MFP SET

Lecture 5

Interdependence within markets
Perfect competition

- The models of demand & supply have been discussed without being specific about how many firms are in the market.
- If we assume many firms and many buyers, we are some elements of *perfect competition*.
  - Firms in perfectly competitive markets do not influence each other directly because each is too small to affect the market.
Interdependence within markets

- In many markets, we have just a few firms – which means they have influence over the market and over each other’s actions.

- The study of interdependence within markets is called *Industrial organisation* or the organisation of markets.
What is industrial organisation?

- The study of *individual markets*
  - the *organisation* of markets or the *structure*
  - the *explanation* of that structure
  - what creates *market power*
    - external forces
    - strategic behaviour on the part of firms
  - and what, if any, are the appropriate government policies to deal with market power
How does it differ from microeconomics?

- IO is an *application* of microeconomics
  - Uses price & game theory to analyse the interactions between players within a market
- *Not* a prescriptive subject
  - Not a list of strategic moves
  - Uses an analytical approach; foundation is microeconomics
Focus of analysis

- Focus is on the *industry*
  - Need to define the industry or market under consideration
  - Need a way to characterise the industry
    - By level of concentration, form of competition, number of buyers, degree & type of government interference
  - Need to be specific about the questions we’re asking
What questions does industrial organisation address?

- The economist:
  “Does the structure of this industry lead to efficient outcomes?” (Is price equal to marginal cost?)

- The manager:
  “How does market structure affect our strategy options?” (Can we cut costs, differentiate our product, enter a new market?)

- The regulator:
  “Does the structure of this industry mean that firms can engage in anti-competitive behaviour at the expense of consumers?”
Market structure

- Structure/Conduct/Performance
  - Approach developed by J. Bain (Harvard)
  > Industrial structure basically an empirical problem of describing the market, discovering how firms interact with each other, and how these factors affect firm profitability
Structure/ Conduct/ Performance

- Structure
  - number of sellers, degree of product differentiation, cost structures, degree of vertical integration

- Conduct
  - pricing policies, level & type of R&D, investment strategies, advertising

- Performance
  - efficiency, ratio of price to marginal cost, innovation rates, profits
Porter’s five forces

- Internal rivalry: competition within a market for market share
- Entry: competition by outsiders
- Substitutes & complements: influences on demand
- Supplier power: market structure/power upstream
- Buyer power: market structure/power downstream
Game theory

- Game theoretic approach
  ➢ Because (most) markets are *not* perfectly competitive, firms are interdependent
  ➢ Game theory used to analyse interactions between these interdependent firms
  ➢ Strategies can be developed to improve firm performance
Dynamic pricing rivalry

- Why dynamic?
  ➢ Because most interactions in most markets are repeated

- What does pricing rivalry mean in practice?
  ➢ Should you compete by cutting price, trying to capture market share or should you keep prices high, and take a share of (monopoly) profits?
An Example

Rupert Murdoch takes on the *Daily News*

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<thead>
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<th><em>Post (Murdoch)</em></th>
<th><em>Daily News</em></th>
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<td>Jan '94</td>
<td>$0.40</td>
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<td></td>
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<tr>
<td>Jul '94</td>
<td>$0.50</td>
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A generalisation

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Price</th>
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<td></td>
<td>$20</td>
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<td></td>
<td>$100</td>
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To defect or not to defect?

- Suppose Alpha & Beta are charging the monopoly price of $60
- Does Beta keep its price at $60 or lower to $40 to gain market share?
Beta’s decision

- Beta needs to consider what its profit will be in each case, over the likely period of interaction.
  - It does two calculations:
    - Profit from keeping at $60
    - Profit from dropping to $40
The calculations

Beta stays with price of $40:
It should anticipate that Alpha will keep its price at $60 for the first week, then drop back to $40 in the second week:

\[ \frac{1}{1.002} \cdot 11.54 + \frac{11.54}{(1.002)^2} + \frac{11.54}{(1.002)^3} \cdot L \]

Beta increases price to $60:
It should anticipate that Alpha will keep its price at $60 for the foreseeable future:

\[ \frac{1}{1.002} \cdot 15.38 + \frac{15.38}{(1.002)^2} + \frac{15.38}{(1.002)^3} \cdot L \]
Profit Calculations

First period weekly profit if defecting:

\[ \pi_{\text{annual}} = 40 \times 60 - 20 \times 60 = 2400 - 1200 = 1200 \]

\[ 1200/52 = 23.08 \]

2nd period profit once Alpha reduces price to $40

\[ \pi_{\text{annual}} = (40 \times 60 - 20 \times 60)/2 = 1200/2 = 600 \]

\[ 600/52 = 11.54 \]

Profit if Beta increases price to $60

\[ \pi_{\text{annual}} = (60 \times 40 - 20 \times 40)/2 = 1600/2 = 800 \]

\[ 800/52 = 15.38 \]
To D or not to D

Need to consider more than just one period’s profit

Depends on

➢ each firm’s pricing strategy
➢ each firm’s expectations of its rivals’ strategies
➢ the market environment in which firm operates
What else influences decision?

- Some general concerns
  - How quickly can my rivals respond?
  - What is the difference between defection profits versus monopoly profits?
  - Will my actions in this market affect other markets?
Is the cooperative pricing equilibrium efficient?

From the economist’s point of view, no

➢ Price is above marginal cost, so there is an allocative inefficiency

➢ Note that this doesn’t (necessarily) imply a productive inefficiency
Price collusion??

- Have the firms communicated with a view to increasing price in their industry?
- No explicit communication, but signalling intentions through pricing policies
- Was there a violation of the Trade Practices Act?