

Lecture 8.1

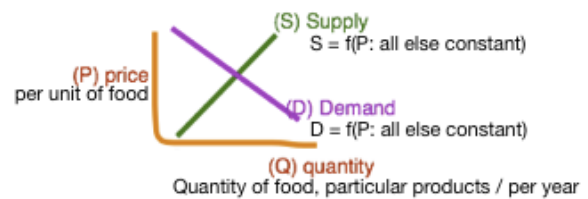
Summary of basic economic model of the food economy

- Food demand
 $Q_d = f(P_r, P_{op}, Y, \text{Policies}, \dots)$
- Food production
 $Q_s = f(P_f, \text{Land, Climate, Variable input costs, Technology, Policies}, \dots)$
- Food balance
 $\text{Stocks}(+1) = \text{Stocks} + Q_s - Q_d - \text{waste}$
- Food supply chain and price links
 $P_r = P_f + f(\text{Var. input costs, Technology, Tastes})$

From the 4 equations, can solve for P_r , P_f , Q_d , and Q_s given values for P_{op} , Y , Technology, etc.

NB:

- there is an inverse relationship between quantity availability in the market with price



Lower supply quantities = higher prices

Higher supply quantities = low prices

NB: equilibrium between D & S ($Q_{\text{produced}} = Q_{\text{consumed}}$)

Other Equations:

Equilibrium = $Q_{\text{produced}} = Q_{\text{consumed}}$

Expenditure = Price (P) X Quantity (Q) = Gross revenue to producers

Producer Income = Revenue (P X Q) - Costs

DEMAND CURVES

WHAT CAUSES THE DEMAND CURVE TO SHIFT OUT (OUTWARDS SHIFT/ to the RIGHT)

- population growth** (needs more food)
- increased income** (ability to afford more food, particularly developing countries)
- biofuels** (sugar cane and corn/maize are used for biofuels instead as food)

The outwards shift of the demand curve results in a new equilibrium point, whereby there is:

- an increase in quantity: more production (Q') and more consumption (difference between Q' and Q), and also
- an increase in price.

If household is wealthy, there can still afford to buy food. However for lower income households, they may not be able to afford it.

WHAT CAUSES THE DEMAND CURVE TO SHIFT IN (INWARDS SHIFT/ to the LEFT)

- fall in income (recession)
- huge tax on food

The inward shift of the demand curve results in lower quantity and food prices, which causes big drop in the revenue in the farm sector.

- the farmers are much happier to have the shift inwards than outwards. Shift inwards means that demand is still expanding whereas shift outwards means that demand is contracting.

Demand Capacity

- Having income ABOVE food prices
- e.g. Singapore: very little supply capacity, but has plenty of income (thus huge demand capacity)

SUPPLY CURVES

WHAT CAUSES THE SUPPLY CURVE TO SHIFT OUT (OUTWARDS SHIFT/ to the RIGHT)

- good season/ good climate
- reduce waste (better transport, storage facility; sensible utilisation of foods)
- better technology
- drop in fertiliser price

The outwards shift of the supply curve means that there is an increase in food quantity and a decrease in price. Consumers benefit from lower food prices.

NOTE: the quantity doesn't increase much when the outwards shift occurs. WHY? Since the prices fall, ultimately the farmers' income would be affected (lower income), thus they have less incentive to produce more.

WHAT CAUSES THE SUPPLY CURVE TO SHIFT IN (INWARDS SHIFT/ to the LEFT)

- poor season, drought
- diseases and/or pests outbreak
- much higher wages
- higher waste rate

The inwards shift of the supply curve means that there is a decrease in food quantity (food production falls) and an increase in price due to increased demand. Thus the burden is passed onto the consumers to purchase at a higher price.

NOTE: drought is not necessarily a disaster for the farmers. Although the production is decreased, the lower quantity is rationed out to get a higher price.

CHANGES IN THE SLOPE/GRADIENT OF THE SUPPLY CURVE

- if the slope is steeper, there is little increase in quantity, but for a huge increase in price
- this can also affect the demand

Putting all the concepts together... How to bring people OUT of poverty

The story behind food insecurity and poverty is both an INCOME problem and a FOOD SUPPLY problem. In most successful developing countries, they work hard in economic growth in general and also in the agriculture sector.

