

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: ($MC </> P$) Cost associated w/ producing extra unit $</>$ revenue of extra unit

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

PROOF

Objective/Goal: MAXIMIZE Profits! Or (MIN Losses)
 Profits = $TR - TC$ Where $C(q) = FC + VC(q)$
 = $p \cdot q - C(q)$

FOC: $d \text{ Profit} / d q = p - C'(q) \text{ set} = 0$ (Why?)
 $d C / d q = P$
 $MC = P$

Q: When does firm quit producing?

A: Different scenarios...

$(P_1 = MC) > AC$ \rightarrow Profits = Rents

- Able to earn in excess of VC and FC pmts

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

quasi-rents: pmts above min. amt necessary to keep firm operating in SR

$(P_2 = MC) = AC$ \rightarrow Zero Profits... Quasi-Rents

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

$AC > (P_3 = MC) > AVC$

- 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 pmts 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 \$\$\$)

$AVC > \text{ or } = (P_4 = MC) \rightarrow$ “**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 (+)LRS or Economies of scale (-)LRS

Factors of production in fixed supply (e.g. farm land)

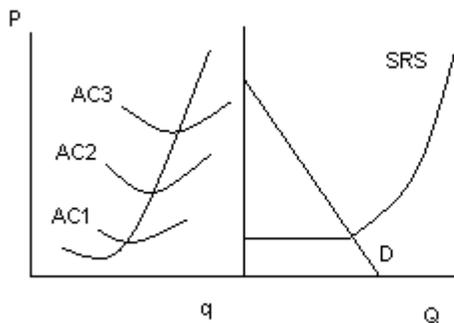
Need more land to produce more, *D for land (up)*, *P of land (up)*

(if certain input is necessary for use and can't vary it, i.e. no subs, P input rises)

→ (min of) AC curve shifts up

LRS 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

(look @ p^* vs. $p(\text{hi})$ and $p(\text{lo})$)

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: $\% \text{chg} Q_d / \% \text{chg} P$ For supply: $\% \text{chg} Q_s / \% \text{chg} P$

$|e|=0$, perfectly inelastic

$|e|<1$, inelastic

$|e|=1$, unit elastic

$|e|>1$, elastic

$|e|=\text{infinity}$, perfectly elastic

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