

Lecture 4 - Entry, Market Structure, & Concentration

Prof. Sara Ellison

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Last time, I left you with a couple of questions to ponder regarding the entry model we saw.

That model was constructed specifically to focus on question of how entry affects competition and how much entry we get in equilibrium. In that model, we assumed firms each paid f to enter and that all consumers had travel costs t to each firm.

Barriers to entry

What if f was different for different firms (perhaps increasing for subsequent firms)?

- There will be less entry, so firms entering earlier can make positive profits.
- How could this occur? First firm patents most efficient technology or hires better workers for incurring fixed costs, and other firms have what's left.
- If f, c decrease for subsequent firms (learning from earlier firms' mistakes, perhaps), early entrants will have trouble surviving.

What if t was different for traveling to different firms (perhaps increasing for subsequent firms)?

- The incumbent firm retains a larger part of the market, so there is less entry, meaning firms entering earlier can make positive profits.
- How could this occur? Customers could be comfortable with incumbent firm, have uncertainty about quality of entrant, or have network externalities associated with the incumbent.

How often would early entrants and later entrants have different f, c, t ? Can incumbent firms do anything to affect entrants' f, c, t ?

$$t \left\{ \begin{array}{l} \text{network externalities (value of product increases with number of users)} \\ \text{switching costs (real, informational [loyalty programs or Facebook friends])} \\ \text{information asymmetries} \end{array} \right.$$

$$f, c \left\{ \begin{array}{l} \text{patents} \\ \text{labor (Google hiring the best programmers)} \\ \text{legal barriers besides patents (liquor licenses for restaurants, taxis)} \\ \text{technological know-how (learning by doing in semiconductors)} \\ \text{economies of scale (cheaper per-item costs when purchasing in bulk)} \end{array} \right.$$

We could write down formal models of these phenomena, but often getting intuition from informal discussion is just as valuable.

The size of f and t and how they differ across firms or potential firms in a market is important in determining how many firms enter (known as "concentration") and whether there are firms that make positive profit.

We would expect these quantities to differ a lot across markets and result in very different market structure—but what is the evidence?

Economic Census

In addition to the better-known population census, the US Census Bureau carries out an economic census in years ending in 2 and 7 (pretty routinized since 1967 and has existed in some form since 1914).

Industries are classified by SIC, NAICS down to 7-digit level:

- cat food
- molded pulp goods
- cold-finished steel bars & bar shapes
- complete guided missiles
- tired cord & tire fabric
- prepared frozen fish

It covers all domestic, non-farm business establishments except governments –most reports are confined to establishments with employees.

Questions covering the following were asked:

- type of business
- geographic location
- type of ownership
- total revenue
- annual & first quarter payroll
- number of employees
- inventories
- capital expenditures
- materials consumed
- cost of materials
- energy consumed
- quantity & value of shipments

The results are used to calculate PPI, GDP, productivity measures, and for research purposes.

Some things we can learn from the Economic Census

- on average, 37% of firms are new between censuses
- exit rates are nearly as high
- entrants & exits are smaller than existing or continuing firms
- $\frac{1}{2}$ of entrant output is from new firms and $\frac{1}{2}$ of entrant output is from existing firms diversifying

- entry and exit rates differ across industries and persist over time
 - higher in restaurants, internet outlets, and small retail
 - suggests f, t exist over time within industry but are quite different across industries.
- concentrations (number of firms) differs across industries but persists over time
 - 4-firm CR (market share of 4 largest firms):

manufacturing	50%
amusement parks	64%
credit-reporting agencies	53%
car rental (outdated)	47%
outdoor advertising	31%
photo labs (outdated)	28%
life insurance	24%
advertising agencies	14%
barber shops	11%
furniture stores	7%
auto repair	1.6%
- what accounts for this heterogeneity?
 - difference across industries in fixed costs
 - economies of scale
- where could we look for evidence of heterogeneity of f, c, t within industry?
 - one possibility: first entrants have significant and persistent advantage
 - suggests f, c , or t are smaller for first entrants \Rightarrow "market leadership"

Golder & Tellis

- conventional wisdom: a firm invents a product category (cola drinks, ready-made dress shirts, disposable safety razors, etc.) and has a large and lasting advantage for decades.
 - if true, this suggests incumbents have lower f, t, c
- see table 2 from Advertising Age
- there's a problem with how this information was typically compiled –by asking executives who pioneers were and who leaders are. the answers are noisy and biased towards current market leaders.
- alternative (but time-consuming) methodology: gather contemporary accounts of pioneers, innovation, entry, market leadership.
- see table 3 from Golder & Tellis
- findings: very little evidence of pioneer advantage, although they often found long-term persistence in leadership by firms other than pioneers.

Wider view of the past few lectures

We've seen models which give us hints about factors that are important in determining:

- how many firms will be in a market
- how intense competition will be in that market (how far above marginal cost can firms price)

One thing we haven't talked about is the social welfare implications (what separates economics classes from business classes is that economists want to understand how markets work for all participants, not just what maximizes firm profits).

Comments on social welfare

- The exercise of monopoly power typically results in deadweight loss –there are consumers who value the product more than its marginal cost of production but will not be served since a monopolist prices above the marginal cost.
- The closer price is to the marginal cost (and the more "competitive" the market is), the lower the deadweight loss –this is why governments try to encourage it.
- Economic theory is ambiguous when it comes to the optimal amount of entry to maximize social welfare.
 - firms cannot appropriate all of the consumer surplus generated by their entry (think of guys located near firm in product space –would pay more but don't have to); tends to lead to less than socially optimal entry.
 - firms don't consider the negative externality they impose on their rivals by stealing some of their customers; tends to lead to greater than socially optimal entry.

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