

The International Arms Industry: Restructuring II

Market Structure

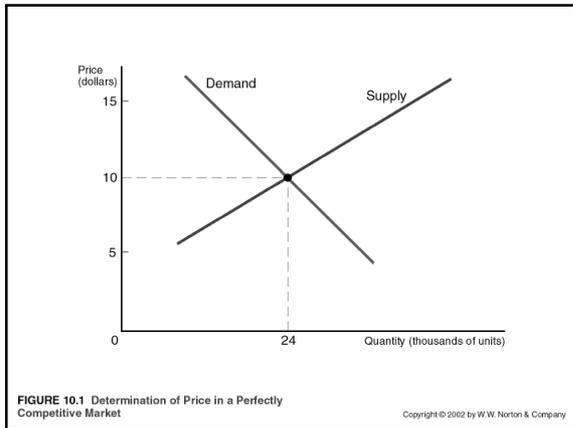
- Lets see how our economic models help us understand the industry
- Structure-conduct-performance paradigm would consider the location within the extremes of perfect competition and monopoly
- Then strategic interaction oligopoly models look at market interaction

Market Structure

- Distinguish international and domestic market
- Important characteristics are:
 - Monopsony
 - Few firms
 - Price relatively unimportant
 - Large contracts; winner has monopoly power; lumpy
 - Government regulation and support

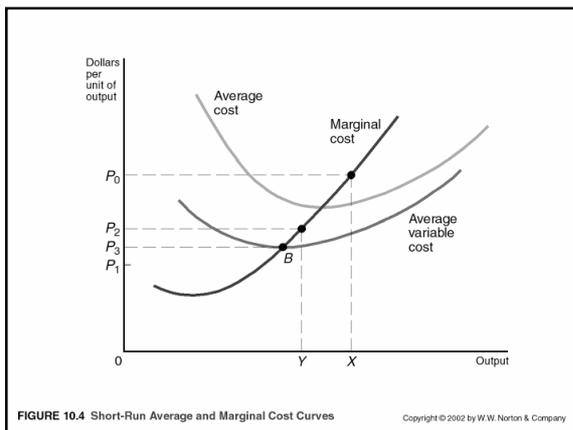
Domestic Market Structure

- Cost overruns are always happening –Why?
- If perfect competition
 - Many suppliers and consumers
 - No market power
 - Equilibrium price
 - Shifting demand and supply
- Would get the following



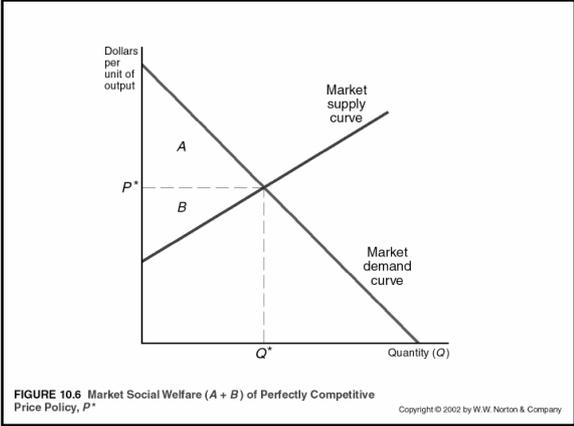
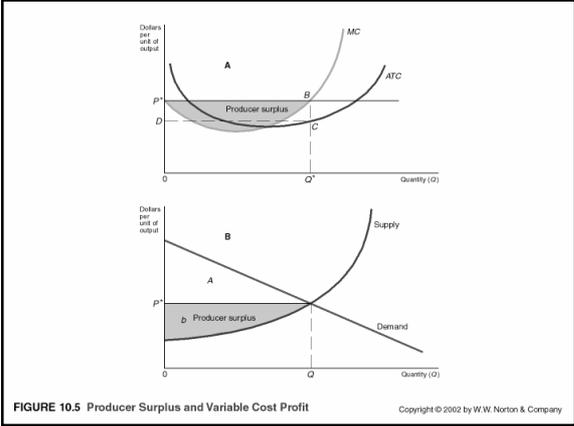
PC firm output

- Firm can produce as much as it chooses
- So how to choose
 - Maximise profit
 - $MC=MR=P$
 - Normal profits



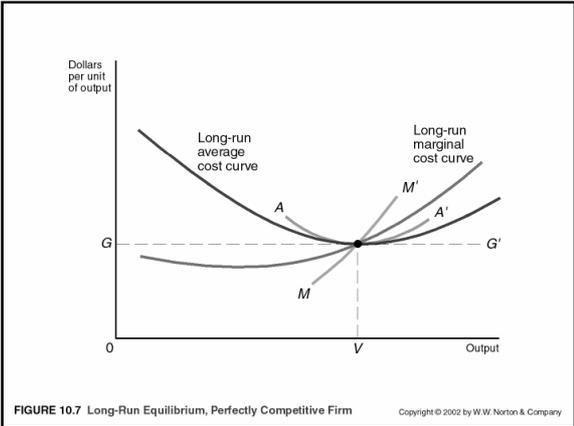
Consumer and Producer Surplus

- Can also consider what means to be away from equilibrium
- Consumer surplus: difference between price pay and price willing to pay
- Producer surplus: difference between price received and that willing to receive
- Can see this:



Long run equilibrium

- Economic profits not accounting profits
- Produce if make normal profits
- Can change capital in LR
- Competition to lowest point LRAC



Resource allocation

- Important pointers to real world phenomena
- Short run equilibrium after change in demand
- Long run market adjustment: when capital variable
- Transfers of resources between commodities
- But not much help here

Monopoly

- Other extreme is monopoly
 - Downward sloping demand curve
 - Maximise profits
 - $MC=MR$

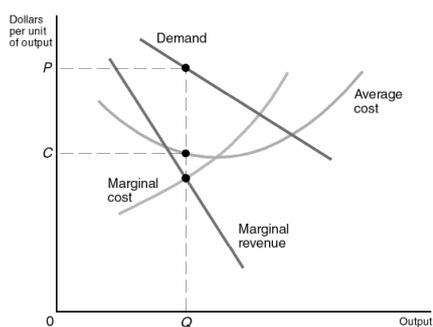


FIGURE 10.12 Output and Price Decisions of a Monopolist

Copyright © 2002 by W. W. Norton & Company

Monopoly

- $\text{Max } \Pi = \text{TR} - \text{TC}$
- $d\Pi/dQ = d\text{TR}/dQ - d\text{TC}/dQ = 0$
- $d\text{TR}/dQ - d\text{TC}/dQ$
- $\text{MR} = \text{MC}$
- Now for monopolist $\text{MR} = \text{MC} = P(1 + 1/\eta)$ where η is the price elasticity of demand
- $P = \text{MC} / (1 + 1/\eta)$
- As $\eta < 0$ $(1 + 1/\eta) < 1$ then price is higher than MC
- Monopoly leads to higher price and lower output than PC

In Between

- Monopolistic competition
- Two-part tariffs
- Bundling
- Franchising
- Patents

Monopsony

- In reality it is the government who have the monopoly
- Firms have some monopoly power and regulated
 - Government is asking for weapons that don't exist
 - Limited number of companies can provide them
 - At one time foreign supply would not have been considered in major producing countries

Monopsony

- <draw diagram>
- Price negotiated, but still upward sloping supply curve
- If supply more price increases for all units so MC to left of supply curve $MC > P$
- So quantity supplied will be less than under competition
- Price can be lower as govt has monopoly power not company

Bilateral Monopoly

- Assume MC constant for simplicity
- As there are few firms output less than competitive
- Firms can have monopoly power as only compete in initial phase of contract
- Should charge higher price for lower output as reflects willingness to pay
- If did would give deadweight loss

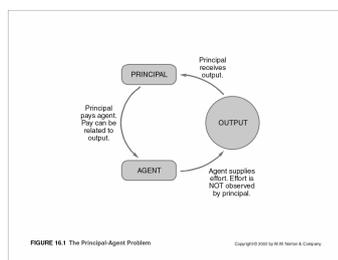
Bilateral monopoly

- But government has monopsony power, knows D curve and so MR schedule
- So actual price depends on bargaining strength of the two
 - If arms producer has alternative civil it will be stronger
 - If national champions stronger –threat of exit
 - Firms in industry become experts at getting money from government –lobbying
 - This is why new entrants struggle
- Explains cost overruns and high prices

Principal agent problem

- Can also explain high prices
- Principal and agent sign contract
- Uncertainty and risk endemic in market
- Asymmetric information: firm knows true cost government doesn't –moral hazard
- Principal pays more than would if perfect info which even more expensive to get
- Get underinvestment in cost reduction and quality improvements

Principal agent problem



Principal agent problem

- To avoid moral hazard
 - Fixed price contracts –can lead to high prices as include risk premiums but can be good deal
 - Cost plus contracts: actual costs plus agreed profit rate –caused many problems in past
 - Incentive based contracts: pay a fee and fraction of contract costs; depends on firm leverage
- Governments may get firms to reduce costs by helping them to make money in export markets

Externalities

- Could argue that the contract zone represents deadweight loss
- But also could argue there are other benefits to society –spillovers, externalities
- Less convincing now but imp argument in past
- Can think of as societies demand higher than governments and so its willingness to pay
- So could demand more and move outside of contract zone

Global Arms Market

- With cut in Cold War export increasingly important
 - Allows maintain output levels despite cuts
 - Allows lower average costs through economies of scale
- Theoretically might expect industry to be close to PC at international level as many buyers and sellers potentially, but it is not

Global Arms Market

- Few arms companies private entities in reality
- Govt has direct influence esp on government to government transactions
- Govt has controls on firm to foreign government transactions
 - Export controls
 - Quotas and sanctions

Global arms market

- Prices may not reflect a market prices in any real sense
 - Aid to allies
 - Offset deals
 - Subsidising exports
- Quotas may lead to deadweight loss to exporting economy
- But may give security benefits keeping arms away from enemies

Market structure

- So clearly our simple economic models do help us understand aspects of this strange market
- Could also analyse other aspects with game theory
- Can also try to understand dynamics