Summary on A Note Restaurant Pricing and Other Examples of Social Influences On Prices

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Introduction

This paper tries to explain why many successful restaurants, plays, sporting events, and other activities do not raise prices even with persistent excess demand. The approach is that demand of typical consumer is positively related to quantities demanded by other consumers.

Model

The model incorporated that demand of a good by a person depends positively on the aggregate demanded of a good:

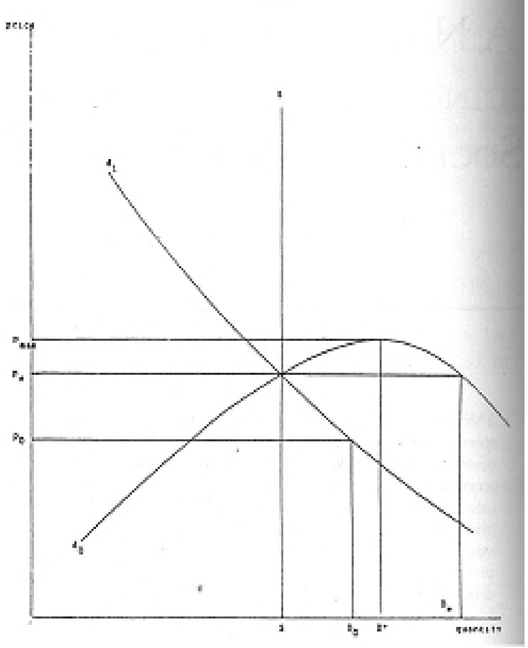
$$D = \sum d^i(p, D) = F(p, D), F_p < 0, F_d > 0 \tag{1}$$

where $d^i(p, D)$ is the demand of the ith consumer, and D is the market demand. Differentiating (1) w.r.t. price, we get

$$\frac{dp}{dD} = \frac{1 - F_d}{F_p} \tag{2}$$

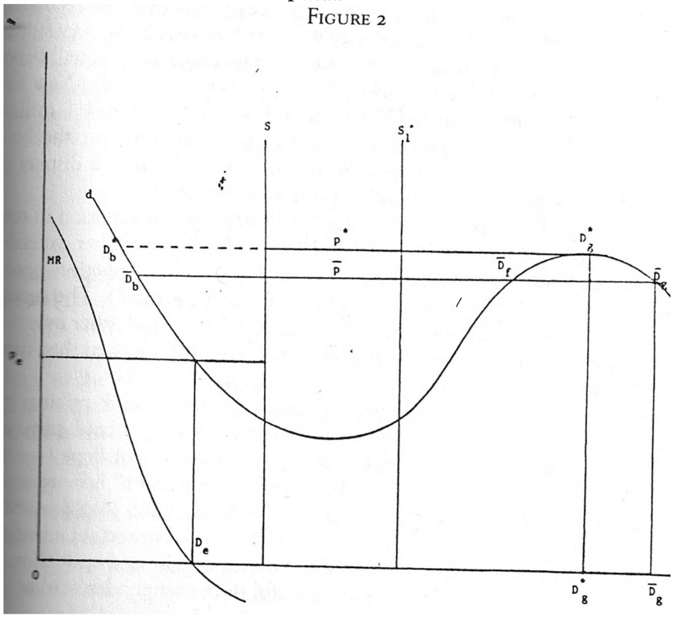
If the social interaction is strong enough - if $F_d > 1$- an increase in aggregate demand would increase the demand price. Note that here, instead of examining the usual how price affect demand, we are examining how demand affect price. If $F_D > 1$for all $D < D*$, $F_d = 1$for $D = D*$, and $F_d < 1$for $D > D*$, the demand rises as D increases for $D < D*$, it hits a peak $D = D*$, and then it falls as D increases beyond $D*$(Figure 1).

FIGURE 1



Profits are maximized at price equals p_{max}, the peak demand price. The positively inclined demand curve in the vicinity of S explains why popular restaurants remain popular despite 'high prices'. Demand must rationed at p_{max}since $D*$exceeds S. Though a firm that charges p_{max}has a permanent gap measured by the difference between $D*$and S, it shouldn't raise price further and cut the gap; demand is discontinuous at $p_{max}$and falls to zero for trivial increases in price.

FIGURE 2



Demand curve can be negatively first negatively slope, become positively slope for some D, and then become negatively slope again (Figure 2). If firm choose price p^*, demand may be at D_b^*or at D_g^*. Though profit is maximized at (D_g^*, p^*) , firm that must have an inferior equilibrium prefers p_e to p^* where marginal revenue zero when $p = p_e < p^*$and $D = D_e < S$. Lessons from figure 2:

- There are two competing locally profit-maximizing equilibrium: one has excess capacity and a low price $(S - D_e, p_e)$ and the other has excess demand and a high price $(D^*_g - S, p^*)$.The difference between these equilibira correspond to the difference between a struggling restaurant or play with excess seats and a highly successful one.

- Suggest that goods with bandwagon properties tend to be advertised heavily since demand of one consumer drives the demand of other consumers
- The distinctive equilibira $D = D^e$and $D = D^*_g$explain why restaurant with similar food and amenities don't do equally well
- The price of hardcover edition almost never increases when a book turns out to succeed, nor until remaindering does it fall so much that it flops. The reason is that $p^*$is more or less the optimal price whether the book flops or not, assuming demand is quite inelastic for $p < p*$. Publishers set a price $p^*$and hope for success, but they recognize that they may end up with many unsold copies that are mainly useful in the remainder market and for paper content
- The equilibrium at (p_e,D_e) is locally stable, the one at (p^*, D^*_g) is not stable for shocks that reduce demand, and neither equilibrium is stable for large changes
- It is much easier from being successful to being unsuccessful(restaurant) than being unsuccessful to being successful. This is because(p_e, D_e) is locally stable in both directions and only a large upward shock to demand could shift demand to the profitable equilibrium at (p^*, D^*_g)
- The cost from expanding from S to S^1_*may cost firm to bankrupt if initially high demand D^*_gsuddenly falls to D^*_b. So, firm may be reluctant to expand capacity
- A restaurant could increase leftward stability of a high-price equilibrium by lowering price in figure 2 below p^*,say $\bar{p} < p^*$,which has a demand at $\bar{D_g} > \bar{D}^*_g$; the point $(\bar{p},\bar{D_g})$ is not only stable for increases in demand but also for some shocks that lower demand. However, $\bar{p}$ does not avoid multiple equilibrium.

Another reason of why supply does not grow is that aggregate demand depends not only on price and aggregate demand but also positively on the gap between demand and supply:

$$D = \sum d^i(p, D, \frac{D}{S}) = F(P, D, \frac{D}{S}), \frac{\delta F}{\delta S} > 0$$

Greater supply might not pay because that lowers the gap, and, hence the optimal price available to a producer.

Miscellaneous & Appendix

Typical consumers may prefer a larger aggregate demand only up to some fraction of capacity; beyond that they find the restaurant overcrowded. Refer to Question 20 &21 in Encyclopedia which has question on this topic. The model we used in class is

$$\frac{dX_1}{dp_1} = \sum_{j=1}^{N} \frac{dx^j_1}{dp_1} + \sum_{j=1}^{N} \frac{dx^j_1}{dX_1}\frac{dX_1}{dp_1}$$

$$\frac{dX_1}{dp_1} = \frac{\sum_{j=1}^{N} \frac{dx^j_1}{dp_1}}{1 - \sum_{j=1}^{N} \frac{dx^j_1}{dX_1}}$$

where the social multiplier effect is defined as

$$m = \frac{1}{1 - \sum_{j=1}^{N} \frac{dx^j_1}{dX_1}}$$