Introduction to Competition Economics

University of Sydney Law School
Competition Law 2015

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Economics provides insights into competition law

- Competition and Consumer Act is based largely on what economics tells us harms consumers
- Economics will help you understand cases and judgments (to an extent…)
- You will not be examined directly on your understanding of economics
Economics is a language and set of analytical tools

• No single answer to each economic problem
  › “economics is the only field in which two people can get a Nobel Prize for saying exactly the opposite thing” Anon
  › “Give me a one handed economist” Harry S Truman

• Different economic approaches
  › Classical economics/price theory (Smith, 1766)
  › Structure/conduct/performance (Chamberlain & Robinson, 1930’s)
  › Game theory (von Neumann & Nash, 1930’s and 1940’s)
  › Behavioural economics (1980’s but mostly 2000’s)

• You will learn method for analysing problems and language
Outline

• Lecture 1:
  › Demand and supply model
  › Perfect competition vs. monopoly
  › Economic welfare and market power

• Lecture 2:
  › Game theory
  › Price and quantity setting competition
  › Other applied topics such as collusion and predatory pricing
Demand and Supply

The key to understanding firm conduct
Demand - How much is one customer willing to purchase?

![Graph showing demand curve and price-quantity relationship.]

- Price: 7, 6, 5
- Quantity: 10, 12
- Demand curve indicating the relationship between price and quantity demanded.
Price elasticity of demand

- Percentage increase in demand from one per cent increase in price (i.e., a negative number)

- Elasticities of demand and supply are usually higher in the long run than in the short run.
Price elasticity of demand - examples

Luxury watches

Mars bar
Cross-price elasticity of demand

- The percentage increase in quantity demanded from a one per cent increase in some other price

  **Negative** for complements

- **Positive** for substitutes
Supply - How much is one firm willing to supply?

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>5</td>
<td>10</td>
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<tr>
<td>6</td>
<td>12</td>
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<td></td>
<td>15</td>
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</tbody>
</table>
Equilibrium is where demand is equal to supply

Price

7

6

5

Supply

Excess supply

Demand

Quantity

10

12

Excess demand
Increase in supply leads to lower prices and greater sales

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<td>10</td>
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<td>4</td>
<td>11</td>
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Excess supply
Increase in demand leads to higher prices and greater sales
Market demand is the sum of individual demands
What affects market demand?

- Price of product (move along demand curve)
- Price of substitutes (shift demand curve)
- Price of complements (shift)
- Income (shift)
- Tastes/technology (shift)
Increase in price of substitute will lead to rise in market demand

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Market demand for Weetbix</td>
<td></td>
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<tr>
<td>Price of cornflakes goes up</td>
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</table>
Market supply is the sum of individual supplies

<table>
<thead>
<tr>
<th>Price</th>
<th>Supply of Weetbix</th>
<th>Supply of Cornflakes</th>
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<tbody>
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<td>6</td>
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2 3 5

Market supply for cereal
Most significant change price change in 2014

- Short run demand (and supply) for crude oil are inelastic

<table>
<thead>
<tr>
<th>Price</th>
<th>Supply</th>
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<tbody>
<tr>
<td>Jan-2014 = $110/barrel</td>
<td>~55% ↓ in 2014</td>
</tr>
<tr>
<td>Dec-2014 = $50/barrel</td>
<td>~2% ↑ in 2014</td>
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</tbody>
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Source: http://www.vox.com/2014/12/16/7401705/oil-prices-falling
Opportunity and sunk costs

• Opportunity cost
  › Cost of doing something relative to next best alternative

• Sunk cost
  › Already incurred and can never be recovered
Total cost curve

- **Fixed cost**
- **Variable costs**
- **Cost of supplying Weetbix**
- **Economies of scale**
- **Diseconomies of scale**

Graph showing cost curve with axes labeled:
- Y-axis: \$ (Currency)
- X-axis: Quantity

- **Total cost curve** shows the relationship between cost and quantity supplied.
Average and marginal cost

- Marginal cost less than average cost
- Marginal cost more than average cost

Efficient scale of production

Average cost

Marginal cost

Quantity
Example - supply curve for global iron ore

Average variable cost of production for each mine:
- Wages
- Processing costs
- Cost of transport

Not including:
- Return on capital
- Debt-servicing costs
- Fixed costs associated with running a mine

Source: RBA Statement of Monetary Policy August 2014, Box B,
Example – shifts in supply curve for iron ore

Break
Competition and Monopoly
An introduction to market power
Economic models

• You have learnt:
  › Basic concepts – demand, supply, elasticity, average and marginal cost – that are building blocks for economic models
  › One “model” – the basic demand/supply framework

• Now we learn:
  › Some models of markets with different characteristics and outcomes
  › Start with the basic perfect competition and monopoly models

• Economics offers many models; the trick is knowing and applying the most relevant one
Efficiency and welfare

• Economic welfare: consumer surplus + producer surplus

• Consumer surplus: difference between valuation (i.e. willingness to pay) and actual price paid for all consumers

• Producer surplus: difference between price received and cost (willingness to supply) for all units sold
  › Not necessarily equal to profit to shareholders
  › Producer surplus might also accrue to owners of scarce inputs: e.g. the owners of the lowest-cost oilfields / agricultural land, or skilled employees/managers in short supply

• Economic welfare = ‘gains from trade’

• An efficient allocation means welfare is maximised
Perfect competition

• Defined by:
  › Many firms – individual firms are ‘price takers’
  › Many consumers – individual consumers are price takers
  › Homogeneous goods
  › No barriers to entry

• Outcomes:
  › Zero economic profit (revenue=opportunity cost)
  › Firms operate at efficient scale
  › Price=marginal cost

• Markets that approach PC in practice: prices similar for similar products, prices of firms move together, prices move in line with costs
Perfect competition illustrated

**The market**

- **Price** vs. **Quantity**
- **Supply** and **Demand** curves cross at the market equilibrium point.
- **Economic profit** is zero at equilibrium.

**Each firm**

- **Average cost** and **Marginal cost** curves:
  - Average cost is minimized at the Efficient scale.
  - Marginal cost intersects average cost at the Efficient scale.

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Monopoly

• Defined by:
  › A single firm which is a ‘price maker’
  › The less it sells the higher the price; equivalently it can raise its price without losing all its sales
  › Barriers to entry prevent new suppliers entering

• Outcomes:
  › Price higher than both marginal and average cost
  › Higher prices and lower output than in competitive markets
  › ‘Supernormal’ profits
  › Some consumers with willingness-to-pay above marginal cost nonetheless are priced out.
Monopoly in practice

• Statutory monopoly
  › Privatised government businesses: e.g. electricity distribution
  › Monopoly licensing: eg Star casino, Tabcorp wagering
  › Proprietary knowledge protected by patent/copyright, eg drug companies, musicians

• Natural monopoly
  › Increasing economies of scale - efficient scale of production is such that one firm can always produce cheaper than two, eg telecommunications wires businesses

• Often both
Natural monopoly

![Graph showing demand, efficient scale of production, and average cost.](image-url)
Monopoly illustrated

- Monopoly price
- PC price
- Demand = Average revenue = Price
- Marginal cost
- Marginal revenue

Price

Monopoly output

PC output

Quantity
Efficiency and welfare

Price

Monopoly price

PC price

Marginal cost / Supply

Demand

Consumer surplus

Producer surplus

DNL

Monopoly output

PC output

Quantity
Efficiency and welfare

• Allocative efficiency
• Productive efficiency
• Dynamic efficiency
Preview of Lecture 2

• Game theory
  › What do the monopoly and PC models leave out?
  › A toolkit for analysing strategic interactions
  › Examples of entry deterrence and collusion
• Models of price (Bertrand) and quantity (Cournot) competition
• Other applied situations