Demand and Consumer Theory

International Managerial Economics

Introduction

- Obviously important for form to know demand for product –and to have demand
- Analysis can be difficult –price, income tastes etc… Endogenous and exogenous variables
- If changes prices needs to know what impact will be: elasticity
- Start with market demand curve

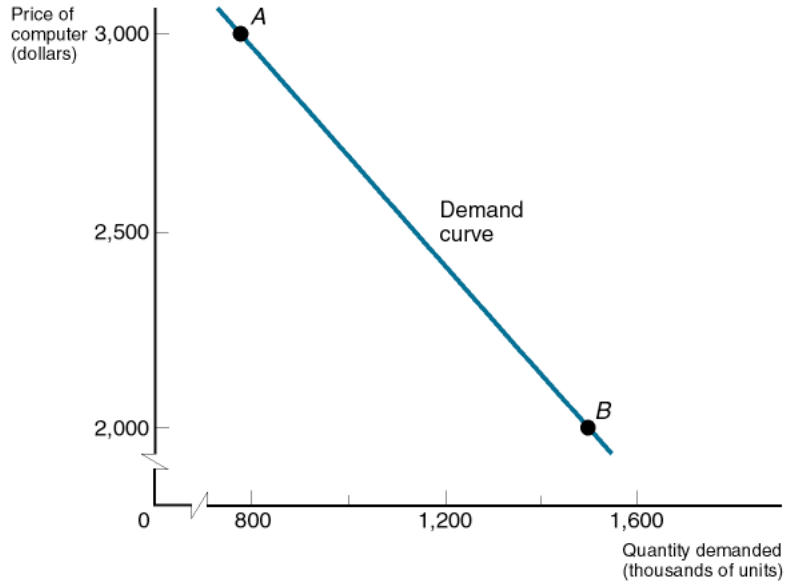

FIGURE 3.1 Demand Curve for Personal Computers

Demand curve

- Changes in price mean move along curve
- This is conditional on other factors
- Changes in income and other variables move the curve
- Different demand at all prices

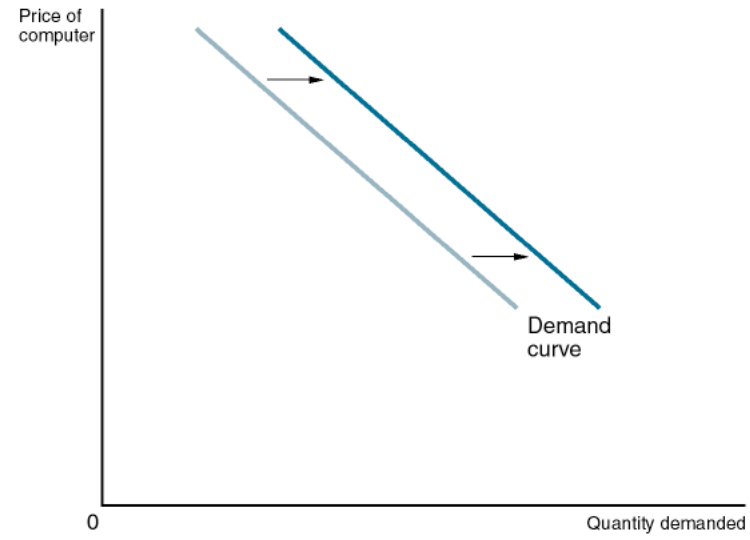

FIGURE 3.2 Effect of an Increased Preference for Personal Computers on the Market Demand Curve

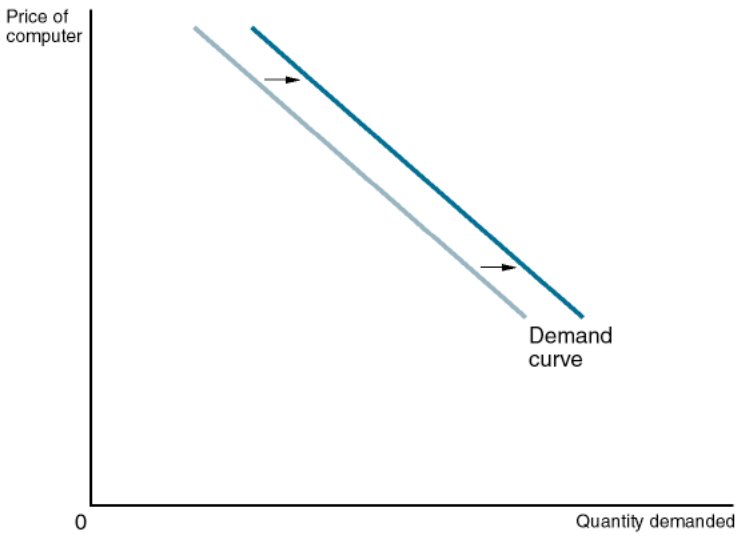

FIGURE 3.3 Effect of an Increase in Per Capita Income on the Market Demand Curve for Personal Computers

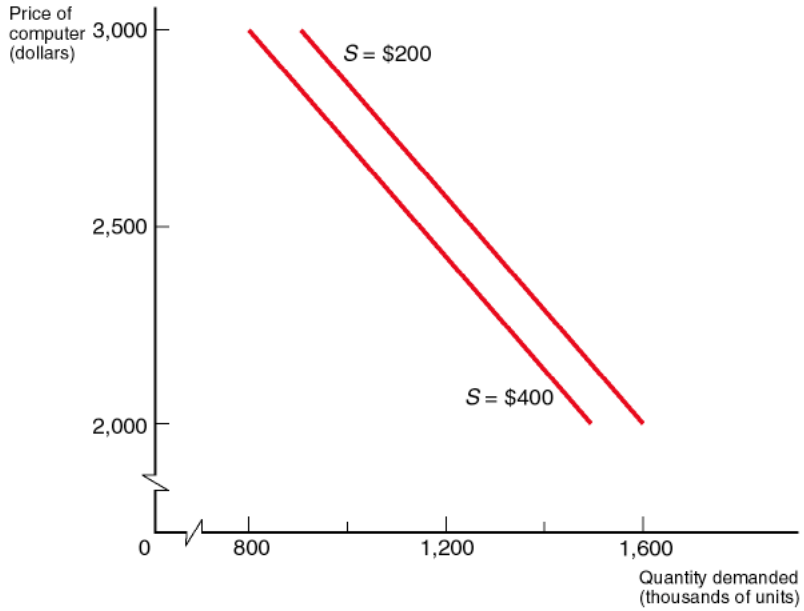

FIGURE 3.4 Demand Curve for Personal Computers

Elasticity

- Price elasticity of demand: responsiveness of demand to a change in price
- Elast =(ÄQ/ÄP).(P/Q) or dP/dQ.P/Q

  Which is = dlogP/dlogQ
- Point and arc elasticities: point on curve or range
- Price elasticity varies from point to point

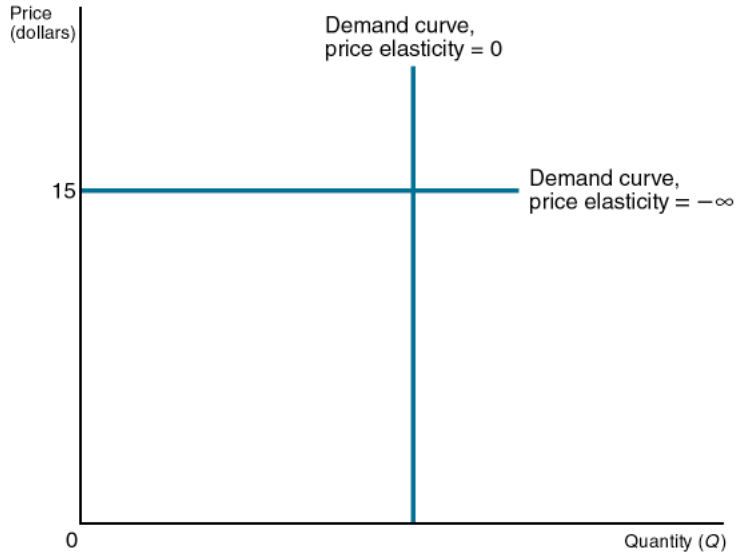

FIGURE 3.5 Demand Curves with Zero and Infinite Price Elasticities of Demand

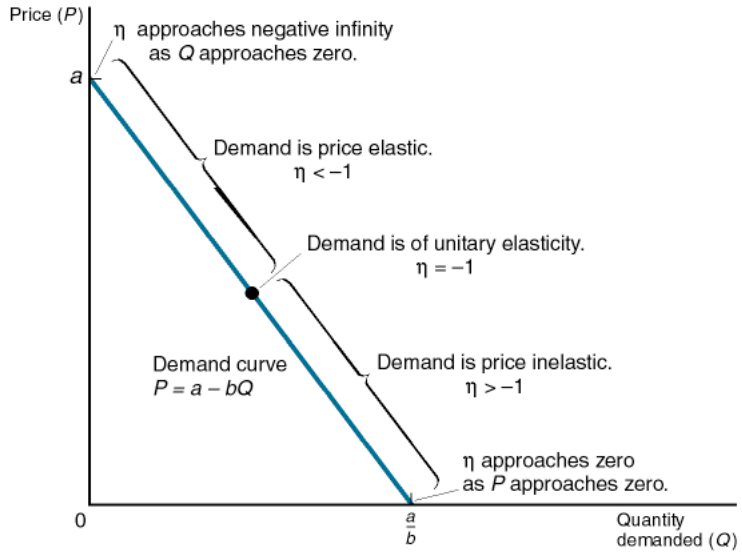

FIGURE 3.6 Values of the Price Elasticity of Demand at Various Points along a Linear Demand Curve

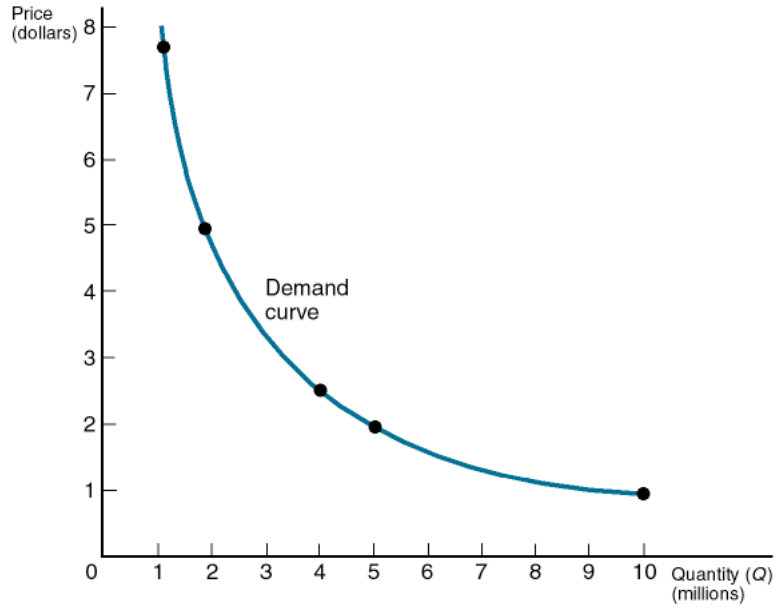

FIGURE 3.7 Demand Curve with Unitary Elasticity at All Points

Demand

- Managers interested in how changes in prices will affect their total revenue
  - Price elastic: decrease price leads to more spent
  - Elasticity=1 no change
  - Price inelastic: decrease in price leads to less
- Can see relations between demand and revenue

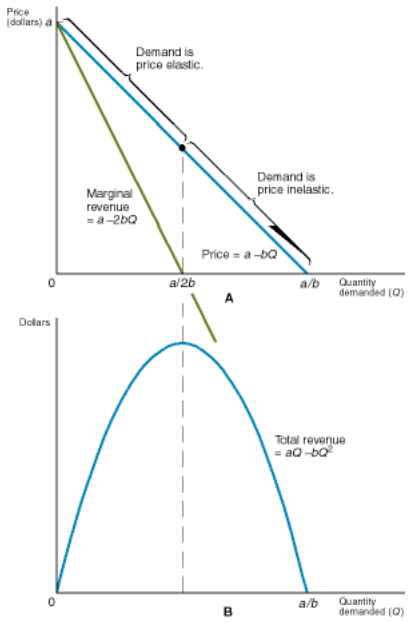

FIGURE 3.8 Relationship between Price Elasticity, Marginal Revenue, and Total Revenue

Demand and revenue

- We know MR = dTR/dQ = d(PQ)/dQ
- So using product diff rule
  - MR=P(dQ/dQ)+Q(dP/dQ) = P+Q(dP/dQ)
  - MR=P(1+(Q/P)(dP/dQ))
  - MR=P(1+(1/elast)

Determinants

- What determines whether price elastic?
  - Number and closeness of subs and complements
  - Importance in consumers budget
  - Length of time period for which demand curve pertains. Eg fuel source –in long run new alternative nay be developed

Income elasticity

- Change in demand resulting from a change in income
  - Income elast=(ÄQ/ÄY).Y/Q
- Obviously of interest to managers
  - How demand changes as the households income goes up
  - Luxury versus necessities

Cross Elasticities

- Important to know impact of changes in price of other goods
  - Substitutes
  - Complements
- Cross price elast =($\Delta Q_X/\Delta P_Y$).)P_Y/Q_X)

Elasticities

- NB can also have other elasts:
  - Advertising elasticity of demand
- Will see that easy to estimate
  - Not slope of levels demand curve
- Not all demand curves are linear
  - Slope of log linear curve is elasticity
  - Constant elasticity
  - logQ=a + b logP + c logY
  - Underlying curve is $Q=E^aP^bY^c$

Consumer Theory

- Demand curves are aggregates of individual demands
- How are these formed, what are tastes and prefernces of consumers and how do they change
- Usually assume individual is rational and maximises utility subject to a budget constraint
- More general than seems –can accommodate different behaviour by changing constraints

Indifference curves

- Way of showing combinations of goods that consumer indifferent to
  - Indifference map –many curves
  - Slope downward to right:
  - Curves cant intersect –irrational
- Marginal rate of substitution –what willing to give up of one good for next unit of another
- Cardinal versus ordinal utility

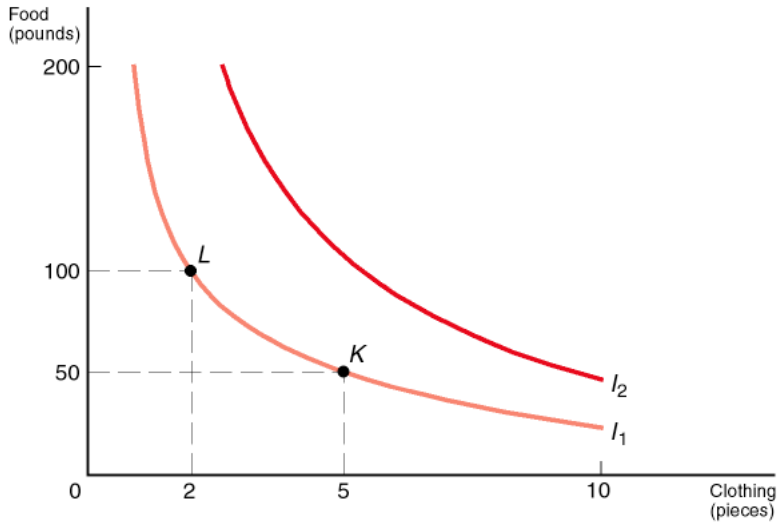

FIGURE 4.1 Two of Ms. Ewing's Indifference Curves

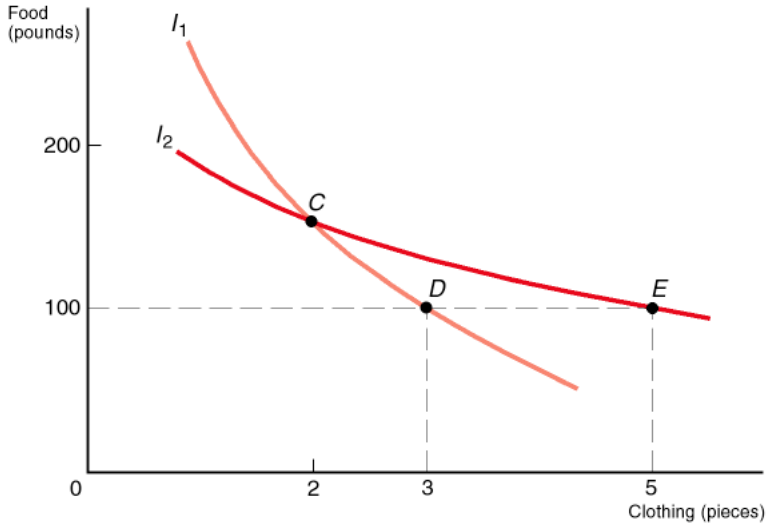

FIGURE 4.2 Intersecting Indifference Curves: A Contradiction

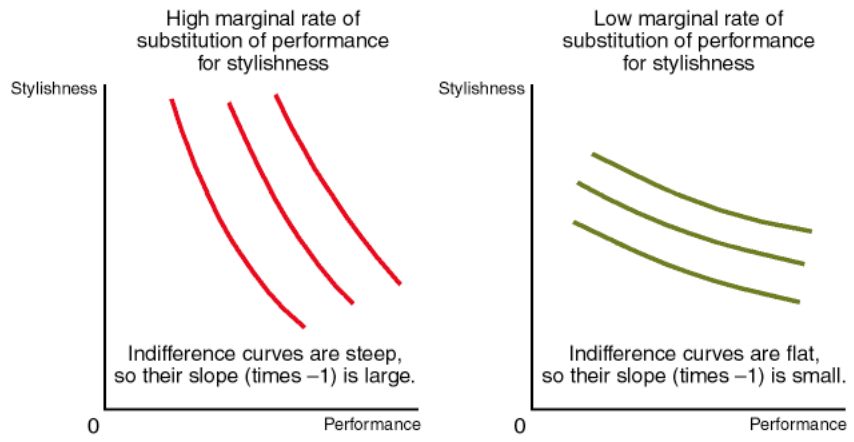

FIGURE 4.3 Indifference Curves of Consumers with High and Low Marginal Rates of Substitution of Performance for Stylishness

Budget constraint

- Have to be constrained by budget
- Budget line sloping left to right
- Effect of increase in income – shift line to right
- Effects of change in price –change slope

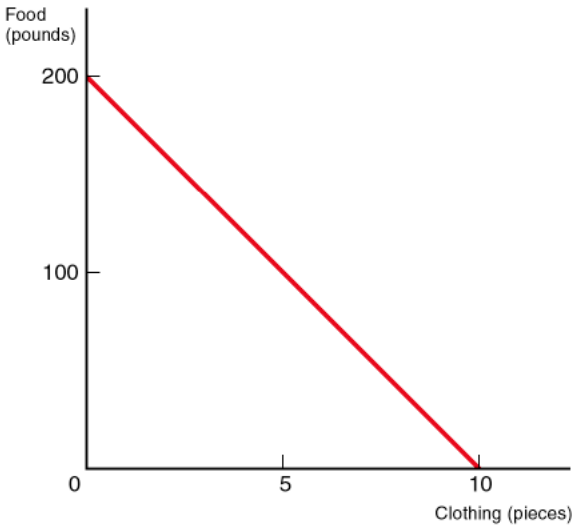

FIGURE 4.4 Ms. Ewing's Budget Line

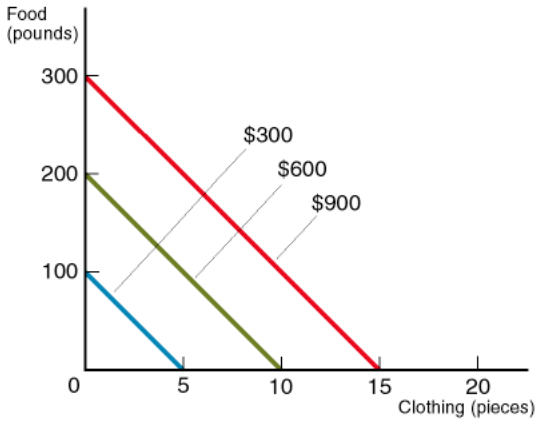

FIGURE 4.5 Ms. Ewing's Budget Line at Money Incomes of $300, $600, and $900 per Week

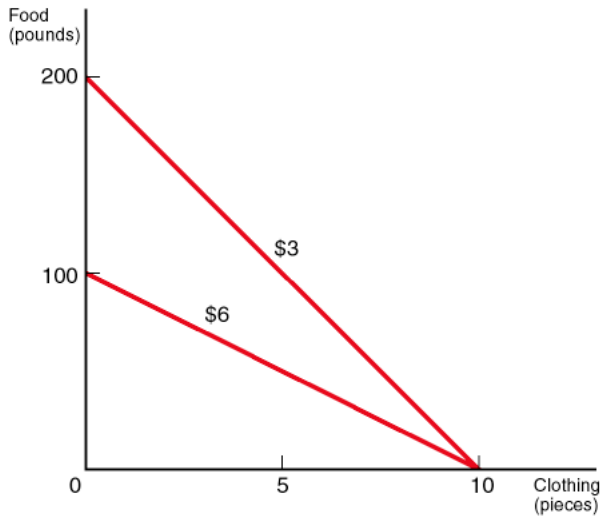

FIGURE 4.6 Ms. Ewing's Budget Line at Food Prices of $3 and $6 per Pound

Equilibrium

- Combine indifference map and budget line
- Get equilibrium bundle
- Point at which the slope of the budget line and the indifference curve are the same
  - MRS = relative prices = P_C/P_F
- Can have a corner solution

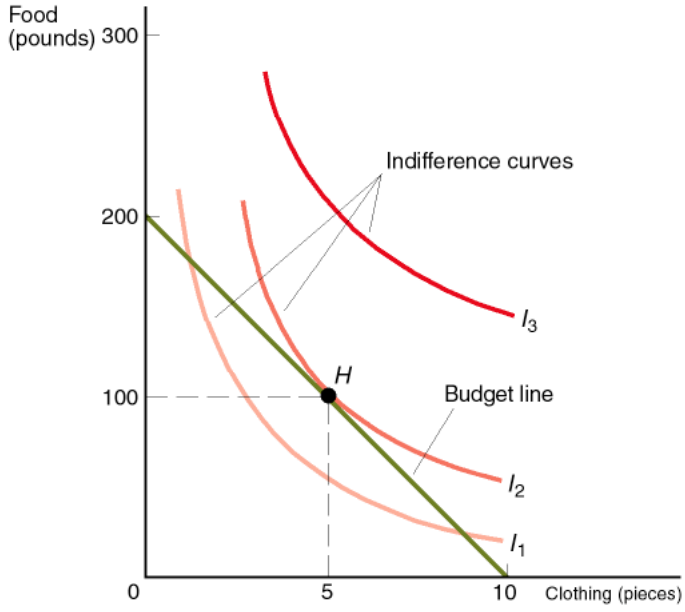

FIGURE 4.7 Equilibrium Market Basket

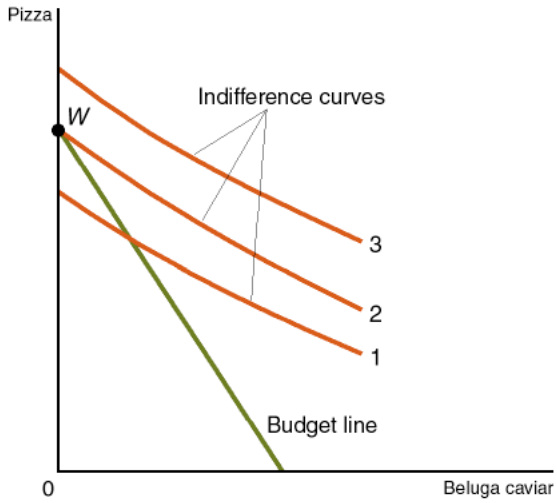

FIGURE 4.8 Corner Solution

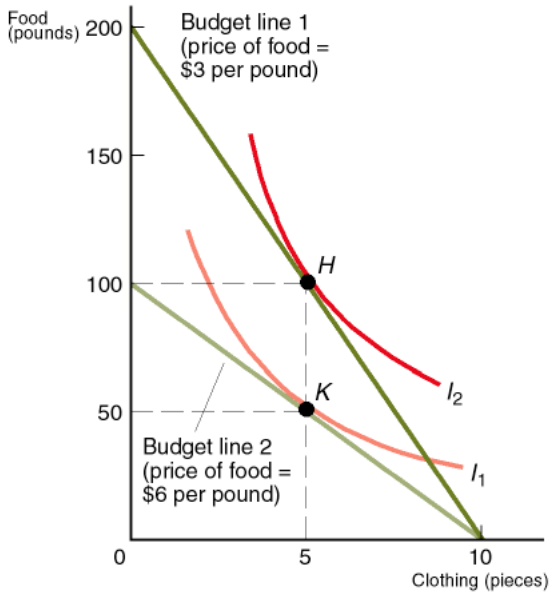

FIGURE 4.9 Effect of a Change in Price on Ms. Ewing's Equilibrium Market Basket

Market demand curve

- Market demand curve is aggregate of individual demand curves
- Add all quantities demanded at that price by consumers
- They may differ

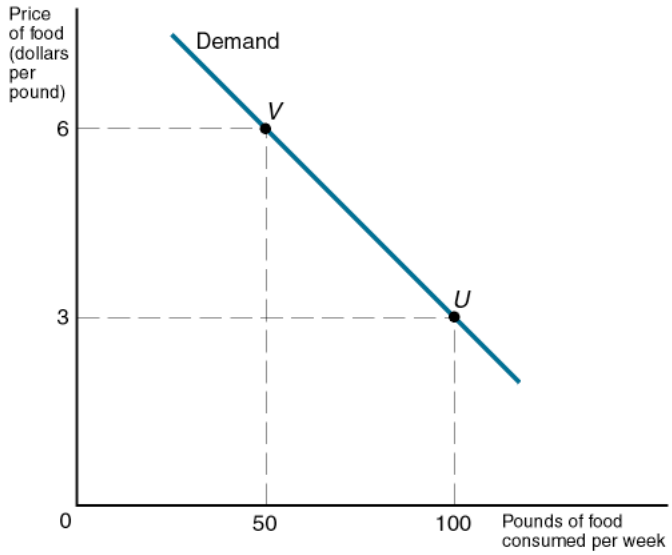

FIGURE 4.10 Ms. Ewing's Individual Demand Curve for Food

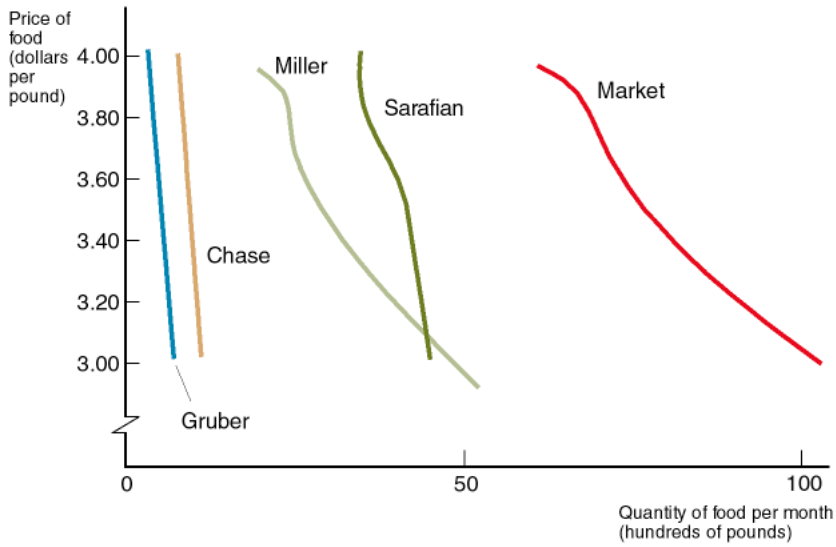

FIGURE 4.11 Individual Demand Curves and Market Demand Curve for Food

Consumer surplus

- Important concept –for welfare
- Consumers may value a good above the market price
- Difference between willingness to pay and what pay is consumer surplus
- Will come back to

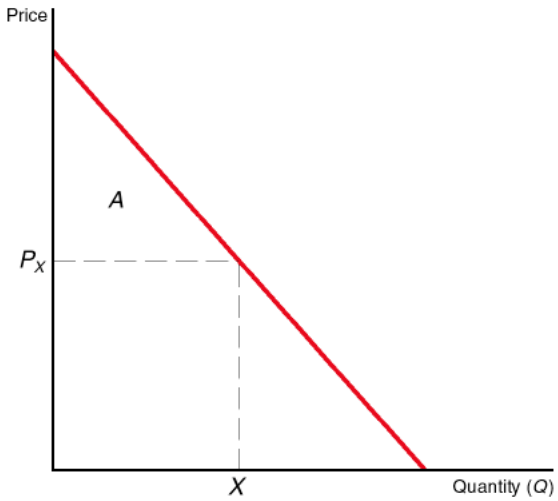

FIGURE 4.12 The Consumer Surplus for a Price of P_x

Conclusions

- Brief run through of very basic demand an consumer theory
- Important concerns of managers open to economic analysis
- Will do more detail in looking how apply the models to data