Business Economics
Tutorials - Session 9
IAE Toulouse - 2016

Competition with limited attention

Two firms (F1 and F2) compete in prices and sell differentiated goods. Their marginal cost of production is supposed to be zero. We model this competition by assuming that the consumers are uniformly distributed on the unit line $[0, 1]$ and firms are located at both ends of this line. When a consumer located at point x buys a good at a price p_i from a firm i located at distance d, we assume that his utility is given by $\bar{s} - p_i - dt$ with $t > 0$ and differentiation parameter.

We first assume that all consumers are aware of the existence of both firms.

1. For given prices p_1 and p_2, compute the market share of each firm.
2. Write down the profit function of each firm and derive their best-response function.
3. Characterize the equilibrium prices and profits for both firms.

We now assume that the firms must advertise their products to let consumers know about them. More precisely, to inform a share λ_i of consumers about the existence of product i, firm i incurs costs of $A(\lambda_i) = \alpha\lambda_i^2/2$. Moreover, we assume that if a consumer is reached by two ads, he will be able to understand both with probability β but only one (chosen randomly) with probability $1 - \beta$. When an ad is not understood, it is never considered by consumers. Finally, we assume (to guarantee an interior solution) that $t < 2\alpha\beta$.

4. For given values of $\lambda_1, \lambda_2, p_1, p_2$ and α, what is the demand addressed to F1?
5. Given the actions of F2, derive the first-order conditions with respect to p_1 and λ_1 maximizing the profit of F1.

6. Focusing on the symmetric equilibrium (with $\lambda_1 = \lambda_2 = \lambda$ and $p_1 = p_2 = p$), compute the equilibrium price and advertising intensity.

7. How are these values influenced by a change in β? Explain.