Barriers to Entry and Competition

How entry barriers change the nature of competition
Price Setting

- Demand/Supply analysis assumes that there are many buyers and sellers
  - no single agent has control over market outcomes
  - each agent is a price-taker: their own decisions have no influence on market price
- In contrast, a monopolist has some power over price -- given by the elasticity of the demand curve they
Prices as Signals

- In perfectly competitive markets, prices act as signals for decision-making.
- When prices are relatively high, this sends producers a signal that they can earn more by expanding output or entering a market.
- When prices are relatively low, producers must contract output or some must exit the market.
Conditions for Perfect Competition

- Large number of buyers and sellers
- Goods offered are functionally identical
  - Demand curves facing individual firms are perfectly elastic
- Freedom of entry and exit
  - Profits act as a signal regarding whether to enter or exit an industry
Efficiency Properties

- Perfect competition ensures that prices in the long-run equal marginal cost
  - maximise value created
  - allocative efficiency
- Perfect competition ensures that production is carried out at the minimum cost
  - Productive efficiency
Perfectly Elastic Firm Demand

- The market demand curve for pens is downward sloping (that is, not perfectly elastic).
  - Why? Because individual consumers have different willingnesses-to-pay for different quantities of pens

- Individual firm demand is flat.
  - Why? Because the pens sold by the newsagent and supermarket are close substitutes
Demand and Revenue

Perfectly Elastic Demand or Average Revenue
What is Marginal Revenue?

Price

\[ P \]

\[ AR = MR \]
Flat Marginal Revenue

- As a firm produces more, the price per unit of output sold does not fall.
  - Why? The firm is a price taker.
  - In a perfectly competitive market, a firm cannot influence price. Therefore, the firm is unconstrained and can sell as much as it wants at the prevailing price.
  - Unless they get really big and start to hit market demand. But their costs prevent this.
Optimal Output: A Review

- Firms attempt to maximise profit
- The profit maximising output level occurs where marginal revenue (MR) equals marginal cost (MC)
Profit Maximising Output

Price

Quantity

MC
ATC
P=MR=AR
AVC
Profit Maximising Output

Price

MC

ATC

P=MR=AR

AVC

Quantity
Profit Maximising Output

Price

MC

ATC

P = MR = AR

AVC

Q_{Max}

Quantity
Profit Maximising Output

Price

Quantity

MC

ATC

P=MR=AR

AVC

$Q_{Max}$
Profit Maximising Output

Price

MC

ATC

P=MR=AR

AVC

Maximum Profits!

Q_{Max}

Quantity
The Competitive Firm’s Shut-Down Decision

- When should a firm choose to exit a perfectly competitive market?
  - Compare the economic profit from staying versus closing down.

- Alternative levels of output produced because the firm is a price taker.

- If the selling price is below the minimum average variable cost, the firm should shut down!
Shut Down! Costs are greater than market price

Price

Q  Don’t Produce!

Quantity

P=MR=AR

AVC

ATC

MC

Don’t Produce!
Shut Down! Costs are greater than market price.

MC

ATC

AVC

Loss!

P=MR=AR

Quantity

Q

Don’t Produce!
The Competitive Firm’s Shut Down Decision

- Alternative levels of output produced because the firm is a price taker.

- If the selling price is above the minimum average variable cost but below average total cost, the firm should produce in the short-run a quantity that corresponds with MR = MC.
  
  Incurs economic losses, but minimized.
Short-Run Production

Minimize Losses when MR = MC

Price

Quantity

Q_{short-run}

P = MR = AR
The Competitive Firm’s Output Decision

- Alternative levels of output produced because the firm is a price taker.
- If the selling price is above the minimum average total cost the firm should *produce* a quantity that corresponds with $MR = MC$.
  Incurs economic profits.
The Competitive Firm's Output Decision

Price

Quantity

MC

ATC

P=MR=AR

AVC

Q_{Max}
When Should a Firm Enter?

- A firm should enter into an industry if it believes price will exceed average total costs in the long-run.
- Enter if $P > AC$. 
Output, Price, and Profit in the Long Run

- In short-run equilibrium, a firm might make an economic profit, incur an economic loss, or break even (make a normal profit). Only one of these situations is a long-run equilibrium.
- In the long run:
  - The number of firms in an industry changes.
  - Firms change the scale of their plants.
Economic Profit and Economic Loss as Signals

- If an industry is earning above normal profits (positive economic profits), firms will enter the industry and begin producing output.
- This will shift the industry supply curve out, lowering price and profit.
Economic Loss as a Signal

- If an industry is earning below normal profits (negative economic profits), some of the weaker firms will leave the industry.
- This shifts the industry supply curve in, raising price and profit.
Entry, Exit and Supply Shifts
Long-Run Equilibrium

- In long-run equilibrium, firms will be earning only a normal profit. Economic profits will be zero.
- Firms will neither enter nor exit the industry.
Case: Entry in Response to a Demand Shift

- Zinfandel grape: used in the U.S. to produce Zinfandel wine.
- From 1985 to 1991, the price of these grapes rose and then fell.
- What accounted for the price rise?
  - New product in mid-1980s: “white Zinfandel” which was more popular than the previous red wine
New Entry by Vineyards

New Vineyards

Year

Number of Acres


0 1000 2000 3000 4000 5000
Managerial Implications

- Prices as signals
  - High prices signal entry
  - Low prices drive exit
- Low entry barriers
  - In LR, price = min AC (technical efficiency)
  - In LR, efficient sorting of producers
- Shut down decision
  - SR: compare P and AVC
  - LR: compare P and ATC
Monopolistic Competition

- Does product differentiation imply higher profits in the long-run?
- Entry barriers for direct competition on a given product
- Free entry to offer a close substitute
- Car Case: better quality cars have higher mark-ups over marginal cost. But does this translate into more profits?
- In long-run
  - Price exceeds marginal cost
  - Price equals average cost (zero profits)
Entry Barriers

- Monopoly and Duopoly
  - We assumed that entry was barred to all but one producer
  - Where did these come from?

- Entry barriers
  - Government regulation (e.g., Australia Post)
  - Control of key resources (e.g., De Beers, Ocean Spray, Compass II)
  - Natural monopolies (e.g., Telstra)
  - Marketing advantages of incumbency (e.g.,
When is a monopoly natural?

- Suppose that long-run average costs are falling (over entire range of market demand)
  - Perhaps fixed costs are high relative to marginal costs
  - Network industries
    - local telephony
    - electricity and gas distribution
- In equilibrium, only one firm
Falling Long-Run Average Costs
Is natural monopoly a problem?

- Suppose:
  - that natural monopoly is caused by fixed costs
  - there are no barriers to entry or exit

- If incumbent firm charges a price above average cost, entry will occur.
  - must *limit price* to prevent entry
  - entry may be ‘hit and run’
When is a market contestable?

- No barriers to entry or exit
- Sunk costs imply non-contestability

... Entry is costly in that entrants incur irreversible costs
- Therefore, monopolist can price at preferred monopoly price
Entry Deterring Strategies

- Limit pricing
- Predatory pricing
- Capacity expansion
- Bundling
Limit Pricing

- Without entry threat, set monopoly price
- With entry threat, what price do you set?
  - Post-entry, an entrant can earn positive profits
  - Entrant has sunk entry costs, however
  - If the incumbent sets a low pre-entry price, might it make the entrant fear a low post-entry price? If entry is deterred then can return to monopoly
Sensible?

Why will entry threat go away?
- Otherwise have to limit price all the time
- Must have a cost advantage in order to reap profits

Why will entry believe pre-entry price will reflect post-entry prices?
- Is it a credible signal?
- Perhaps if incumbent knows more about their cost advantage and wants to signal it to entrant.
- But price must be so low a high cost incumbent would not set it.
Predatory Pricing

What about pricing low post-entry to achieve exit?
- Must not be substantial barriers to exit

Multi-market predation
- Price low in one market to signal to others
- Chain-store paradox
- NZ Telecom and Saturn
- Perhaps use low pricing as a signal of lower costs: develop reputation for toughness
Excess Capacity

- Entrants see excess capacity that could potentially be used in a price war, post-entry.
- Contrast with a judo strategy
  - Virgin Express
  - Cf: Netscape
Discussion Point

Will the Internet lead to increased competition?
Bundling

- Offer a package
- Microsoft Office
  - 90% market share
- Work together
- Discount one of the products
- Option value: zero incremental price
- Microsoft’s per-processor license
Reduce Dispersion

- Example: price separate or together
  - Bill: $120 for WP, $100 for spreadsheet
  - Ben: $100 for WP, $120 for spreadsheet

- Profits
  - Without bundling: $400
  - With bundling: $440
Reduce Dispersion: 
Price separate or together?

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Profits: With Bundling: $440  Without: $400
Information Bundles

- Magazines and newspapers
- Law of large numbers
- Customised bundles
- Nonlinear pricing
  - In previous example sell first item for $120
  - Sell second item for $100
  - Example: MusicMaker