Quality-Ensuring Profits [1]

Firms and consumers are atomistic, lying on the [0,1] interval. First, the firms simultaneously choose qualities and prices. Second each consumer observes the prices, but not the qualities, and decides which one of the firms, if any, to visit. Third, after visiting a firm, each consumer decides whether to buy one unit or not based on what he observes about quality and the government may intervene. If the consumer does buy, the firm produces the unit and the consumer pays. Finally, the firm pays the production cost, each consumer consumes what he has bought, and all consumers discover the quality of all firms.

A firm pays $c = c_h$ per unit to produce high quality and $c = c_l$ to produce low quality, with $0 < c_l < c_h$. Consumers value high quality at $v = v_h > c_h$ and low quality at $v = v_l = c_l$, so high quality is efficient.

(A1) (Consumer Error) If the quality is low, then with probability $0 \leq \alpha < 1$ the consumer observes that fact– he "spots the flaw," but with probability $(1-\alpha)$ he receives no information. If the quality is high, he receives no information.

(A2) (Informed and Uninformed Consumers) If a consumer is one of the fraction $0 \leq \beta < 1$ of consumers that are "discerning" he observes quality perfectly once he visit the seller.

(A3) (Weak Laws) If a firm tries to sell low quality as high, then with probability $0 \leq \gamma < 1$ independent of α and β the government interrupts the transaction and fines the seller amount F.

The Firm: In equilibrium, the firm chooses high quality and the price $p = p^*$, where if we define the probability of successfully completing a sale as: $\theta \equiv (1-\alpha)(1-\beta)(1-\gamma)$, then the price is:

$$p^* \equiv c_h + \frac{r\theta(c_h - c_l)}{1 + r - r\theta} - \frac{r\gamma F}{1 + r - r\theta}. \tag{1}$$

If the firm has ever deviated to low quality or to $p < p^*$ in the past, it chooses low quality and $p = c_l$.

The Consumer: The consumer never visits a firm that has produced low quality or charged $p \neq p^*$ in the past. Of the remaining firms, he visits the firm with the lowest price such that $p \geq p^*$, or no firm if all prices are less than p^*. If he observes the quality, he buys if $p \leq v$. If he does not observe the quality, he buys if $p \in [p^*, v_h]$. If $p < p^*$, the consumer believes that the quality is low. If $p > p^*$, he believes that the quality is high.

[1] 31 March 2008. Eric Rasmusen, Department of Business Economics and Public Policy, Kelley School of Business, Indiana University. visitor (07-08), Nuffield College, Oxford University. Office: 011-44-1865 554-163 or (01865) 554-163. Nuffield College, Room C3, New Road, Oxford, England, OX1 1NF. Erasmuse@indiana.edu. http://www.rasmusen.org. This paper: http://www.rasmusen.org/papers/quality-rasmusen.pdf.