the marginal cost curve is upwardly rising, such a strategy not be a feasible or profitable possibility, since it requires increased production. In this situation, inviting competition could result in the desired effect. In this case, the firm would offer to share the existing technology with competing firms, thus making expenditures on a new technology unprofitable.[10] Such a strategy could be beneficial in any market, but it is particularly beneficial in a network market because the network effect means that prices will not fall as quickly (in fact, they may rise, as explained below).

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[10] Gallini (1984) considered a similar situation in which the firm desires to persuade a specific firm to stop research efforts that could undermine the technology of the existing firm by inviting the firm to use the existing technology.
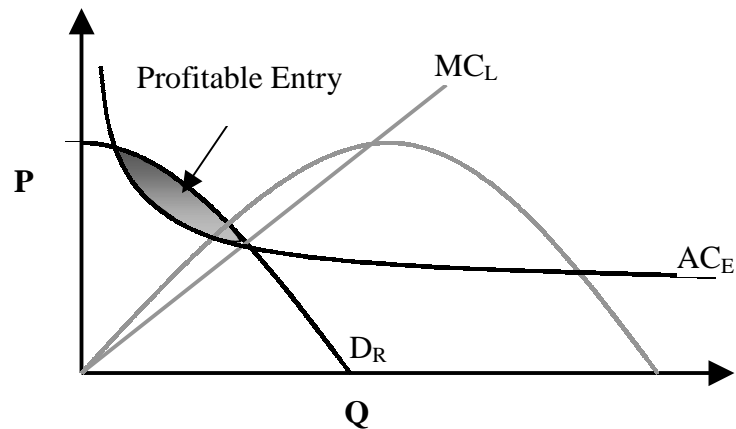
Figure 8. Entry Threat.

We demonstrate this idea in Figure 8. In order to isolate the limit pricing aspect of the analysis, we assume that the firm can produce the optimal amount without inviting competitors. There is, however, a second firm considering entering the R&D stage of market penetration, and who will have average costs (including R&D costs) AC_E. Assume, for simplicity, Cournot competition. In this case, the residual demand facing the second producer is given by D_R, and the firm has an incentive to enter because there is a range in which the price is above the average cost curve. If, however, the firm invites competition, it can increase the industry supply curve so that the residual demand lies completely below the average cost curve, and such research is deterred (see Figure 9). It does not matter whether the firm invites the potential competitor or another firm. In fact, it is not even necessary for the firm to know who the competitor is. Just the fact of the increased production discourages R&D.
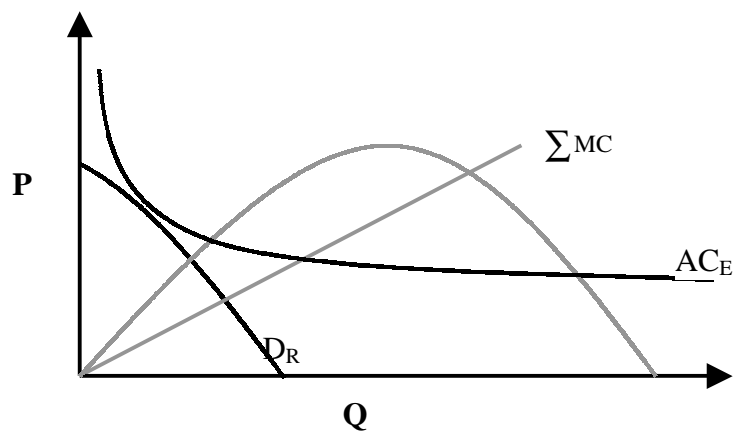
Figure 9. Limit Pricing.

This argument could be extended to a firm who alone would produce less than the amount at the peak of the demand curve (as in Figure 3). In this case, the limit price may be no lower (and perhaps even higher) than the price the firm would charge alone. In this instance, inviting competition may increase profitability in the sort run by leading to higher prices (and, hence, more sales), and in the long run by deterring the creation of competing technologies. As discussed below, it can also assuage antitrust concerns.

B. Inviting Competition to Avoid (or comply with) Antitrust Litigation

As mentioned in the introduction, the setting described above is actually ideal for a firm from an antitrust perspective. As shown, inviting competition may, at first, lead to increased prices while, at the same time, lowering market concentration. This means that while the firm benefits from increased profitability, it is at the same time lowering antitrust concerns. While the increased price may seem undesirable from a societal perspective, it is, in fact, preferable both for the producers and for the consumers, the latter because they get a more valuable product. Thus, antitrust officials should encourage such entry even if, as a result, prices rise.

Furthermore, the model can be easily extended to incorporate a desire to not allow prices to rise, i.e., to limit firm profitability. Let us assume that the authorities desire a certain price level (a price ceiling). In this case, the firm can be expected to invite producers so that the desired price is attained *on the right side of the demand correspondence*, as demonstrated in Figure 10. The reason the larger quantity equilibrium is to be preferred over the smaller quantity equilibrium is because of stability concerns. As mentioned above, points on the downwardly sloping portion of demand curve are stable, while those on the upwardly sloping portion are not.
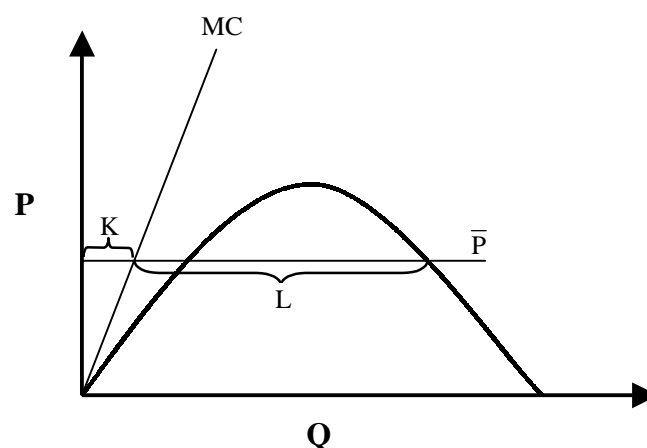
Figure 10. **Inviting Competition with a Price Ceiling.**

The number of competitors that will be invited in this instance is simple to calculate:

$$(15) \quad n^* = -\frac{2b\overline{P} - ec - c\sqrt{e^2 - 4b\overline{P}}}{2b\overline{P}} \quad \forall \overline{P} \in P(Q).$$

The result is that inviting the competitors helps the market attain critical mass and stability, while at the same time increasing competition. The firm benefits because it is able to profitably produce, and consumers benefit because of the larger market.

IV. Summary

In this paper we analyzed a network market in which it is beneficial for a producer to invite competitors to share a market, even when this is not needed in order to affect consumer beliefs. Because of the nature of network goods, the demand curve typically rises and then falls. If the marginal cost curve of the producer is also upwardly sloping, the firm may be either unable to profitably produce a sufficient quantity to satisfy demand at any price, or may be able to, but may benefit more if there are other producers also. Interestingly, optimal behavior by the producer is independent of the type of competition that will exist between the firms after the competitors have entered the market. This results from the fact that since the firm controls the number of entrants, it can always guarantee that it will receive maximal profits given the demand function and its technology.

We have pointed out some implications for strategic behavior by the firm. One interesting implication is with regards to antitrust law. In network markets, increased competition will not necessarily lead to lower prices. In our setting, the introduction of competition actually causes prices to increase because of the network externality. Thus, the firm benefits twice by increasing competition – it earns more and alleviates antitrust concerns. Higher prices, however, should not give cause to antitrust authorities to object to competition in these industries, because consumers benefit from this increase, since the number of consumers, and, hence, the utility from the good, also increases. Thus, in a network market with increasing marginal costs, the interests of producers and consumers (and, hence, of society) coincide. We also show how the strategy of inviting competition can be used dissuade firms from investing in R&D aimed at creating a superior technology. Interestingly, this is attained with little or no effect on the firm's profitability in the short run. Thus, unlike the case in most limit-pricing scenarios, the firm gains in both the short and long run from the increase competition. In addition, the increased competition allays fears of antitrust litigation.

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