Corporate Social Responsibility and Product Differentiation under Mixed Competition

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Corporate Social Responsibility and Product Differentiation under Mixed Competition

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Corporate Social Responsibility (CSR)

- CSR basically refers to sacrificing profits in the social interest, such as providing support to the environment, ethics, and culture.
- Empirical studies find mixed or no association between CSR and corporate returns, possibly because
  - CSR is a long-term process
  - Ensuring a representative sample
  - Endogeneity between CSR and profitability
  - Heterogeneity and measurement errors in CSR.
- Theoretical studies of CSR are rare, possibly due to the ambiguity with the motive whether it is consumer-led or owner-led.
- We propose a general framework that includes both consumer-led CSR and owner-led CSR.

Third stage: Demand

- An indifferent consumer gets equal utility from purchasing products of firm A and B. The market demand for product A and B are the two dimensional variant of the model proposed by Irmen & Thisse (1998)

\[ D_A = \sqrt{(c_A - c_B) + (p_B - p_A) + (b_1 - a_1)(b_1 + a_1 - 1)t_1 + (b_2^2 - a_2^2)t_2} \]

\[ D_B = 1 - D_A \]

Second stage: Optimal prices and CSR

- Assuming zero marginal cost of production, the owner of Firm \( j \in \{A, B\} \) maximizes a convex combination of profit and utility received from CSR.

\[ \max_{p_j, c_j} \lambda u(c_j) + (1 - \lambda)(p_j D_j - c_j) \]

where,

\[ \lambda \in [0, 1] \]

indicates owner’s satisfaction from providing CSR

\[ u(c_j) \] is \( u > 0 \), \( u'' < 0 \), assumed to be logarithmic for simplicity.

- Optimal prices are

\[ p_A^* = \frac{1}{3}\sqrt{(c_A - c_B) + (b_2 - a_2)(2 + a_2 + b_2)t_2} \]

\[ p_B^* = \frac{1}{3}\sqrt{(c_A - c_B) + (b_2 - a_2)(4 - b_2 - a_2)t_2} \]

Each firm raises price if its CSR is consumer-led, \( y \neq 0 \) and decreases price if the rival increases CSR. Prices do not change if consumers do not care for CSR.

- Consumer-led CSR \((y = 0)\) gives

\[ c_A^* = 1 - \frac{(b_2 - a_2)(5 + a_2 + b_2)t_2}{4\gamma} \]

\[ c_B^* = 1 - \frac{(b_2 - a_2)(7 - a_2 - b_2)t_2}{4\gamma} \]

- Owner-led CSR \((y = 0)\) gives

\[ c_A^* = \frac{18\lambda_A}{(b_2 - a_2)(2 + a_2 + b_2)^2(1 - \lambda_A)t_2} \]

\[ c_B^* = \frac{18\lambda_B}{(b_2 - a_2)(a_2 + b_2 - 4)^2(1 - \lambda_B)t_2} \]

First stage: Optimal product characteristic

- Consistent to Irmen & Thisse, Both consumer-led and owner-led case give \( a_1^* = b_1^* = 0.5 \) and \( a_2^* = 0.25, b_2^* = 1 \).

Equilibrium outcomes

- Consumer-led CSR \( c_j^* = (2\gamma - 3t_2)/\gamma \) exceeds owner-led CSR \( c_j^* = 2\lambda_j/(1 - \gamma) \)

Our model versus reality

- “Dick’s Sporting Goods” is one of largest seller of guns in the U.S. After the Florida school shooting, the firm decided to limit sales of guns and raise gun-buying age to 21. It also declared to end sales of assault-style rifles and high-capacity magazines.
- Our model suggests that consumers receive the idea that the firm serves for greater cause. If the cause is valuable to consumer, it is going to increase demand and profit for the firm.
- Initially Dick’s experienced a fall in sales, whereas its competitors observe a growth. However, Dick’s decision influences socially aware consumers, and the sales went up for higher margin items, e.g., baseball gear and kayaks. The company reported a 4.6% growth in net sales in the first quarter of 2018.
- We see a combination of CSR and product differentiation in this example. Our model suggests that when transportation cost is high (substitution from banned gun-type to other gun type), the firm needs to use both CSR and product differentiation to make a difference.