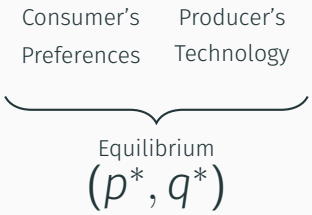
Partial Equilibrium

Javier Tasso

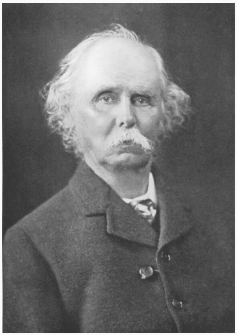
Introduction

Introduction



- First model of price determination. So far, we've studied the optimal choices given the prices.
- What's behind prices in a competitive market?
- Preferences and technology (exogenous) determine prices and quantities (endogenous).

Equilibrium



Alfred Marshall

Alfred Marshall on **Equilibrium** notion:

The simplest case of balance or equilibrium between desire and effort is found when a person satisfies one of his wants by his own direct work. When a boy picks blackberries for his own eating, the action of picking is probably itself pleasurable for a while; and for some time longer the pleasure of eating is more than enough to repay the trouble of picking. But after he has eaten a good deal, the desire for more diminishes; while the task of picking begins to cause weariness, which may indeed be a feeling of monotony rather than of fatigue. Equilibrium is reached when at last his eagerness to play and his disinclination for the work of picking counterbalance the desire for eating[a].

[a] From Principles of Economics, Book V, Chapter II.

Competitive Market

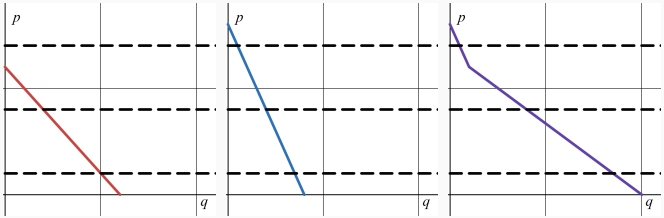
- We'll study the equilibrium of an isolated competitive market.
  - Isolated because we abstract away from any spillover this market may produce in other markets.
  - Competitive because we assume there's a large number of small producers and consumers who do not have market power.
- This is the **Partial Equilibrium** model. As opposed to the **General Equilibrium** model.

Partial Equilibrium Model

Assumptions

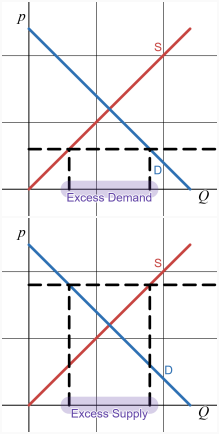
- Consumers and producers are price takers.
- Good is homogeneous.
- Good has no income effect: it represents only a small fraction of the consumer's budget.
- There are no externalities.
- There are no barriers to entry.

Aggregate Demand & Aggregate Demand



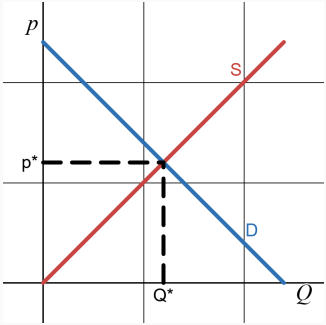
- Aggregate demand and aggregate demand as the sum of individual demand and supply curves.
- Example:
  - Consumer A has demand $q = 6 - p$.
  - Consumer B has demand $q = 4 - p/2$.

Excess Demand and Excess Supply



- If the price is relatively low, demand exceeds supply. This is an excess demand situation. The price will tend to increase.
- If the price is relatively high, supply exceeds demand. This is an excess supply situation. Competition will make the price decrease.

Equilibrium

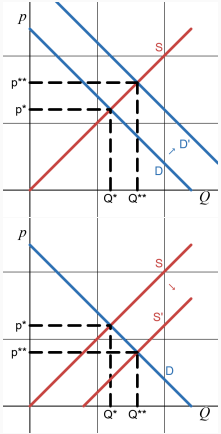


- The price where demand and supply are equal is called the equilibrium price p^*.
- Its corresponding quantity is the equilibrium quantity q^*.
- Equilibrium is stable.
- Example: $q_d(p) = 12 - p$ and $q_s(p) = p - 2$.

What's behind the equilibrium price?

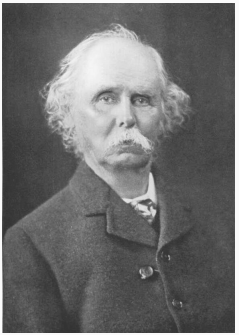
- Marginal utility or marginal social benefit encoded in the demand curve.
- Marginal cost or marginal social cost encoded in the supply curve.
- The equilibrium price reflects the marginal benefit to society of an additional unit and the marginal cost to society of producing it.

Shocks



- Comparative Statics: How an exogenous change to technology or preferences affects the endogenous variables (price and quantities).
- Recall movement along the curve vs shift.
- Top: change in consumer's preferences.
- Bottom: change in technology.

Ceteris Paribus



Alfred Marshall

Alfred Marshall on ***Ceteris Paribus***:

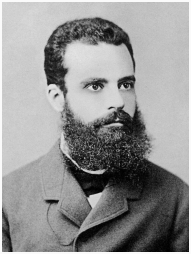
- *The study of some group of tendencies is isolated by the assumption* ***other things being equal****: the existence of other tendencies is not denied, but their disturbing effect is neglected for a time. The more the issue is thus narrowed, the more exactly can it be handled: but also the less closely does it correspond to real life*[a].

[a] From Principles of Economics, Book V, Chapter V.

Welfare

Efficiency

A situation is said to be **Pareto-Efficient** if there's no other situation where one participant is better off, and nobody else is worse off.



Vilfredo Pareto

- Vilfredo Pareto's concept of efficiency.
- If one participant can be made better off without hurting anyone else, there's room for improvement. This is called a **Pareto-Improvement**.
- No resources go to waste.

Efficiency and Competitive Markets

The output of a competitive market is Pareto-efficient. Consumers and producers pursuing only their own interest generate an efficient situation.

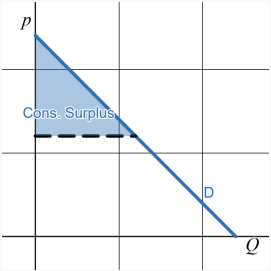
Adam Smith

Every individual necessarily labours to render the annual revenue of the society as great as he can... He is in this, as in many other ways, led by an invisible hand to promote an end which was no part of his intention... By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it[a].

[a] 'Wealth of nations' (1776), Book IV, Chap II.

Measuring Welfare: Consumer Surplus

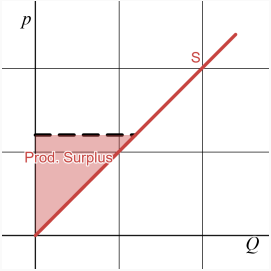
Consumer Surplus: Difference between the willingness to pay and the actual price.



- Under the assumption of constant marginal utility of the remaining good, one can interpret this difference as utility.
- Why do we need constant marginal utility? Example with utility of money.

Measuring Welfare: Producer Surplus

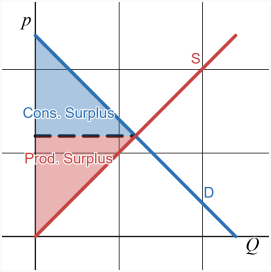
Producer Surplus: Difference between the actual price and the minimum price they are willing to accept to produce that good.



- Counterpart of the consumer surplus. A welfare measure for producers.
- Here we interpret the marginal cost as willingness to sell, the same way we defined willingness to buy for consumers.

Measuring Welfare: Total Welfare

Total Welfare: The sum of Consumer and Producer surplus.



- At the equilibrium price the total welfare is maximum.
- Any other price would generate a lower total welfare.
- This is another way of saying that the equilibrium outcome is Pareto-efficient.

Short vs Long Run

Short Run vs Long Run

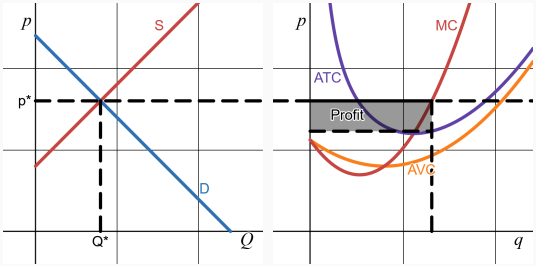
- Short run: Capital is fixed. Firms are already invested in their corresponding market because they own some capital and adjustment takes time.
- Long run: No factor of production is fixed. Firms are free to enter, exit, or move across markets.
- Short run does not have to do with time, but with decisions.

Profits in the Long Run

- Assume firms behave competitively.
- Assume technology is available for everyone. All firms have access, in the long run, to the most efficient technology of the sector of their choice.
- Under these premises, in the long run firms are identical and they will make the same amount of profits across sectors.
- Furthermore these profits are zero. Why?

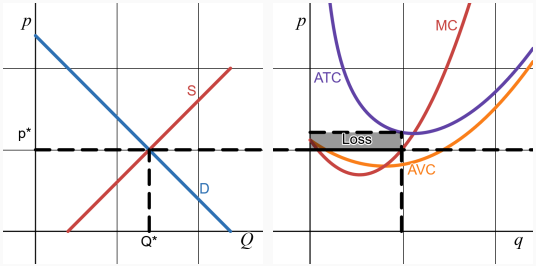
Firm Entry

- Firms make positive profits.
- Some firms enter the market in the long run.
- Supply will eventually shift right and down.



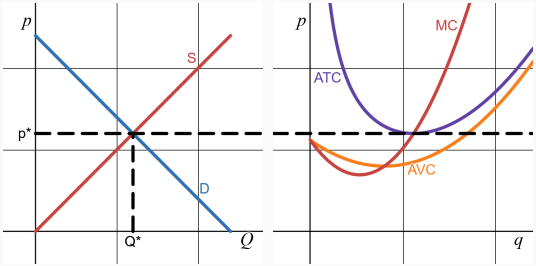
Firm Exit

- Firms make negative profits.
- Some firms exit the market in the long run.
- Supply will eventually shift left and up.

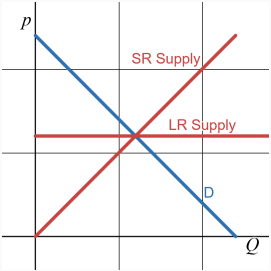


Long Run Equilibrium

- Firms make zero profits.
- No entry/exit incentives.
- Firms produce at the efficient scale.

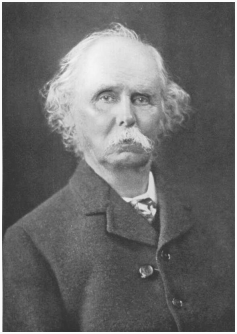


Long Run Supply



- In the short run supply has a positive slope: Because there's no firm entry, firms can produce more at a higher marginal cost.
- In the long run supply is horizontal: Because there's firm entry, all firms produce at the efficient scale.

Long Run Supply II

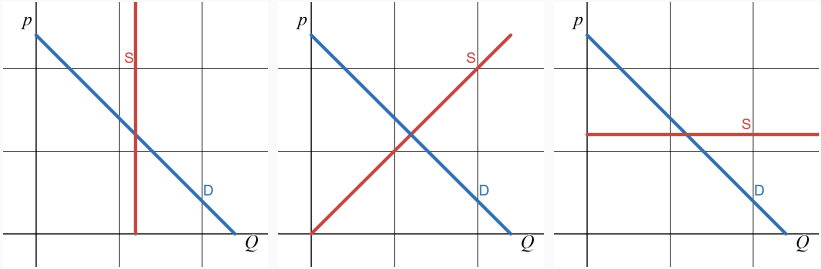


Alfred Marshall

Thus we may conclude that, as a general rule, the shorter the period which we are considering, the greater must be the share of our attention which is given to the influence of demand on value; and the longer the period, the more important will be the influence of cost of production on value[a].

[a] From principles of Economics, Book V, chapter III

Long Run Supply III



- Supply in the very short run, short run, and long run.