SA422: Topic 2
Housing Demand, Supply and Price

- Determinants of Demand
- How responsive is Demand to changes in price? in income? in prices of other goods? tastes?
- Demographics and demand
- Demand and Need

Determinants of Demand (D_H)

Income (Y)

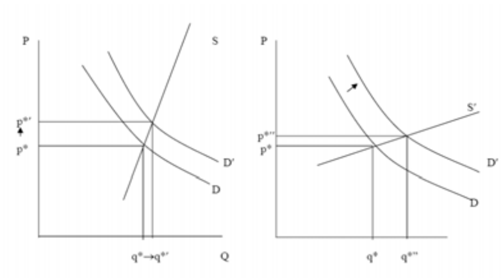
PRICE of HOUSING RELATIVE TO PRICE of OTHER GOODS ($PH/P_{OTHERGOODS}$)

Tastes (T): and

Number of Households in Market (N)

Changes in $P_H \rightarrow$ move along curve

CHANGES in ALL OTHER VARIABLES $\rightarrow$ Shifts Demand Curve



(i) Relatively unresponsive supply (ii) Relatively responsive supply

Figure 2: Impact of shifts in Demand Curve on Equilibrium Price

Elasticity

- RESPONSIVENESS of ONE VARIABLE TO ANOTHER
- PRICE ELASTICITY of DEMAND
  Responsiveness of Q_D with respect to P of good i.e. SLOPE of DEMAND CURVE
- MEASURE in RELATIVE TERMS i.e.

$$\eta_D = \frac{\%\ \text{change}\ (\Delta)\ \text{in}\ Q_D}{\%\ \text{change}\ (\Delta)\ \text{in}\ P}$$

- Often use 1% change in P as base

Example if $p_x \uparrow$ by 1%
$q_x \downarrow$ by 2%
$\eta_D = 2$ – elastic

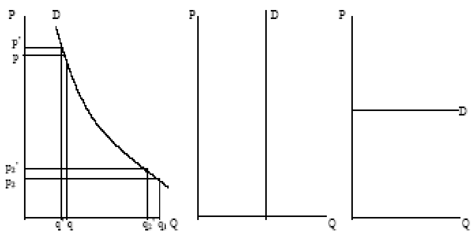
if $p_y \uparrow$ by 1%
$q_y \downarrow$ by 0.5%
$\eta_D = 0.5$ – inelastic

if $p_Z \uparrow$ by 1%
$q_Z \downarrow$ by 1%
$\eta_D = 1$ unit elasticity

If demand price is elastic
if price $\uparrow$ total expenditure $\downarrow$

If inelastic total expenditure $\uparrow$

If unit elasticity total expenditure constant



(i) Demand schedule: elasticity varying with price
(ii) Demand completely inelastic (zero elasticity) (o)
(iii) Demand completely (infinitely) elastic (∞)

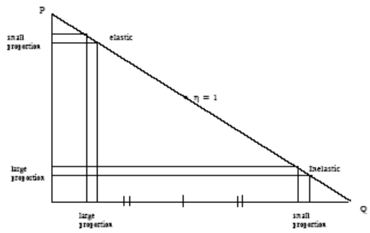


Figure 3(iv) Elasticity on a straight line demand curve

Figure 3: Elasticity of Demand

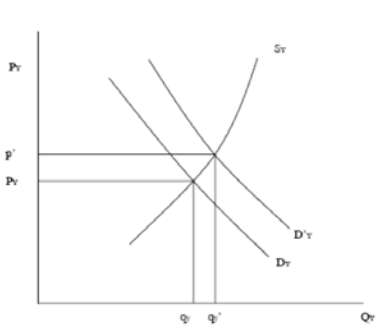
INCOME

- HOUSING A 'NORMAL' GOOD

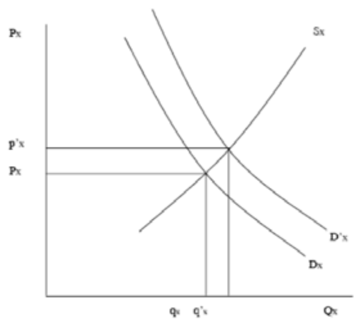
$$\eta_Y = \frac{\% \text{ change } (\Delta) \text{ in } Q_D}{\% \text{ change } (\Delta) \text{ in } Y}$$

- $\eta_Y > 1 \Rightarrow$ increasing % of Y as Y ↑
- PROBLEMS of MEASUREMENT
  SLOW ADJUSTMENT
  RATIONING/IMPERFECT FINANCE MARKETS
  DIFFERENT ATTRIBUTES
    RENTING/BUYING
    NECESSITIES/"LUXURY"
      "SUPERIOR"

- UK evidence
  $\eta_Y < 1$ TENANTS
  $\eta_Y < 1$ o/os but
    ≈ 1 in L/R
- International evidence
  $\eta_Y \approx 1$
- Attributes:
  Basic structure < 1
  Space ≥ 1
- IMPLICATIONS



(i) Price of substitute good Y increases



(ii) Demand curve shifts in market for good X

Figure 4: The Impact of Changes in the Market for a Substitute

RELATIVE PRICES

OWN PRICE

- $\eta_D < 1$
  i.e. slope of demand curve relatively steep
- If P ↑ expenditure on housing ↑
- ADJUSTMENT/INFORMATION/RATIONING /FINANCE MARKET
- HEDONIC PRICES
  implicit prices of attributes

$$\frac{mu_1}{p_1} = \frac{mu_2}{p_2} \ldots \frac{mu_n}{p_n}$$

EVIDENCE

NECESSITIES
LUXURIES
CAPACITY TO ADJUST
SUPPLY GAPS

CROSS ELASTICITY OF DEMAND

CHANGES in PRICE of OTHER GOODS

$$\eta_c = \frac{\%\ \text{change}\ (\Delta)\ \text{in}\ Q_x}{\%\ \text{change}\ (\Delta)\ \text{in}\ P_y}$$

η_c positive – substitutes
η_c negative - complements

TASTES/PREFERENCES

- HOUSEHOLD TYPE →
  DIFFERENT TYPES OF DWELLING/ DIFFERENT QUANTITIES
- RELATIONSHIP TO INCOME
- TENURE CHOICE

POPULATION/ NUMBER OF HOUSEHOLDS

- Demographics
- Social factors
- Economic factors
- Housing market factors
- Policy factors

- TRENDS → smaller households
- MIGRATION
- DEFINITION of HOUSEHOLDS (sharing/concealed)

HOUSING NEED

- DEMAND – what
  prepared to pay for
  given Y, P_H/P_{OTHER}, T, N
- NEED – social concept
  3rd PARTY (GOVERNMENT/DECISION SOCIETY)
- UNLESS NEED backed by MONEY/RESOURCES just ASPIRATION/RHETORIC

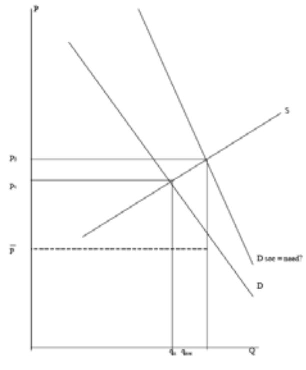


Figure 5: Demand and Need

SUPPLY

- Measured in NUMBERS terms

  $S_t = S_{t-1} - D + C_O + C_1$

  S_t = stock in time t
  S_{t-1} = stock in time t –1
  D_t = Demolitions
  C_{ot} = Conversions
  C_t = Completions

TOTAL SUPPLY

- Measured in VALUE terms

$K_t = K_{t-1} - Dp_t + I_t$

K = Capital stock

Dp = depreciation

I = Investment
  - new
  - existing stock

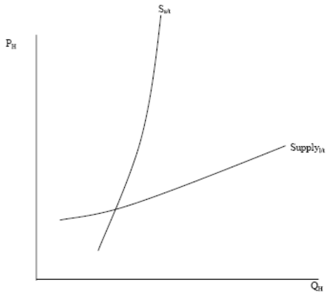


Figure 6: Supply Schedules for housing

Price Elasticity of Supply

$$\eta_s = \frac{\%\ change\ \ (\Delta)\ in\ Q_s}{\%\ change\ \ (\Delta)\ in\ P}$$

Inherently inelastic in short run because new building/investment very small proportion of total

Depends on flexibility of the stock and construction industry

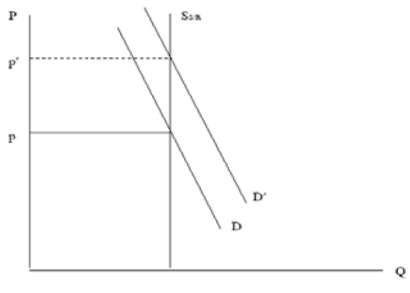


Figure 7: Inelastic Supply and its Impact on Price

HOUSE PRICE DETERMINATION SHORT RUN

- DEMAND more ELASTIC THAN SUPPLY

  $\Downarrow$

- PRICE ADJUSTMENT rather than QUANTITY ADJUSTMENT

- VOLATILITY

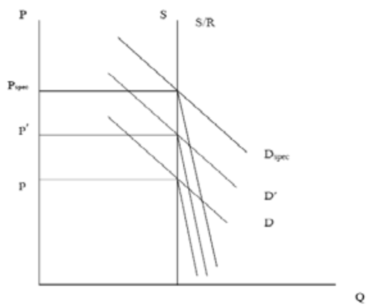
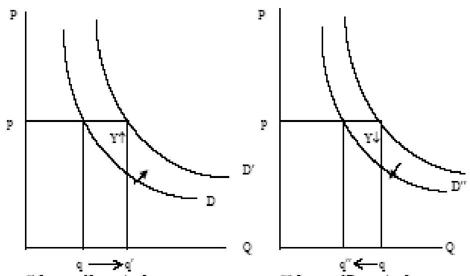


Figure 8: Price Volatility

ROLE of EXPECTATIONS

- $D = f\,(P_{t-1},\ \dot{p}_t\ )$
- Overshooting/Bubbles
- Asymmetry in Response
  numbers of transactions
  numbers on market



(i) Impact of Increasing Income (ii) Impact of Decreasing Income

Figure 1: Example of Shifting Demand Curves