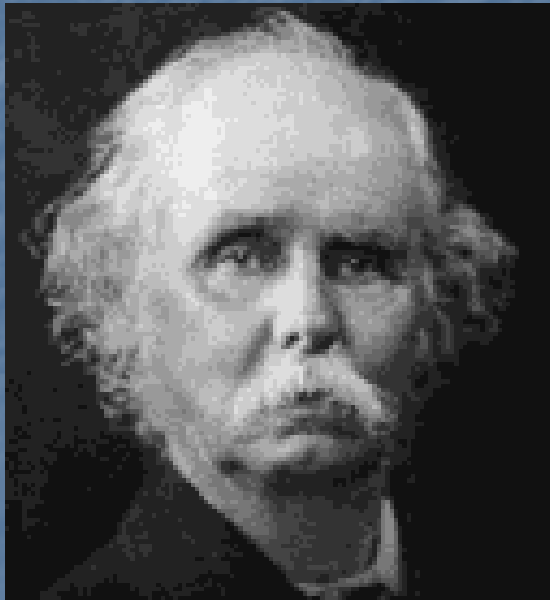


# Alfred Marshall



1842-1924

# Alfred Marshall

## 1842-1924

- Biographical Details
  - Trained in Mathematics at Cambridge
  - Discovered economics by reading J. S. Mill
  - 1877 Married Mary Paley and both lectured in economics at Bristol
  - 1884 Returned to Cambridge and worked to establish the economics program
  - 1890 *Principles of Economics*
  - 1919 *Industry and Trade*

# Alfred Marshall (cont.)

- Marshall on Method
  - ...I know I had a growing feeling in the later years of my work at the subject that a good mathematical theorem dealing with economic hypotheses was very unlikely to be good economics: and I went more on the rules

# Alfred Marshall (cont.)

- Marshall on Method
  - (1) Use mathematics as a shorthand language, rather than an engine of inquiry
  - (2) Keep to them until you are done
  - (3) Translate to English
  - (4) Then illustrate by examples that are important in real life
  - (5) Burn the mathematics

# Alfred Marshall (cont.)

- Marshall on Method
  - (6) If you can't succeed in (4), burn (3),  
This last I did often (TEXT 278).
- Of course, trying to merge three methodologies had the result of being disliked by all:

# Marshall's Approach

- Wanted his writing to be accessible to the intelligent layman
- Mathematics confined to appendices
- Wanted to reconcile Classical, marginalist and historicist ideas
- Neoclassical synthesis in theory
- Theory and application to industry studies

# Marshall's Approach

- Partial equilibrium—looking at one market only with everything else held constant
- Contrast with Walras' general equilibrium approach
- Short run/long run distinction—what is held constant varies with the time frame
- Static analysis vs biological analogy

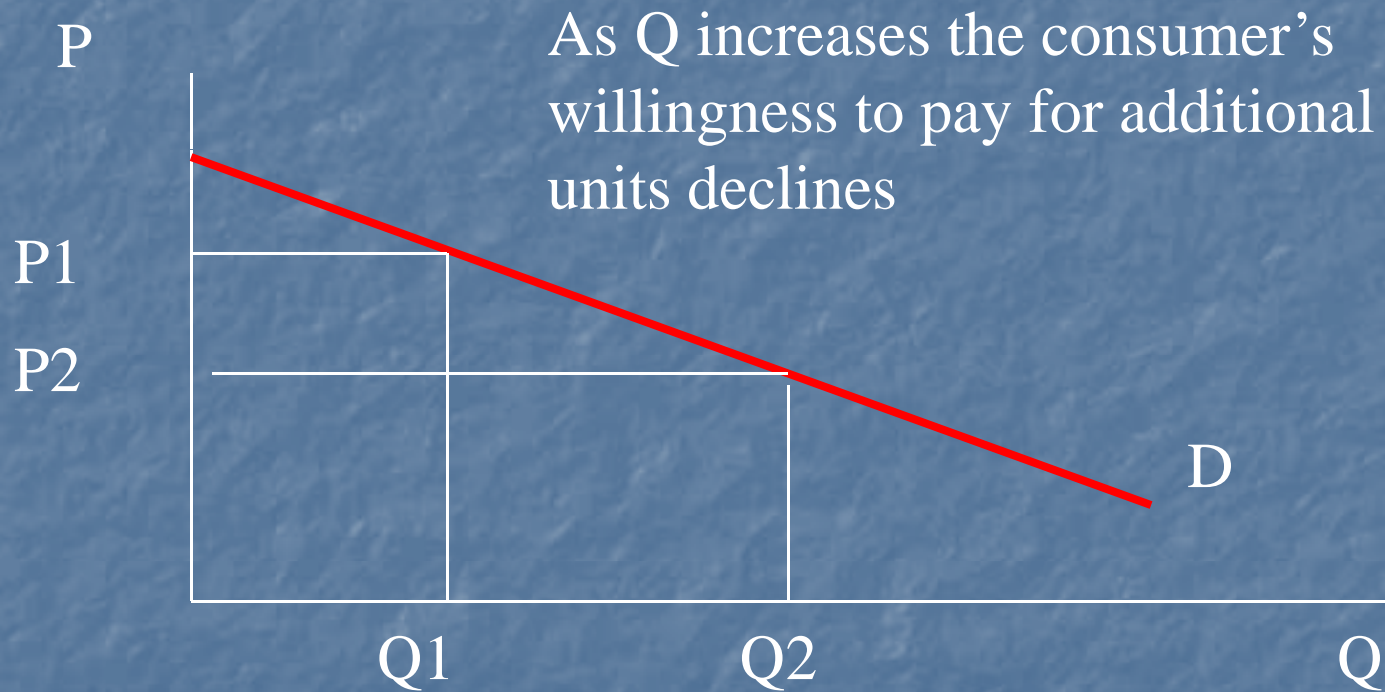
# Theory of Demand

- Law of diminishing marginal utility
- Diminishing marginal utility translated directly into terms of price
- Diminishing willingness to pay
- Demand curve is not formally derived through the conditions for a consumer maximum
- In the Marshallian discussion price is usually the dependant variable

# Demand Theory

- The demand curve is interpreted as a schedule of “Demand Prices”
- What is held constant along this demand curve?
- Marshall assumes *both* constant money income and constant real income (constant MU of income)
- This rules out any significant income effects
- Marshall’s “Law of Demand”

# Marshallian Demand Curves



Changes in  $Q$  cause changes in demand price,  
so  $P$  is on the vertical axis

# Marshall and the Giffen Good Case

- Marshall is aware that the MU of income may be affected by price changes
- If a good is inferior and important in the budget a large income effect may create an upward sloping demand curve
- Marshall attributes this idea to Robert Giffen and to the demand for bread by English labourers
- No evidence that Giffen said this and no evidence that bread was a Giffen good

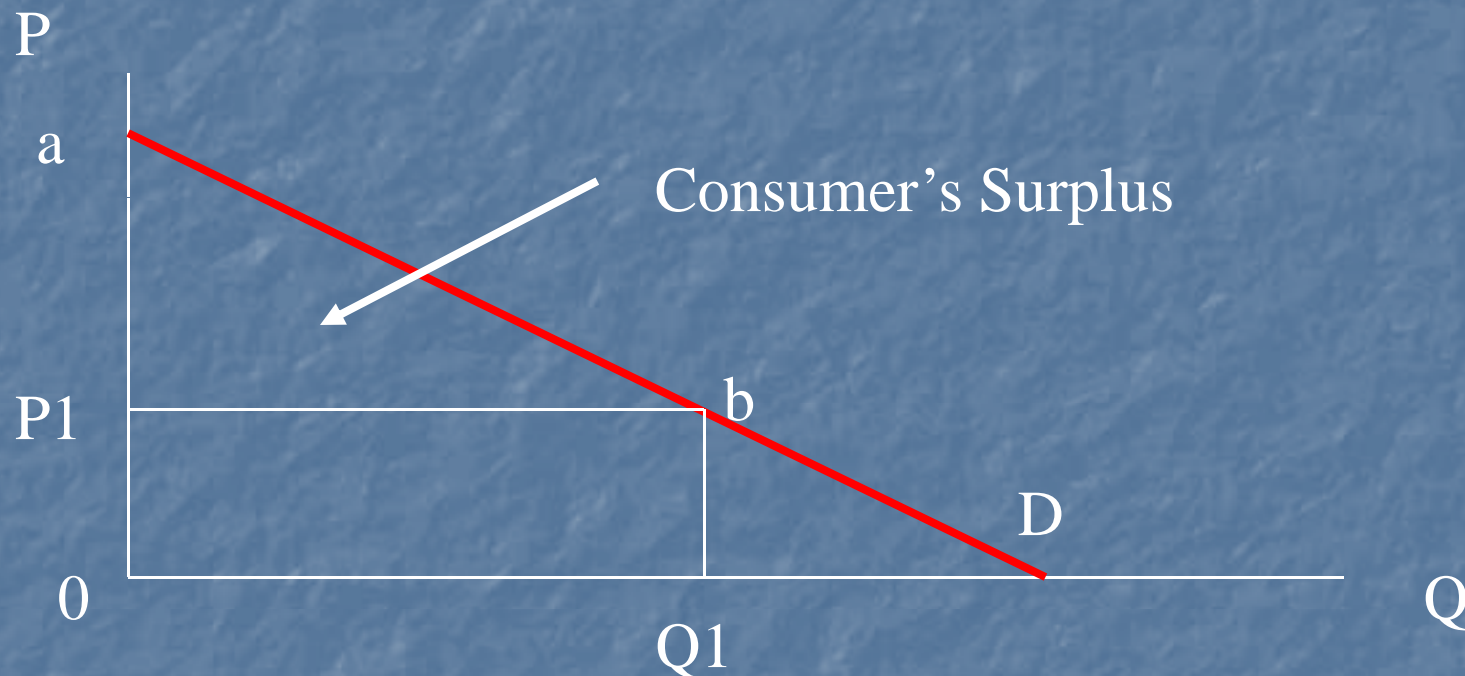
# Elasticity of Demand

- Marshall invented the elasticity measure of the responsiveness of demand to changes in price
- Percentage or proportionate change in Q demanded divided by the percentage or proportionate change in P
- Unit free measure of responsiveness
- Elasticity and relationship to total expenditure on the good

# Consumer's Surplus

- Marshall interpreted a demand curve as a willingness to pay at the margin curve
- Consumer is willing to pay more for the first few units of a good than for subsequent units
- If the consumer pays a single price for all units bought then the total willingness to pay for those units will exceed the amount actually paid
- This is consumer's surplus

# Consumer's Surplus



Total willingness to pay for  $Q_1 = 0abQ_1$

Amount actually paid =  $0P_1bQ_1$

Consumer's surplus =  $P_1ab$

# Consumers' Surplus

- Marshall thought Consumers' surplus would be a vital tool for practical policy appraisal
- Problem of aggregation over individuals and of interpersonal comparisons
- Can only aggregate and compare if the MU of income is the same for everyone
- Marshall argued that provided that *on average* the MU of income is the same than can aggregate and compare across groups

# Marshall on Production

- Factors of production: land, labour, capital, and *organization*
- Diminishing returns in agriculture
- Diminishing returns can also occur with fixed factors other than land
- *Increasing returns* in industry with concentration of industry in particular localities
- Increased productivity in industry due to larger scale of particular firms--increased specialization of labour and machinery
- Economies of buying and selling on a large scale

# Marshall on Production

- Forms of business organization and the problems of maintaining energy and efficiency
- Joint stock companies and problems of agency
- Distinction between external and internal economies
  - External economies are economies derived from the general development of an industry (external to individual firms)
  - Internal economies derived from the size of individual firms (internal to the firm)

# Marshall on Production

- Tendency to decreasing returns in agriculture and natural resource industries
- Tendency to increasing returns in other industries
  - An increase of labour and capital leads generally to improved organization which increases the efficiency of labour and capital
- But limits to the size of particular firms
- Biological analogy and the life cycle of firms
- Concept of the representative firm--firm with average access to internal and external economies

# Cost and Supply

- Expenses of production—prices that have to be paid to call forth the required supply of productive factors
- Supply price of a good
- Firms seek to minimize factor costs—principle of substitution
- Importance of time frame—short run and long run
- Prime costs and supplementary costs (variable and fixed cost)

# Short Run Supply

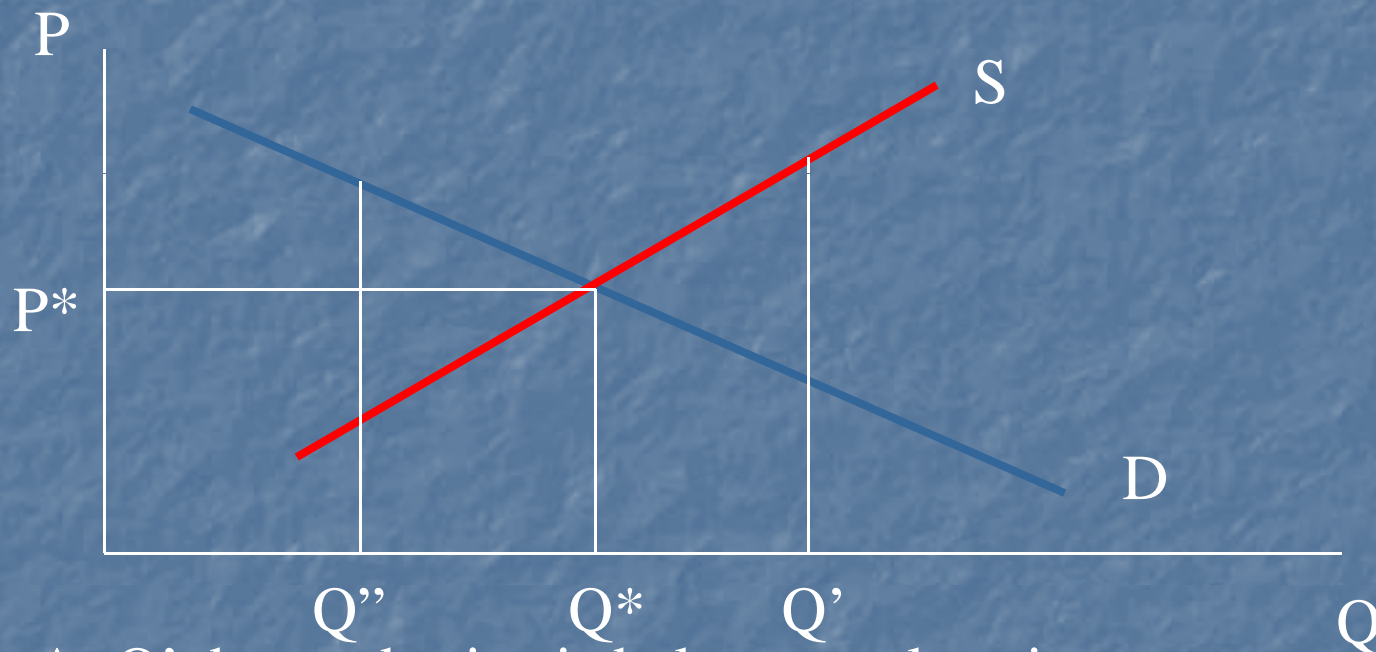
- In the short run the quantity of capital available to the firm is fixed
- The price the firm receives has to cover prime costs only
- With fixed capital will have diminishing returns so that in short periods increased production will raise the supply price
- In the short term any return over prime cost is a “quasi rent”

# Short Run Market Supply Curve

- SR market supply curve slopes upward
- Firms have different levels of cost so at a given price some may be making quasi rents, others just covering prime costs and some may be producing nothing (can't cover even prime cost)
- As price rises firms already in production produce more and previously shut down firms will open up

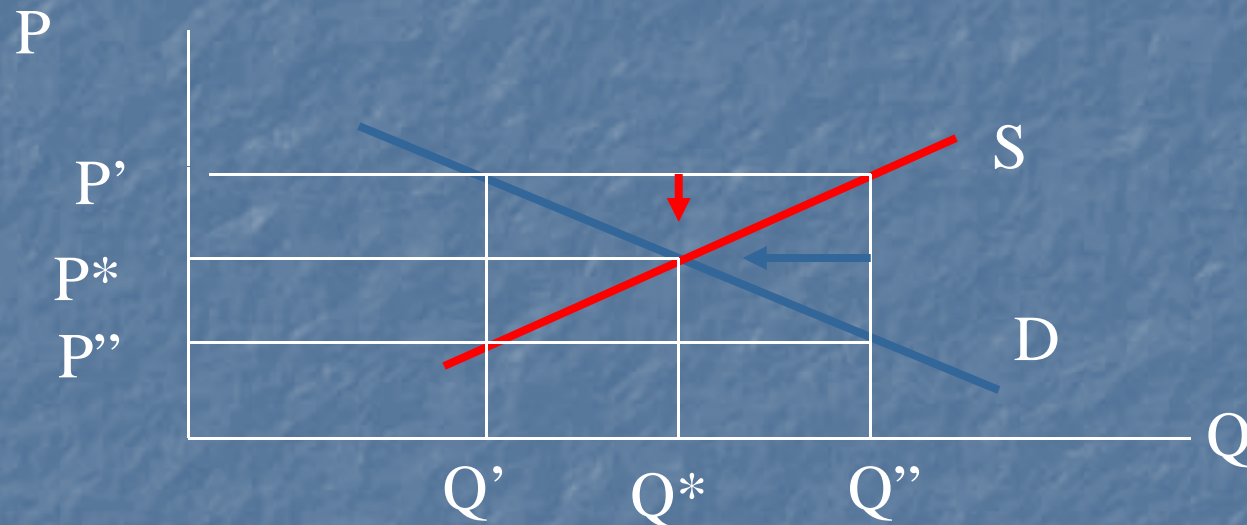
# Short Run Market Equilibrium

Assuming competitive conditions



At  $Q'$  demand price is below supply price  
And output will be reduced. At  $Q''$  demand  
price exceeds supply price and output will  
Rise. At  $Q^*$  demand price = supply price

# Marshallian vs Walrasian Adjustment to Equilibrium



Walras: At  $P'$  there is excess supply and price falls until  $D=S$  (red arrow)

Marshall: At  $Q''$  supply price exceeds demand price and quantity supplied will fall until demand and supply prices are equal (blue arrow)

# Long Run Equilibrium

- In the long run firms can change scale and the size of the industry can change
- Marshall thinks in terms of the costs of the representative firm
- In long run equilibrium the representative firm must be at least covering total costs (prime plus supplementary)
- If this is true then size of the industry will not change although individual firms still going through their life cycles
- Long run equilibrium population of firms

## Long Run Supply

- If the representative firm is not covering total cost the industry will shrink in size
- If the representative firm industry is more than normally profitable the industry will grow in size
- What happens to the costs of a representative firm as the industry changes in size?
- Importance of *external* economies and diseconomies

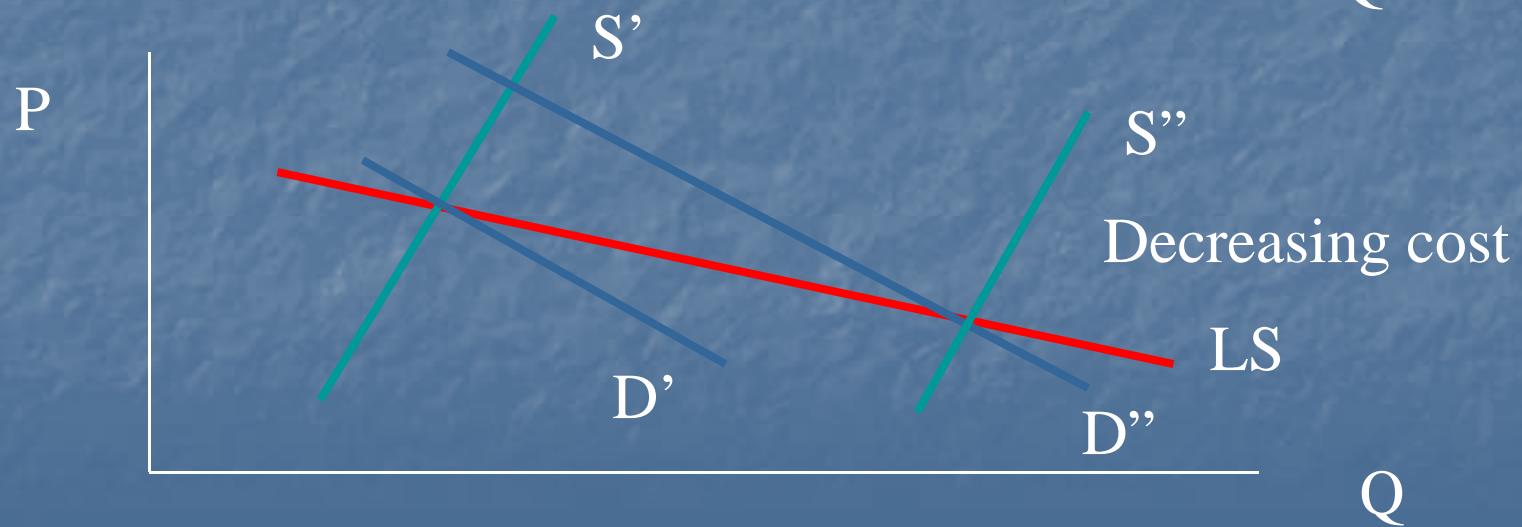
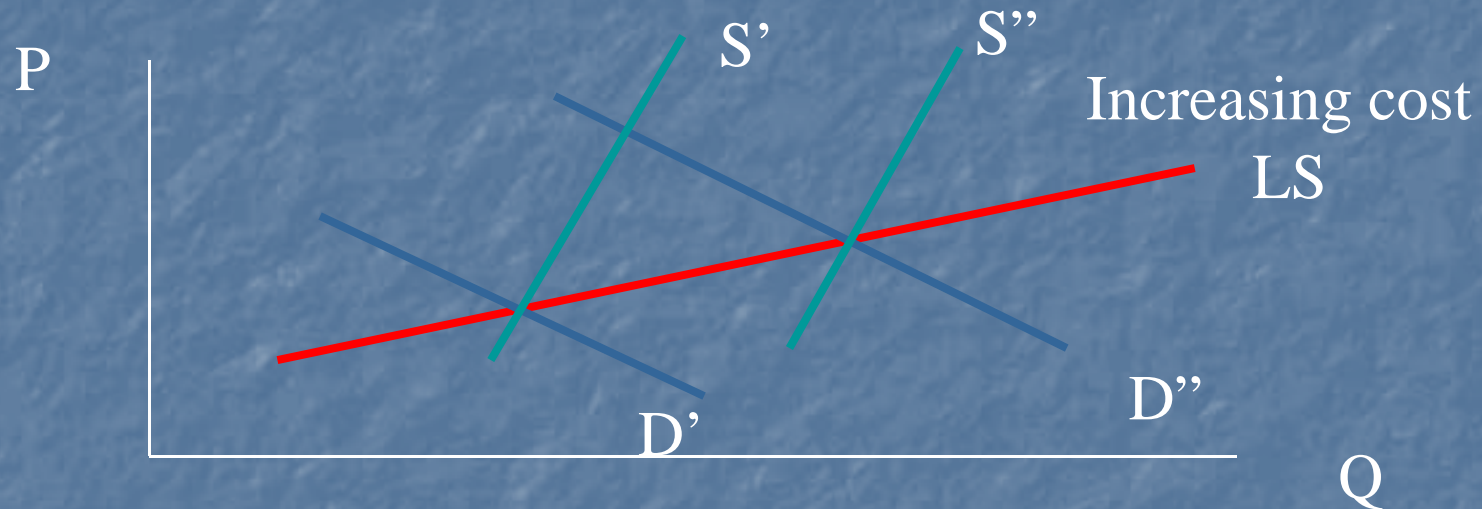
# Long Run Supply

- In industries where external economies dominate, growth in industry size will lower the costs of all firms
- Long run industry supply curve will be downward sloping (decreasing cost industry)
- If external diseconomies dominate industry growth raises costs for all firms
- Long run industry supply curve will be upward sloping (increasing cost industry)

# Long Run Supply

- If external economies and diseconomies just cancel each other out then the costs of firms will not be affected by industry growth
- Long run supply curve will be horizontal (constant cost industry)
- Marshall thought most industries other than natural resource industries had declining long run costs
- What might these external economies consist of?
- Reduction in factor cost due to industry growth creating a pool of trained labour in that locality

# Long Run Supply Curves



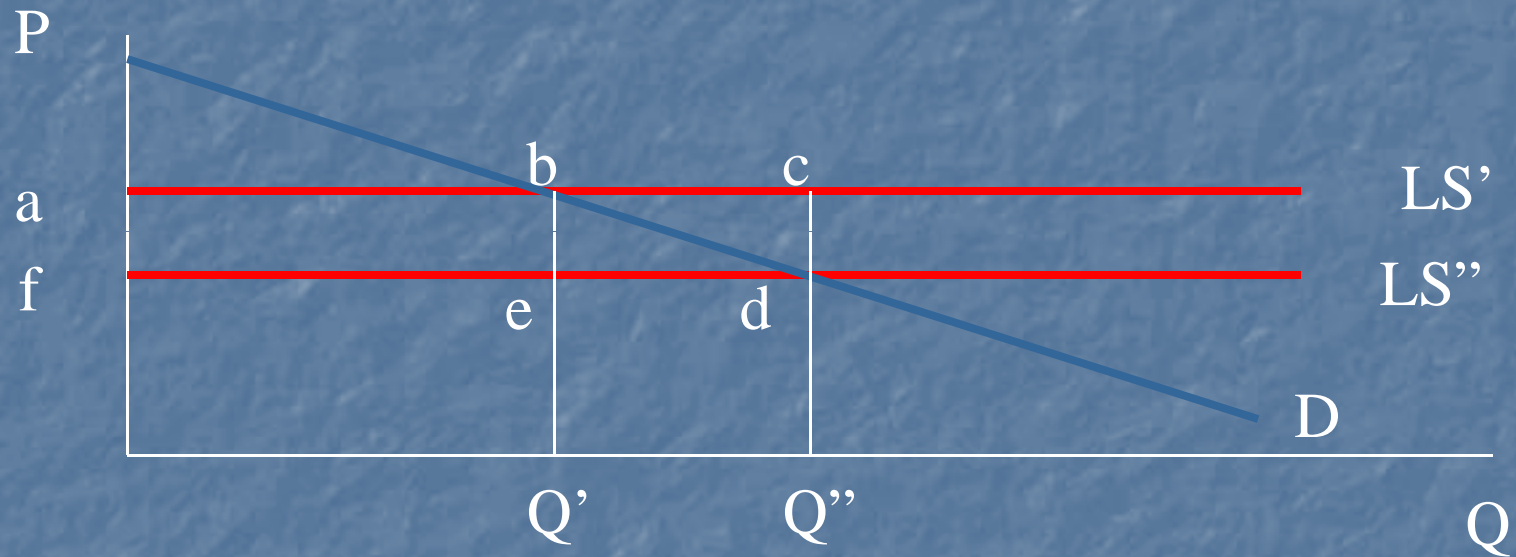
# Importance of Decreasing Cost Case

- Decreasing costs due to *external* not *internal* economies
- Therefore decreasing costs are consistent with continued competition
- If decreasing costs were due to internal economies this would result in monopoly
- Allows Marshall to concentrate on the competitive case—monopoly an exception
- Link to modern literature on endogenous growth

# Externalities, Taxes and Subsidies

- Marshall argued that only in the case of constant costs did competition result in an optimal allocation of resources
- External diseconomies meant that industries grew too large as new entrants did not take account of the increased cost they imposed on others
- External economies meant that industries did not grow large enough as potential entrants did not consider the beneficial effects they would have on other firms
- Marshall's argument based on consumers' surplus measures of welfare

# Constant Cost Case



Subsidy: LS' to LS''

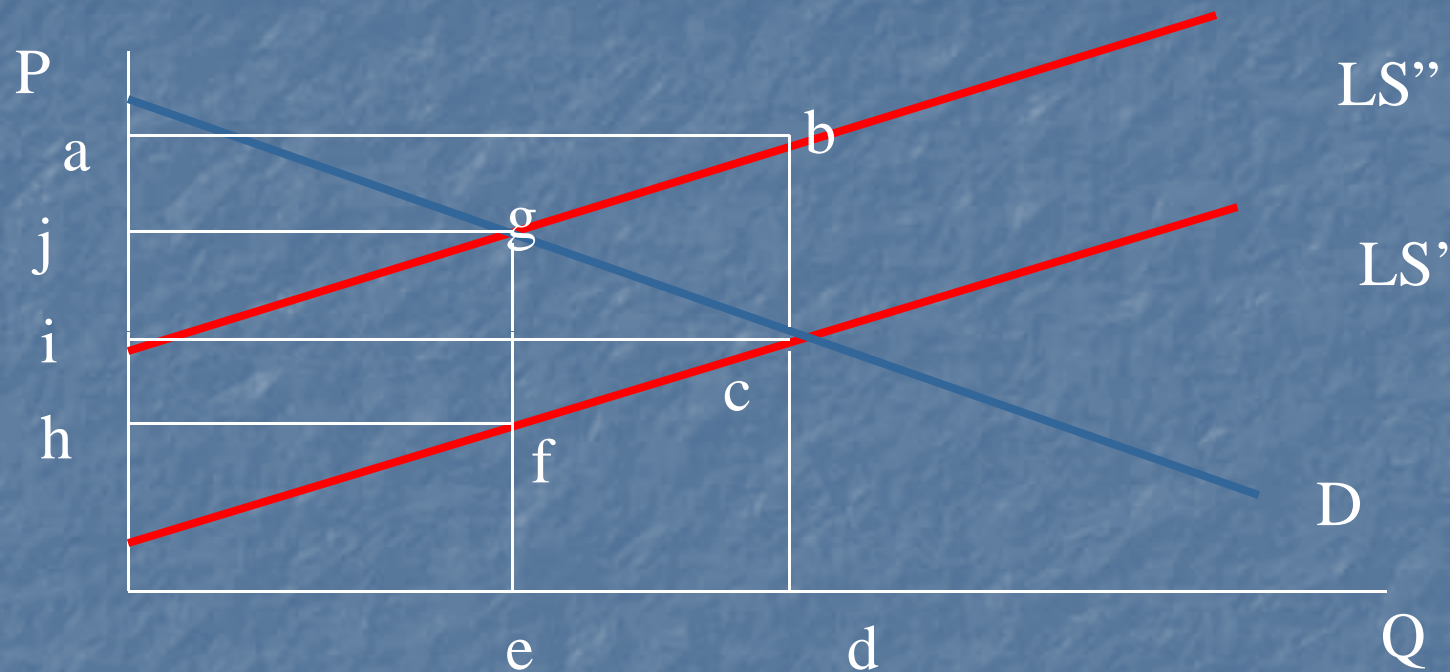
Cost: acdf    Benefit: abdf    Cost > Benefit

Tax: LS'' to LS'

Cost: abdf    Benefit: abef    Cost > Benefit

No case for subsidization or taxation

# Increasing Cost Case



Subsidy:  $LS''$  to  $LS'$

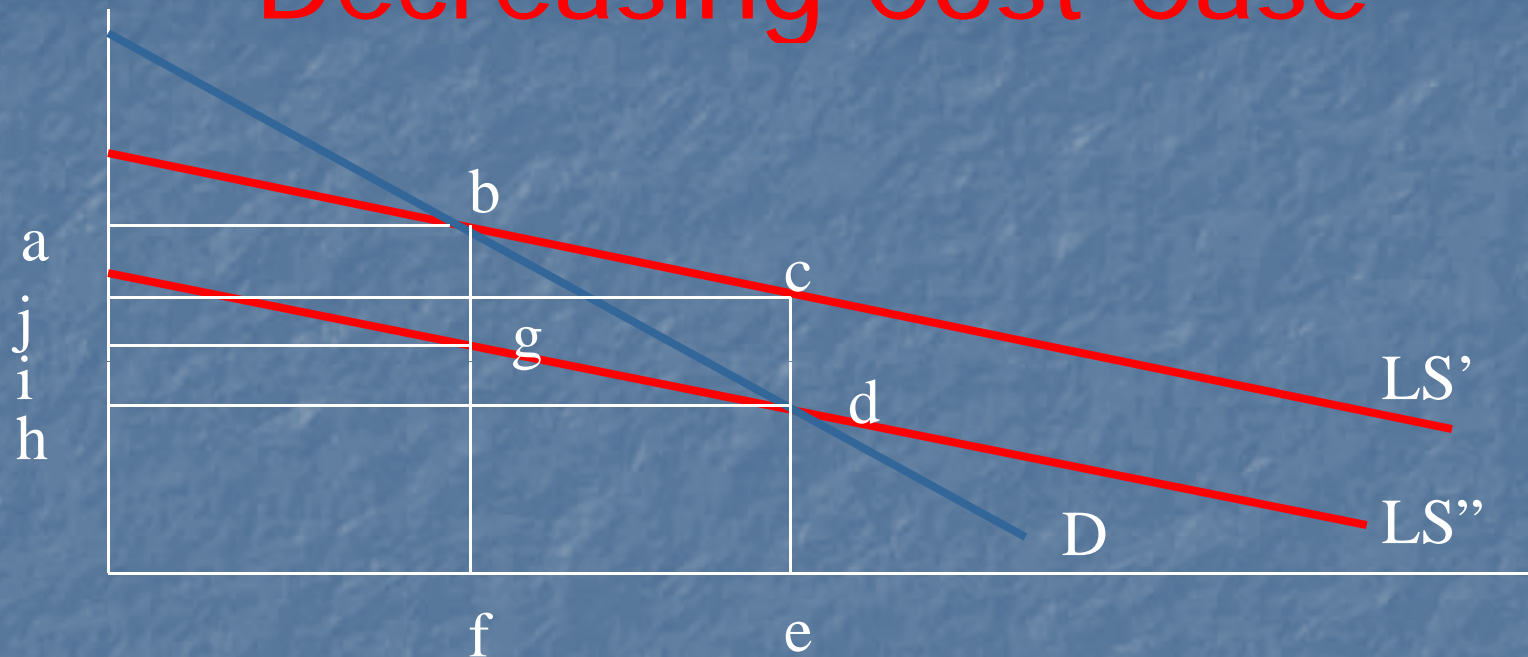
Cost:  $abci$     Benefit:  $jpgi$     Cost > Benefit

Tax:  $LS'$  to  $LS''$

Cost:  $jpgi$     Benefit:  $jgfh$     Benefit > Cost

Case for tax where there are external

# Decreasing Cost Case



Subsidy:  $LS'$  to  $LS''$

Cost:  $jcdh$     Benefit:  $abd$      $\text{Benefit} > \text{Cost}$

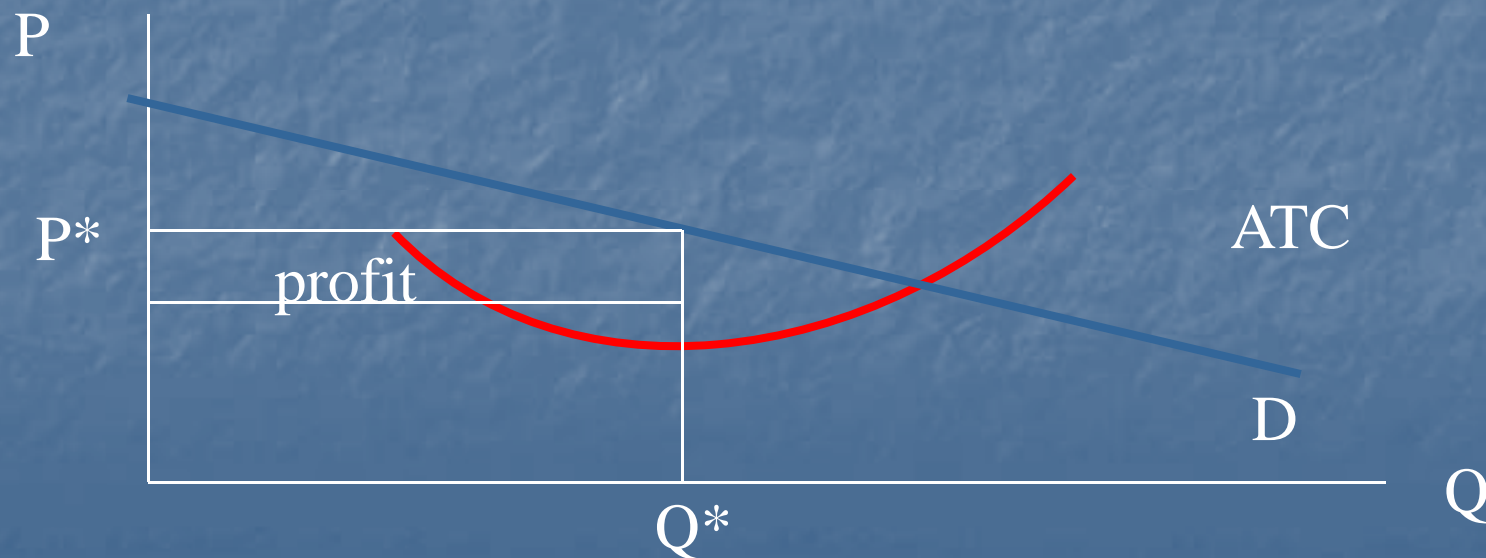
Tax:  $LS''$  to  $LS'$

Cost  $abd$     Benefit:  $abgi$      $\text{Cost} > \text{Benefit}$

Case for subsidizing where there are

# Monopoly

- Marshall's analysis of monopoly uses average total cost and average revenue curves
- Average cost as the monopoly supply price
- Monopoly will maximize the difference between demand price and supply price



# Factor Prices

- Critiques both the wage fund theory and the Marxian view that “surplus” is produced by labor
- Marginal productivity theory of factor demand
- Demand for factors a derived demand
- Firm’s demand curve for a factor based on the value of marginal product
- On factor supply
  - Labor supply a function of wages
  - Supply of capital a function of the interest rate
- Producer’s surplus and rent

# Factor Markets

- Demand and supply explanation of factor prices
- Generally assuming competitive factor markets
- Concern with the extent of the inequality of the distribution of income
- Emphasis on improvement in the quality of labor—training and education to increase productivity
- Saw long run possibilities for improvement—cautious reform