

ECO101
Assignment

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$$1. a) \quad M = 20$$

$$P_y = \$2$$

$$P_x = \$14$$

$$\begin{aligned} Q_d &= 20,000 - 500 P_x + 25M + 250 P_y \\ &= 20,000 - 500(14) + 25(20) + 250(2) \\ &= 14,000 \text{ kg}_{\text{butter}} \text{ purchased per week} \end{aligned}$$

$$b) \quad P_y' = \$4$$

$$\begin{aligned} Q_d' &= 20,000 - 500(14) + 25(20) + 250(4) \\ &= 14,500 \text{ kg}_{\text{butter}} \text{ purchased per week} \end{aligned}$$

$$\begin{aligned} XED &= \frac{\% \text{ change in } Q \text{ demanded (for butter)}}{\% \text{ change in price (for margarine)}} = \frac{\frac{\Delta Q}{Q_{\text{avg}}}}{\frac{\Delta P}{P_{\text{avg}}}} \\ &= \frac{\frac{Q_d' - Q_d}{\frac{Q_d' + Q_d}{2}}}{\frac{P_y' - P_y}{\frac{P_y' + P_y}{2}}} \\ &= \frac{\frac{14500 - 14000}{\frac{14500 + 14000}{2}}}{\frac{4 - 2}{\frac{4 + 2}{2}}} \\ &= 0.0526 \end{aligned}$$

As XED is positive, so butter and margarine are substitutes of each other.

1. c) $M'' = 22$

$$Q_d'' = 20,000 - 500(14) + 25(22) + 250(2)$$

$$= 14050 \text{ kg butter purchased per week}$$

$$YED = \frac{\% \text{ change in } Q \text{ demanded}}{\% \text{ change in income}} = \frac{\frac{\Delta Q}{Q_{avg}}}{\frac{\Delta I}{I_{avg}}}$$

$$= \frac{\frac{Q_d'' - Q_d}{\frac{Q_d'' + Q_d}{2}}}{\frac{M'' - M}{\frac{M'' + M}{2}}}$$

$$= \frac{\frac{14050 - 14000}{\frac{14050 + 14000}{2}}}{\frac{22 - 20}{\frac{22 + 20}{2}}}$$

$$= 0.0374$$

As YED is positive, so butter is a normal good.

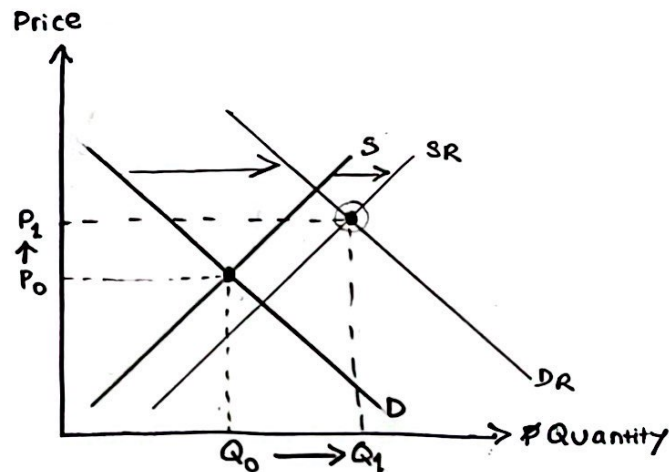
As YED is between 0 and 1, so ~~income~~ butter is income inelastic normal good.

d) $PED = -0.5$

The negative sign does not hold any significance, only the magnitude does. As PED is between 0 and 1, it is an inelastic good, so change in price is more than the change in ~~Q demanded~~ quantity demanded. If price of butter changes increases, the ^{change} decrease in quantity demanded will be less than the change in price.

e.g. If price of butter increases by 10%, quantity demanded will decrease less than ~~10%~~, the 5%. (any percentage less than 10%).

2. a)

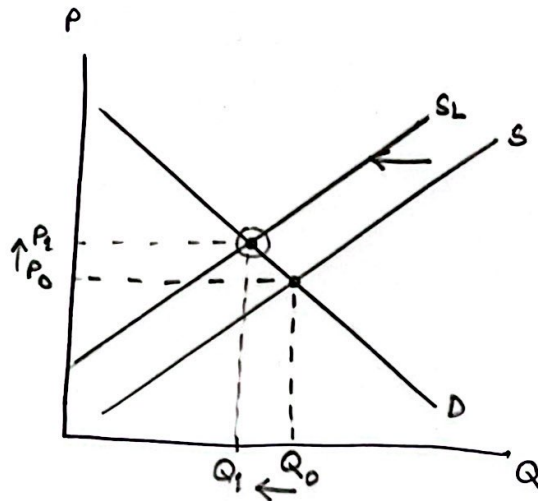


As consumption of laptops surged, it means its demand increased, so there is a shortage at the original price and to eliminate that shortage, the price must rise. Thus, price rises and quantity also rises^{as}. The ~~equilibrium curve~~ demand curve shifts to the right (D_R).

Due to technological advancement, supply of laptops increase. Surplus of laptops lead to a decrease in price and increase in quantity^{as}. The supply curve shifts to the right (~~S~~) (S_R).

As consumption of laptop increased more than the impact of technological advancement, the right shift of the demand curve (D_R) is more than the right shift of the supply curve. Thus, the Equilibrium Price rises from P_0 to P_1 and the Equilibrium Quantity increases from Q_0 to Q_1 .

2. b)



cocoa bean is a factor of production of dark chocolate. Decrease in cocoa bean production causes supply of dark chocolate to decrease. A shortage is created so price rises and the quantity decreases. The supply curve shifts to the left.

There is a decrease in quantity demanded but no change in demand. So, movement occurs along the demand curve, there is no shift of the demand curve.

Thus, the equilibrium price of cocoa bean rises and the equilibrium

cocoa bean is a factor of production of dark chocolate. As there is a decrease in cocoa bean production, the supply of dark chocolate decreases. The supply curve shifts to the left (S_L). A shortage is created so the price rises and the quantity decreases.

There is no change in demand due to decrease in cocoa bean production. So, there is no shift in the demand curve.

Hence, the equilibrium price of dark chocolate rises and the equilibrium quantity of dark chocolate decreases, due to the decrease in supply of dark chocolate.

3.a) For North End,

OC of producing 3 Iced Coffee = 5 Iced Tea

$$\therefore \text{OC of producing 10 Iced Coffee} = \frac{5}{3} \times 10 \\ = 16.67 \text{ Iced Tea}$$

b) Tabag has an absolute advantage in producing Iced Tea and Iced Coffee because it can produce highest number of Iced Tea and Iced coffee in an hour among the three cafes.

c) For North End, OC of producing 1 Iced Coffee = $\frac{5}{3}$
= 1.67 Iced Tea

For Tabag, OC of producing 1 Iced Coffee = $\frac{6}{5}$
= 1.2 Iced Tea

For Crimson Cup, OC of producing 1 Iced Coffee = $\frac{4}{2}$
= 2 Iced Tea

Tabag has the lowest OC for producing Iced Coffee so it has a comparative advantage over North End and Crimson Cup. Thus, Tabag should specialize for making Iced Coffee.

d) For North End, OC of producing 1 Iced Tea = $\frac{3}{5}$
= 0.6 Iced Coffee

For Tabag, OC of producing 1 Iced Tea = $\frac{5}{6}$
= 0.83 Iced Coffee

For Crimson Cup, OC of producing 1 Iced Tea = $\frac{2}{4}$
= 0.5 Iced Coffee

Crimson Cup has the lowest OC for producing Iced Tea ~~over~~ so it has a comparative advantage over North End and Tabag. Thus, Crimson Cup should specialize in making Iced Tea.