Demand, Supply and Price Determination

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The circular flow of goods and incomes

Goods and services

€ Consumer expenditure
GOODS MARKETS

€ Wages, rent, dividends, etc.
FACTOR MARKETS

Services of factors of production (labour, etc.)

Demand and Supply

- potential demand will almost invariably outstrip potential supply

- markets equate actual demand with actual supply by raising or lowering prices
  - prices usually (but not always) in monetary terms
Questions:

- Why did the price of oil fall last year?
- Why did the price of renting in Dublin rise this year?
- Why do the points for a college course change each year?
- What about prices (wages) in the labour market?

Demand and Supply

- will deal mostly with competitive markets:
  - individual consumers and producers are too numerous to have a significant impact on prices, i.e., they are more or less price takers
  - These are rare in the real world but give us a basic framework
- approach
  - Firstly, examine demand and its determinants
  - Secondly, examine supply and its determinants
  - Then will examine the interactions of demand and supply - the market

What quantity of a good or service will consumers wish to purchase?

Why do consumers want to purchase that quantity of a good or service?

DEMAND
DEMAND

- Relationship between demand and price
- The law of demand:
  When the price of a good rises, the quantity demanded falls, and when the price of good falls, the quantity demanded rises, for a given period of time, other things being equal (ceteris paribus).

Two effects of a price change:
- Income effect: the effect of a change in price on the quantity demanded arising from the consumer being better or worse off, as a result of the price change.
- Substitution effect: the effect of a change in price on the quantity demanded arising from the consumer switching to or from an alternative.

Demand for goods

- Determinants of demand
  - Price
  - Income
  - Price of other goods
    - Substitute goods (apples and oranges)
    - Complementary goods (bread and butter)
  - Expectations
  - "Tastes"
    - Issues not explained by prices or income, e.g., fashion, fads, etc.

Method of exposition

- We wish to examine the effect of a number of factors on demand.
- If we follow a diagrammatic approach, can only examine these factors one at a time.
- As we look at each of these in turn, we assume that all other things are equal (ceteris paribus).
  - E.g., if looking at the effect of price changes, we assume that income, the prices of other goods, or tastes do not change.
Demand and price

'Law of Demand'
as price falls, demand rises
due to:

- changes in relative price (fall in the price of pears)
  - a substitution effect (e.g., switch from apples to pears)
- change in purchasing power
  - an income effect (can now afford more pears)
- (very) unusual exceptions to this 'law' are referred to as Giffen goods
  - if a good or service becomes suspiciously cheap you might
    not trust it anymore e.g. meet

A demand curve

- show effect of price change graphically

- as price falls from \( P_1 \) to \( P_2 \), demand rises from \( Q_1 \) to \( Q_2 \)

- changes in price cause movements along a demand curve

Demand curves

'Law of Demand': as price falls, demand rises

- could be represented as curve A
- or it could be shown as B
- could show any downward-sloping curve

Usually show demand curves as straight lines
- simplicity
- reasonable approximation
Slope of the demand curve

Note effect of a price change on each of the two demand curves:
- as price falls from $P_1$ to $P_2$, demand rises by differing amounts.

The flatter the demand curve, the greater the response to the same change in price.

Changes in income and demand:
- for most goods, an increase in income will lead to an increase in demand (and vice versa)
  - normal goods
- demand for some goods will fall as income rises
  - inferior goods

Effect of a change in income:
- An increase in income causes demand to rise (normal goods)
- at $P_1$, a rise in income causes demand to rise from $Q_1$ to $Q_1'$
- similarly, demand at $P_2$ rises from $Q_2$ to $Q_2'$
- the demand curve shifts
Effect of a change in income

(2)

• An increase in income shifts the demand curve to the right \((D \rightarrow D_1)\)

• A decrease in income shifts the demand curve to the left \((D \rightarrow D_2)\)

Changes in the price of other goods

Changes in the price of other goods will affect the demand for this good

Substitutes

• an increase in price of a substitute good will cause an increase in demand for this good
• a decrease in price of a substitute good will cause a drop in demand for this good

Complements

• an increase in price of a complementary good will cause a drop in demand for this good
• a decrease in price of a complementary good will cause an increase in the demand for this good

Change in price of a substitute good

• increase in the price of a substitute will cause demand to rise
• at price \(P_1\), demand rises from \(Q_1\) to \(Q_1'\)
• similarly, demand at \(P_2\) rises from \(Q_2\) to \(Q_2'\)
• the demand curve shifts
Demand curves - summary

• demand curves slope downwards
• changes in a good’s ‘own price’ are represented by movements along the demand curve
• changes in any other factor that affects demand causes the demand curve to shift left or right

Did the demand curve shift right or shift upwards?

Consider an increase in income:

• at P₁, consumers will purchase a higher quantity (Q₁ → Q₁')
  alternatively
• consumers would be prepared to pay a higher price for the same quantity (P₁ → P₁')
rightward and upward shifts are equivalent

How much will firms want to produce?

SUPPLY
SUPPLY

- Relationship between supply and price
- Law of Supply: As price rises/falls quantity supplied rises/falls for a given period ceteris paribus
  - short-run supply
  - long-run supply
- The supply curve
  - assumptions
    - other things remain equal (ceteris paribus)
    - a given time period
    - the axes
  - individual's and market supply curves

Supply of goods

- Determinants of supply
  - price
  - production costs
  - profitability of alternative products
    - substitutes in supply
  - profitability of goods in joint supply
  - expectations of future price changes
  - other
    - random events
    - goals of producers (profits vs. sales maximising)

Supply and price

"Law of Supply"

as price rises, supply rises
due to:
- higher profitability
  - encourages existing firms to produce more
  - (in long run) encourages new entrants
- if higher output involves higher costs, firms will require higher price (to preserve profit margins)
A supply curve

- Can represent effect of price change graphically
- As price rises from $P_1$ to $P_2$, supply rises from $Q_1$ to $Q_2$
- Changes in price cause movements along the supply curve

Supply curves

'Law of Supply': supply curve slopes upwards

- Could be represented as curve A
- Alternatively it could be shown as B
- Could show any upward-sloping 'curve'

At this stage, will show supply curves as straight lines for simplicity

Slope of the supply curve

Note the effect of a price change on each of the two supply curves

- As price falls from $P_1$ to $P_2$
- Supply falls by differing amounts

The flatter the supply curve, the greater the response to the same change in price
Production costs

Causes of changes in costs:
- cost of inputs
  - raw materials
  - labour costs
  - changes in cost of capital
- changes in production technology
  - technological advances
  - organisational changes
  - changes in government policy (incl. regulation)

Supply and production costs

- An increase in costs will cause supply to fall
- at price $P_1$, a rise in costs causes supply to fall from $Q_1$ to $Q_1^*$
- similarly, supply at $P_2$ falls from $Q_2$ to $Q_2^*$
- the supply curve shifts

Effects of changes in costs

- A decrease in costs shifts the supply curve to the right
- An increase in costs shifts the supply curve to the left
Did the supply curve shift left or shift upwards?
Consider a rise in costs:
- at the same price as before, firms choose to supply less \( (Q_1 \rightarrow Q'_1) \)
- alternatively
  - firms will only supply the same quantity as before if they are paid a higher price \( (P_1 \rightarrow P'_1) \)

**leftward and upward shifts are equivalent**

Other factors affecting supply
- random events
  - changes in weather patterns may affect agricultural production
  - wars affecting supplies of raw materials
  - etc.
- assumption that firms are 'profit-maximizers'
  - 'satisficing' behaviour
  - revenue maximisation
  - asset growth
  - etc.

Supply curves - summary
- changes in a good's 'own price' are represented by movements along the supply curve
- changes in any other factor that affects supply causes the supply curve to shift left or right
PRICE EQUILIBRIUM

PRICE AND OUTPUT DETERMINATION

- Equilibrium: position of balance
- Equilibrium price:
  quantity demanded = quantity supplied

Market Clearing:
response to shortages and surpluses

- shortage ($D > S$)
  $\Rightarrow$ price rises
- surplus ($S > D$)
  $\Rightarrow$ price falls

The price mechanism:
the effect of a rise in demand

Goods Market

$D_y \rightarrow$ shortage $\rightarrow P_y$ $\leftarrow S_y \\
(D_y > S_y)$ $\uparrow$ $\downarrow$ until $D_y = S_y$
Equilibrium

- Equilibrium in the economy where D and S curves intersect
  - if D > S, price level will rise
  - if D < S, price level will fall
ELASTICITY

- Price elasticity of demand and consumer expenditure
  \[(P \times Q)\]

  **Elastic Demand**
  - P rises; Q falls proportionately more; \((total \ spending \ falls)\)
  - P falls; Q rises proportionately more; \((total \ spending \ rises)\)

  **Inelastic Demand**
  - P rises; Q falls proportionately less; \((total \ spending \ rises)\)
  - P falls; Q rises proportionately less; \((total \ spending \ falls)\)
ELASTICITY

- Determinants of price elasticity of demand include
  - number and closeness of substitute goods
  - Time
- Elasticity is different at different points along the demand curve
- We can also think about:
  - elasticity of supply
  - income elasticity of demand
  - Cross-price elasticity of demand

Price Discrimination

- Types of price discrimination
  - First degree: each consumer is charged the max price he/she is willing to pay for each unit
  - Second degree: different price for volume consumed
  - Third degree (the most common form) firm divides consumers into different groups and charges a different price to consumers in each group.
MARKET STRUCTURES

The Degree of Competition

- Classifying markets
  - number of firms
  - freedom of entry to industry
  - nature of product
  - nature of demand curve

- The four market structures
  - perfect competition
  - monopoly
  - monopolistic competition
  - oligopoly

PERFECT COMPETITION

Assumptions
- firms are price takers
- freedom of entry
- identical products
- perfect knowledge

- Short-run equilibrium of the firm
  - \( P = \text{Marginal Cost (MC)} \)
  - possible supernormal profits competed away in the long run
Monopolistic Competition
Assumptions of monopolistic competition

- There are a large number of firms
- There is freedom of entry
- Each firm produces a product or service that is in some way different from its rivals

Oligopoly

- Key features of oligopoly
  - barriers to entry
  - interdependence of firms
    - recognise that its own price depends both on its own actions and those of its rivals.
    - examples: banks in Ireland, Accountancy firms
    - supermarkets
    - Collusion – car dealers
    - Cartels – OFEC

MONOPOLY

- Defining monopoly
- Barriers to entry
  - economies of scale
  - product differentiation and brand loyalty
  - lower costs for an established firm
  - ownership or control over key factors
  - ownership or control over outlets
  - legal restrictions
  - mergers and takeovers
  - aggressive tactics
  - intimidation
- Natural monopoly
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