Rose-Hulman Institute of Technology
Department of Humanities & Social Sciences / K. Christ
SV353, Industrial Organization

3-5: Entry Costs, Market Structure, and Welfare

Empirical evidence suggests that industry-specific factors and market size are influential in determining the size distribution of firms in an industry.

Examination of factors affecting the size distribution of firms tends to focus on entry conditions, but also yields a surprising result that free entry may not always be socially optimal.

To investigate the influence of industry-specific factors (technology) and market size, we modify a basic model to allow demand to be "scaled" up or down by market size (S), and focus on fixed (f) and marginal costs (c) to consider the effects of technology. Notice that

$$\frac{\partial \hat{n}}{\partial S} > 0 \; and \; \frac{\partial^2 \hat{n}}{\partial S^2} < 0$$

- The equilibrium number of firms increases at a decreasing rate as the market gets larger.

What accounts for the non-proportional relationship between the equilibrium number of firms and market size?

- Price competition
- Economies of scale

Important concepts:

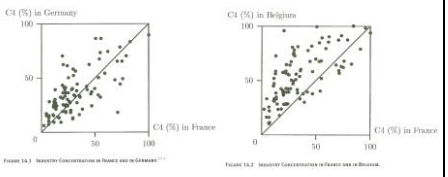
- Degree of scale economies, $\rho \equiv$ AC/MC
- Learning curve effects

Free Entry and Social Welfare: If some conditions of perfect competition do not hold, then it is no longer necessarily the case that free entry is desirable from a social perspective.

- Entrance costs and externalities associated with entry may outweigh the benefits of new firms entering the market.

Relevant exercises: Problem Set 3, exercise 9.

Entry Costs, Market Structure, and Welfare



Cabral, Industrial Organization, Figure 14.1: Industry Concentration in France and Germany

Cabral, Industrial Organization, Figure 14.2: Industry Concentration in France and Belgium

A model of technology, market size and industry structure

To analyze the relationship between market structure and technology, modify the demand function to incorporate market size, S:

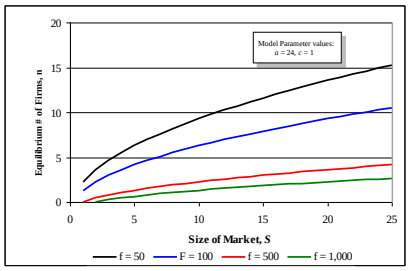
$$Q = (a - P)S$$

Use previously derived Cournot profit outcomes setting it equal to zero for an equilibrium condition:

$$\pi_i = \frac{(a-c)^2}{b(n+1)^2} - f = S\left(\frac{a-c}{n+1}\right)^2 - f = 0$$

Equilibrium number of firms, $\hat{n} = \left[(a-c)\sqrt{\frac{S}{f}}\right] - 1$

Entry Costs, Market Structure, and Welfare



Free Entry and Social Welfare

Assumptions:

1. Entry cost, $k > 0$
2. $q_{n+1} < q_n$
   - Entry of new firm reduces optimal output level for all firms.