Lecture on Competition 22 January 2003

Q: How common is Perfect Competition?
A: It’s not. It’s RARE.

I. Characteristics of PERFECT COMPETITION:

Price Taker, Homogeneous Good, Perfect Info., No Transactions Costs, Free Entry and Exit, No Externalities, Perfect Divisibility of Output

Price Taker
Price determined by market; buyers/sellers can’t influence price (too small)
firm can sell all it wants given market P

note: Firm D is horizontal (perfectly elastic) because all goods w/in that market are perfect substitutes

Homogeneous Good
All firms sell identical product ➔ consumers indifferent btw different firms

Perfect Info.
Buyers/sellers aware of all relevant info about mkt, P and quality of product

No Transactions Costs
Doesn’t cost buyers/sellers anything to participate in market

Free Entry and Exit
# of buyers and sellers?

Doesn’t have to be large (typical, but not a necessary condition as long as have…)

Contestable markets

Firms can enter anytime w/o expense; no barriers!

No Externalities
Ea firm bears full cost of production process; don’t impose externalities (uncompensated costs) on other
e.g. pollution

Perfect Divisibility of Output ➔ e.g. shipping, marriage
Quantities supplied/demanded vary continuously w/ price; equilibrium
(Consumers/producers can buy/produce fractions of units of output)

II. Single Firm Production
How much does a single firm choose to produce?

Q: Why not sell less/more than q*?
A: \( (MC \neq P) \) Cost associated w/ producing extra unit \( \neq \) revenue of extra unit

At q* profits are maxed, therefore produce up to point where MC = P determined by the market

**PROOF**

**Objective/Goal:**

\[
\text{MAXIMIZE \ Profits! Or (MIN Losses)}
\]

\[
\text{Profits} = \text{TR} - \text{TC}
\]

\[
= p*q - C(q)
\]

**FOC:**

\[
\frac{d \text{Profit}}{d \ q} = p - C'(q) \quad \text{set} = 0 \quad \text{(Why?)}
\]

**MC = P**

Q: When does firm quit producing?
A: Different scenarios…

\( \text{(P}_1 = \text{MC}) \ > \text{AC} \quad \Rightarrow \text{Profits} = \text{Rents} \)

- Able to earn in excess of VC and FC pmts

**rents:** pm t to owner of input beyond min. necessary for it to be used; covered all costs

**quasi-rents:** pm ts above min. amt necessary to keep firm operating in SR

\( \text{(P}_2 = \text{MC}) = \text{AC} \quad \Rightarrow \text{Zero Profits… Quasi-Rents} \)

- Able to satisfy fully VC and FC pmts
- Make in excess of what need to stay in production

\( \text{AC} > (\text{P}_3 = \text{MC}) > \text{AVC} \)

- Not able to fully cover all costs
- Continue if revenue exceeds avoidable cost; “shutdown” if revenue equal to avoidable cost (which is based on level of production)

**avoidable costs:** costs incurred if firm continues production

- VCs (e.g. future pm ts on inputs), and some FCs that aren’t sunk (e.g. $200 lease to be covered)

**unavoidable costs:** costs incurred even if firm ceases production

- FCs that are “sunk” (e.g. $100 to get out of lease w/ $200 remaining rent), (if all FCs are sunk, then avoidable costs = VCs)
- the more FCs that are avoidable, the sooner get OOB (lose less $$)
AVC > or = (P = MC) → “Shutdown”, revenue equal to avoidable cost

- If continue to produce will only lose $$$

In general…

- If all fixed costs are unavoidable, and hence sunk, then shutdown point is min. AVC.
- If however, all fixed costs are avoidable, i.e. no sunk costs, then AC curve essentially becomes AVC curve and new shut down point is min. AC.
- If fixed costs are a mix of unavoidable (sunk) and avoidable (not sunk), then shutdown point is somewhere in between min. AC and min. AVC.

Q: What does firm’s supply curve look like?
A: MC curve above AVC (shutdown pt.)

III. Short Run vs. Long Run Supply

Short Run Market Supply = horizontal Sum of supply curves of each firm

- Horizontal portion: demonstrates no suppliers below shutdown P
- Diagonal portion: all firms willing to supply more at higher prices
- Intersection: SR equilibrium P & Q
  (no dissatisfied buyers/sellers; all buy/sell @ same price)

* figure 3.2 (p.62) *

Long Run Market Supply

- In SR: can have entry/exit given profits/losses, respectively vs.
- In LR: everything is Variable in LR (input P’s such as labor contracts)
- Can have entry/exit given profits/losses, respectively

Also, firms do not produce at a loss in LR (lowest is min AC)

LRS is sum of min.s of AC curves of each firm (b/c operating @ zero profit in LR)

- Firms making losses leave
- Firms making profits spur entry
Q: Does LR Supply have to be flat?

A: No, not necessarily.

Case 1: Costs

Price of inputs (+)LR or Economies of scale (-)LR

Factors of production in fixed supply (e.g. farm land)
Need more land to produce more, \(D \text{ for land (up), } P \text{ of land (up)}\)
(if certain input is necessary for use and can’t vary it, i.e. no subs, P input rises)

\[ \rightarrow \text{(min of) } AC \text{ curve shifts up} \]

LR follows sum of min.s of AC curves and thus
Is positively sloped as we continue to raise output

Case 2: Few Producers

Low cost producers produce first (enjoy some rents)
Higher cost producers enter (enjoy some rents along w/first group)

*figure 3.4 (p.64)

IV. Efficiency and Welfare

Competitive equilibrium characterized by efficiency and welfare; all characteristics of competition must hold to be efficient

No one made better off w/o making someone worse off

MV exactly = MC
Excess Supply: producers price cut  
Excess Demand (Shortage): consumers bid prices up  

Measures of Welfare:  

**Consumer Surplus:** (CS) amt above price consumer would willingly spend  

**Producer Surplus:** (PS) amt of revs producer would give up and still produce  

**Gains From Trade/Welfare:** (GFT) = CS + PS  

**Deadweight Loss:** (DWL) welfare/efficiency loss; cost of mkt not operating efficiently, i.e. @ competitive equilibrium (lost GFT due to taxes, quotas, tariffs, etc.)  

*figure 3.7 (p.73)*  

transfer is ultimately from consumers and producers to government  

**V. Entry and Exit**  

Q: Why is it important to have contestable markets?  

A: Otherwise, firms already in market can exercise MARKET POWER, setting $P$ higher than competitive $P^*$ and lower $Q$  

Ex.s of Restrictions resulting in DWL:  

- Licensing requirements (beauticians, lawyers, doctors, taxi drivers)  

*figure 3.8 (p.75)*  

transfer here is ultimately from consumers to producers (those of whom remain are better off due to increased profits)  

Q: What if there are only a few firms that should operate (due to econ.s of scale) for instance in the garbage collection market? Can this market be competitive?  

A: Yes, if there is free entry/exit. If positive profits are observed ($P > AC$) then there is threat of entry.  

**Barrier to entry:** anything that prevents entrepreneur from instantaneously creating a new firm then everything SR is a barrier; however, will enter in LR if there are profits and firms have identical costs
Therefore, think in terms of **Long Run Barriers**…

- **Absolute cost advantage**: given this advtg, even if there are profits to be made, other firms will be unable to enter

- **Legal monopolies**: can exclude others from use of a design, product, etc. (e.g. patents 14/20, copyrights 95/life+70)

- **Product differentiation**: (goes against homogeneity as well) firms produce similar but not identical goods; imperfect substitutes (e.g. brands of clothing or high tech goods)

- **First-mover advantage**: e.g. first firm to enter incurs lower marketing costs than future competitors

**VI. Review of Elasticity**

For demand: \( \frac{\% \text{chgQd}}{\% \text{chgP}} \)  
For supply: \( \frac{\% \text{chgQs}}{\% \text{chgP}} \)

| \( |e| \) | Description             |
|------|------------------------|
| 0    | perfectly inelastic    |
| <1   | inelastic              |
| 1    | unit elastic           |
| >1   | elastic                |
| ∞    | perfectly elastic      |

[K. Terkun]