

Economics for Engineers

**DEPARTMENT OF HUMANITIES
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Substitution Effect

The change in the quantity purchased of a good as a result of change in its relative price alone. real income or level of satisfaction remaining constant.

$.dq_x/dp_x$ ($U=U$)

➤ Hicksian Substitution Effect (Compensating Variation method) by J. R. Hicks & R. G. D. Allen

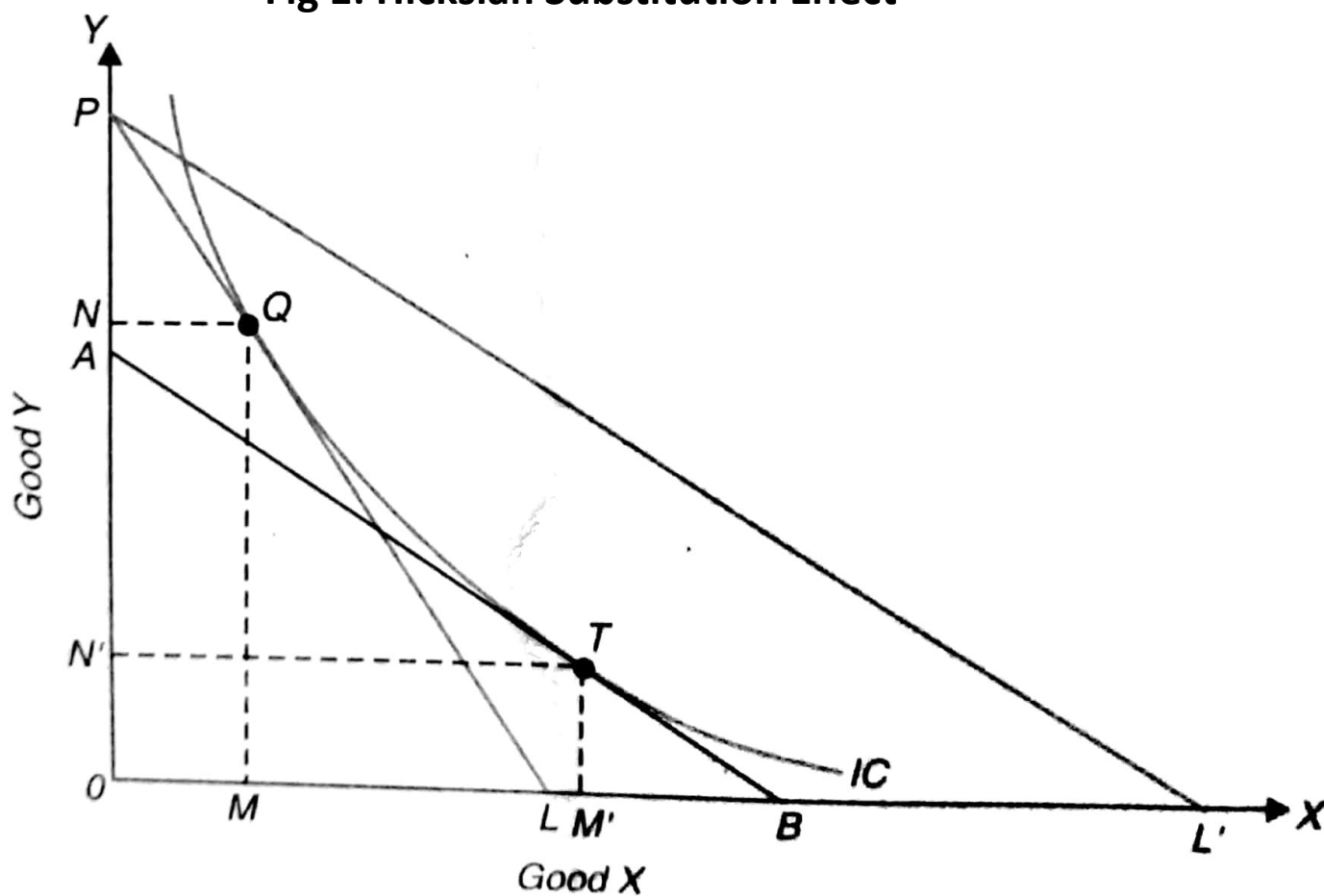
➤ Slutsky Substitution Effect (Cost difference method) by E. Slutsky

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- ✓ The two methods differ in regard to the magnitude of the change in money income which should be effected so as to neutralise the change in real income of the consumer which results from a change in price.
- ✓ Compensating variation is the process by which the money income of the consumer is changed so that the consumer is neither better off nor worse off
- ✓ Substitution effect is always negative

Contd... P_x decreasing.. I increases

Fig 1: Hicksian Substitution Effect

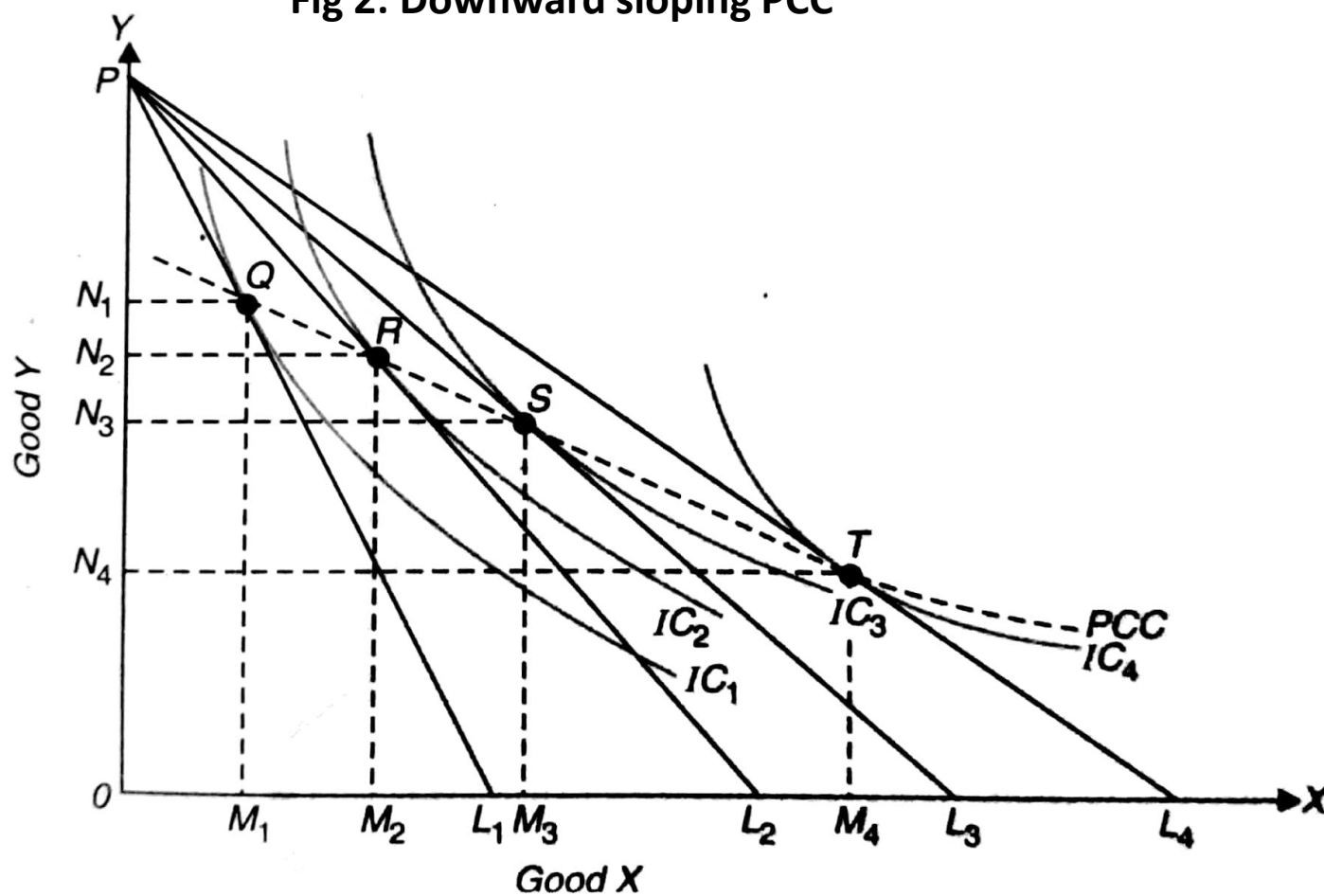


Price effect : Price Consumption Curve (PCC)

- Price effect shows the effect of change in price on quantity purchased of the good
- PCC traces out the price effect.
- PCC is the locus of the different equilibrium points which represents different quantity demanded with respect to different prices
- PCC shows how the changes in price of a commodity will affect the consumer's purchase of the commodity

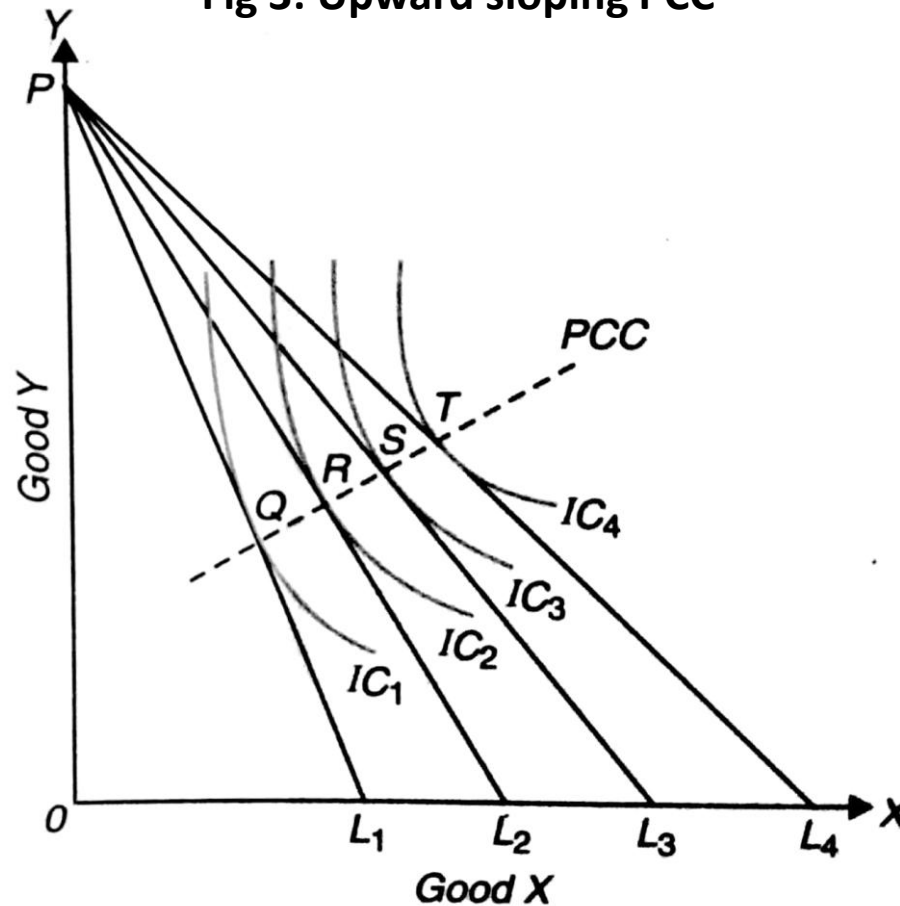
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Fig 2: Downward sloping PCC



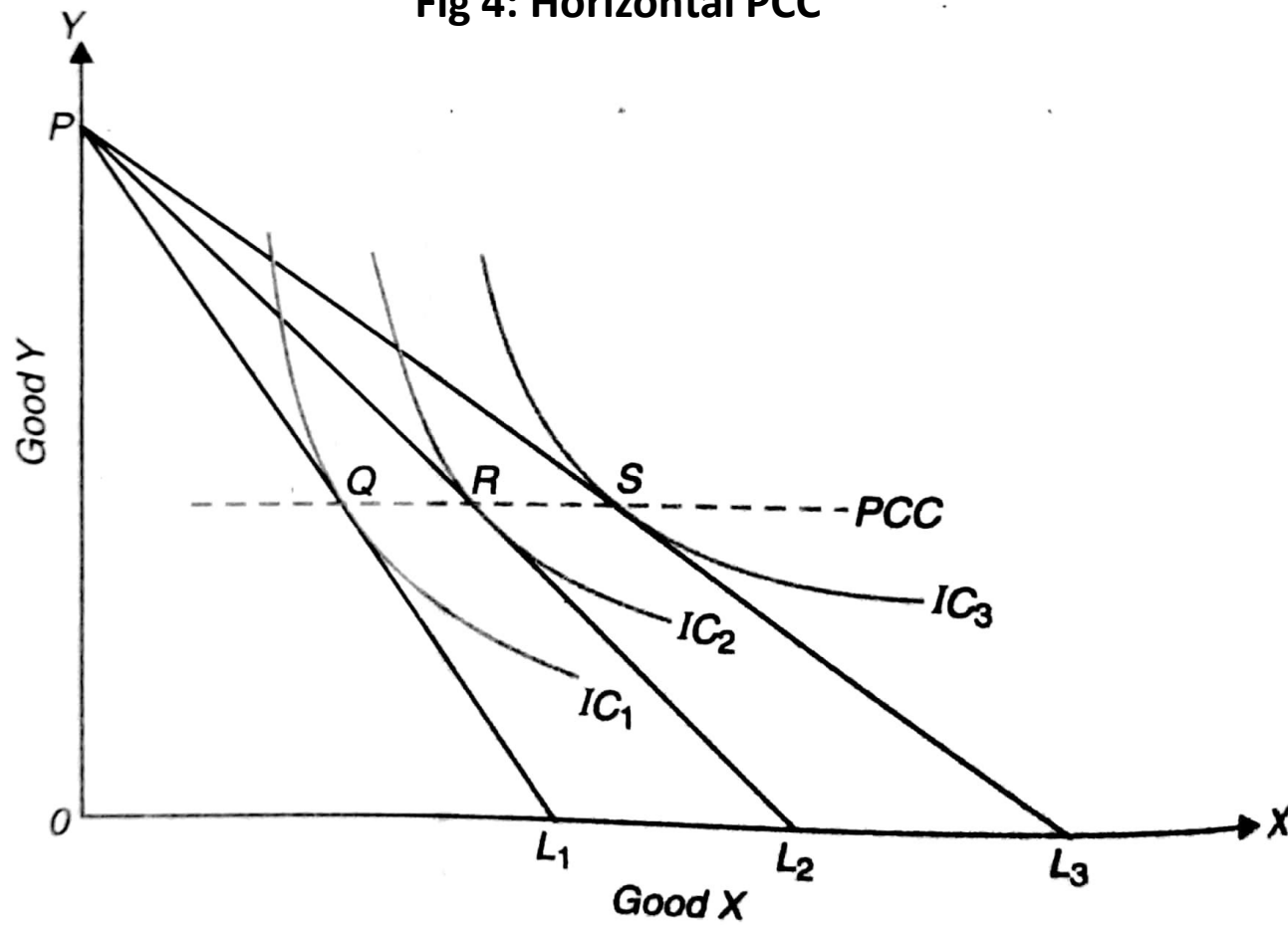
Contd... $P_x \dots 50 \dots q = 5 \dots Rs 250 \dots 500$
 $10 \dots 50$

Fig 3: Upward sloping PCC



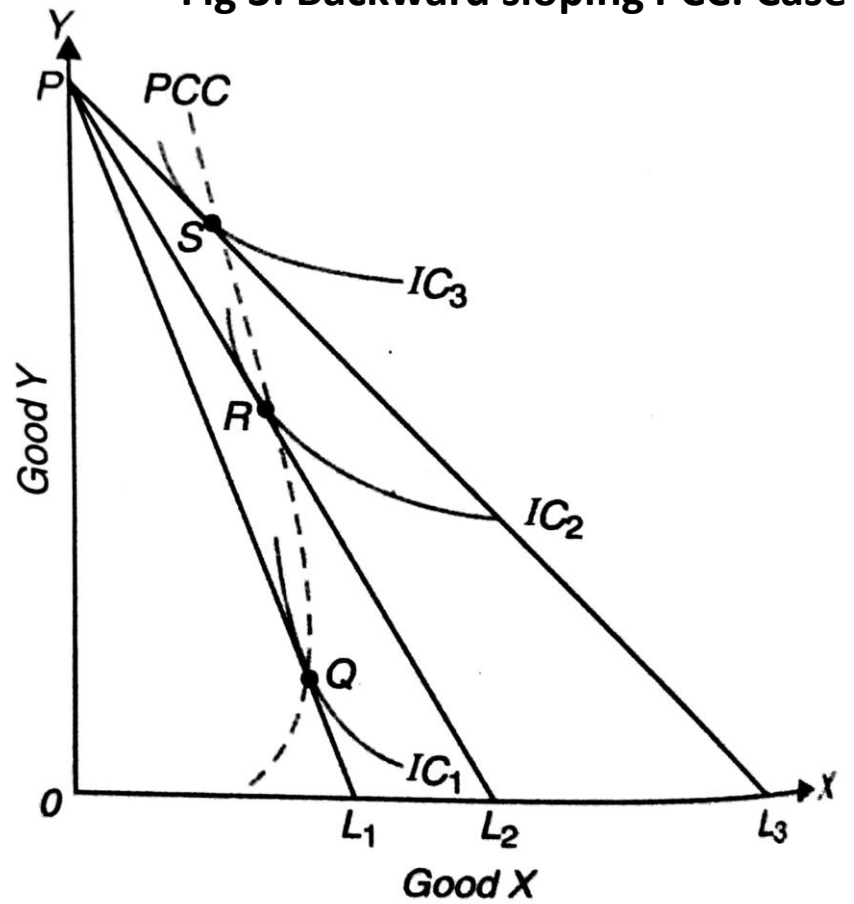
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Fig 4: Horizontal PCC



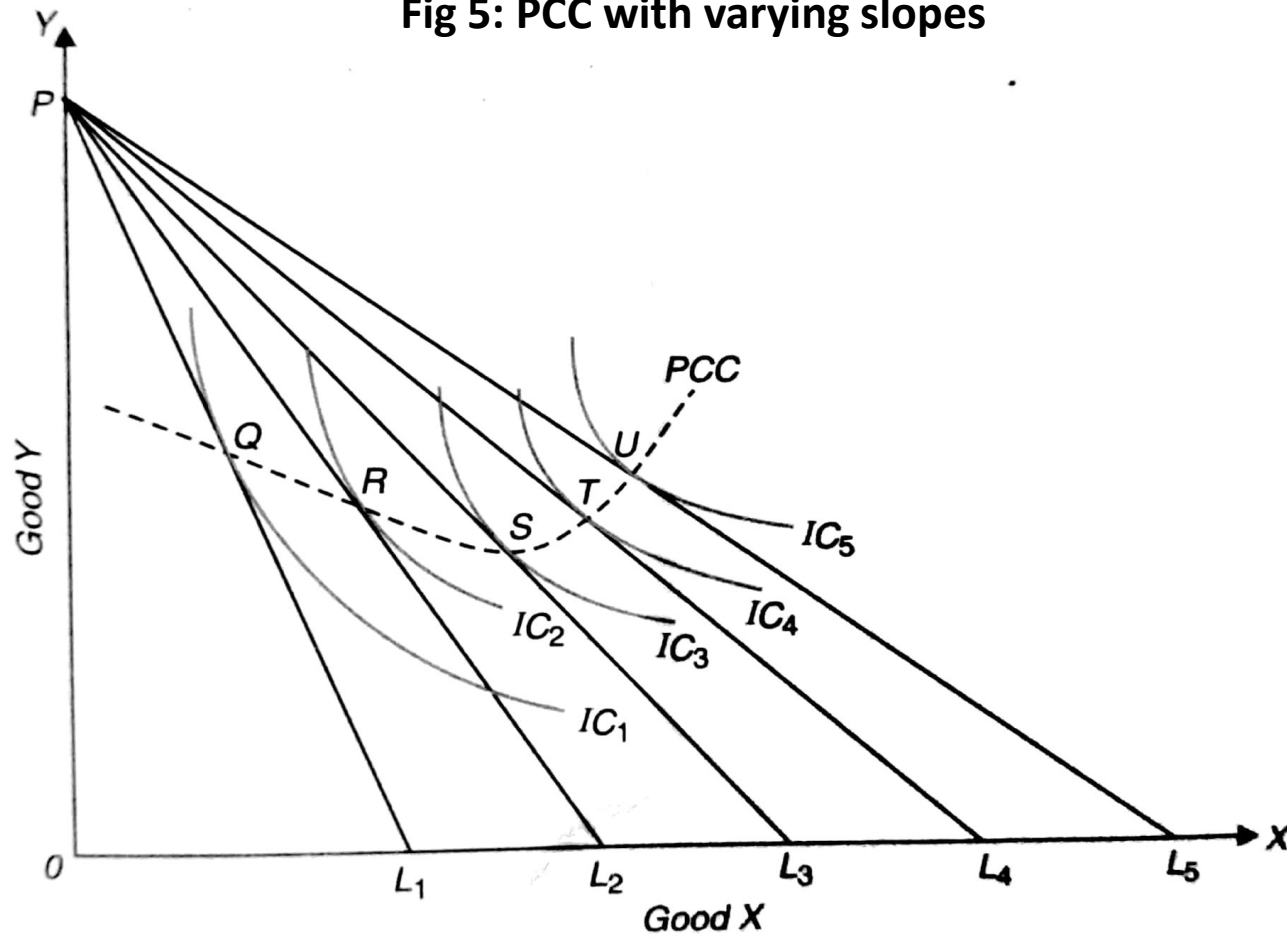
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Fig 3: Backward sloping PCC: Case of Giffen goods



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Fig 5: PCC with varying slopes



Breaking up Price Effect

Price Effect = Income Effect + Substitution Effect

PE=IE+SE... Slutsky equation

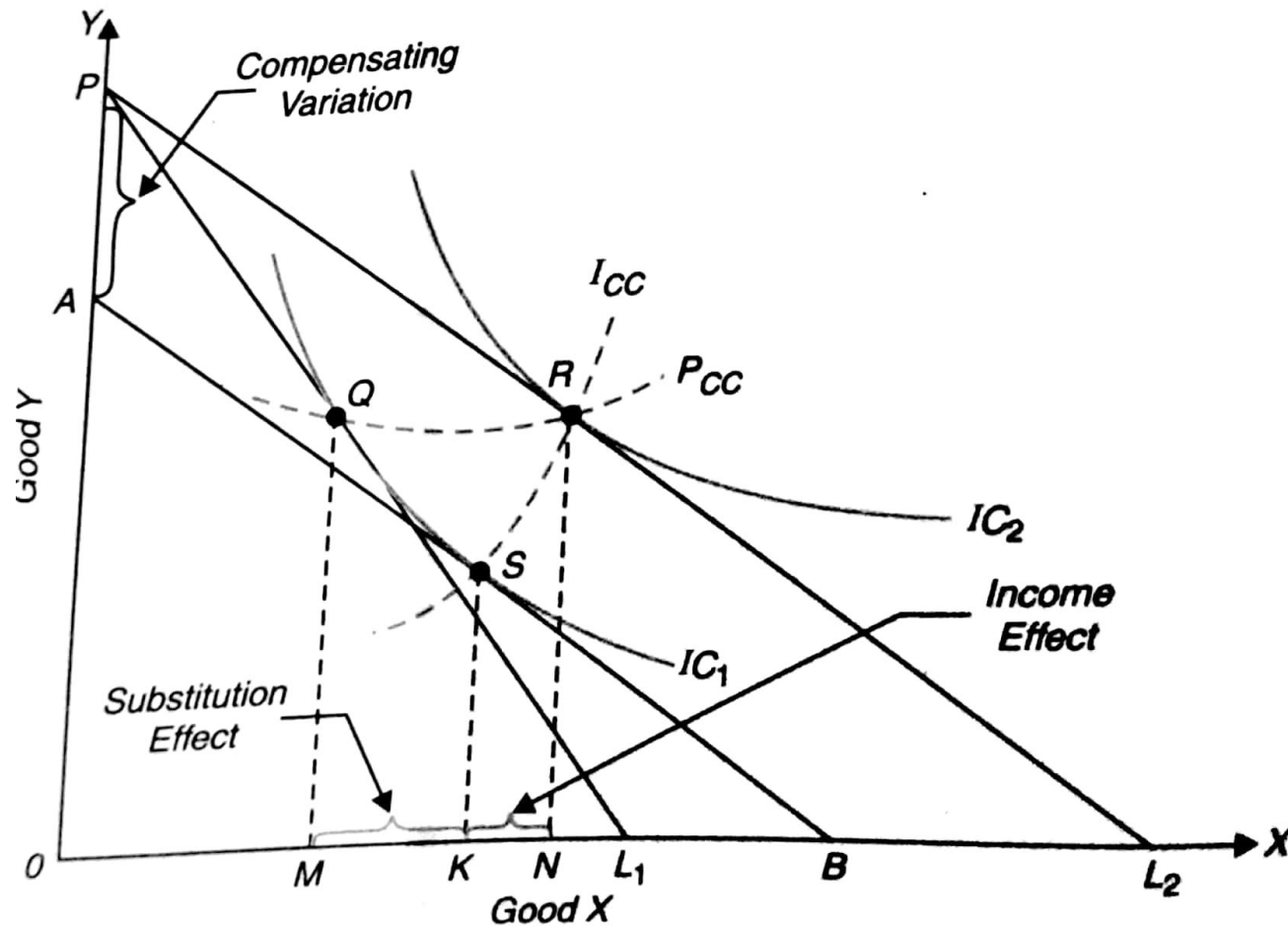
$Dq_x/dp_x = dq_x/dI + dq_x/dp_x(U=U)$

Compensating Variation Method

This required reduction in income to cancel out the gain in satisfaction or welfare occurred by reduction in price of a good is called as compensating variation in income

Contd... Px decrease.. $MN=PE$, $MK=SE$,
 $KN=IE...MN=MK+KN$

Fig 6: Price effect Split up using compensating variation method .



Contd...

Equivalent Variation Method

The increase in income of the consumer, prices of the goods remaining same, so as to enable him to move to a higher subsequent indifference curve at which he in fact reaches with reduction in price of a good

Contd... P_x increasing

Fig 7: Price effect Split up using equivalent variation method

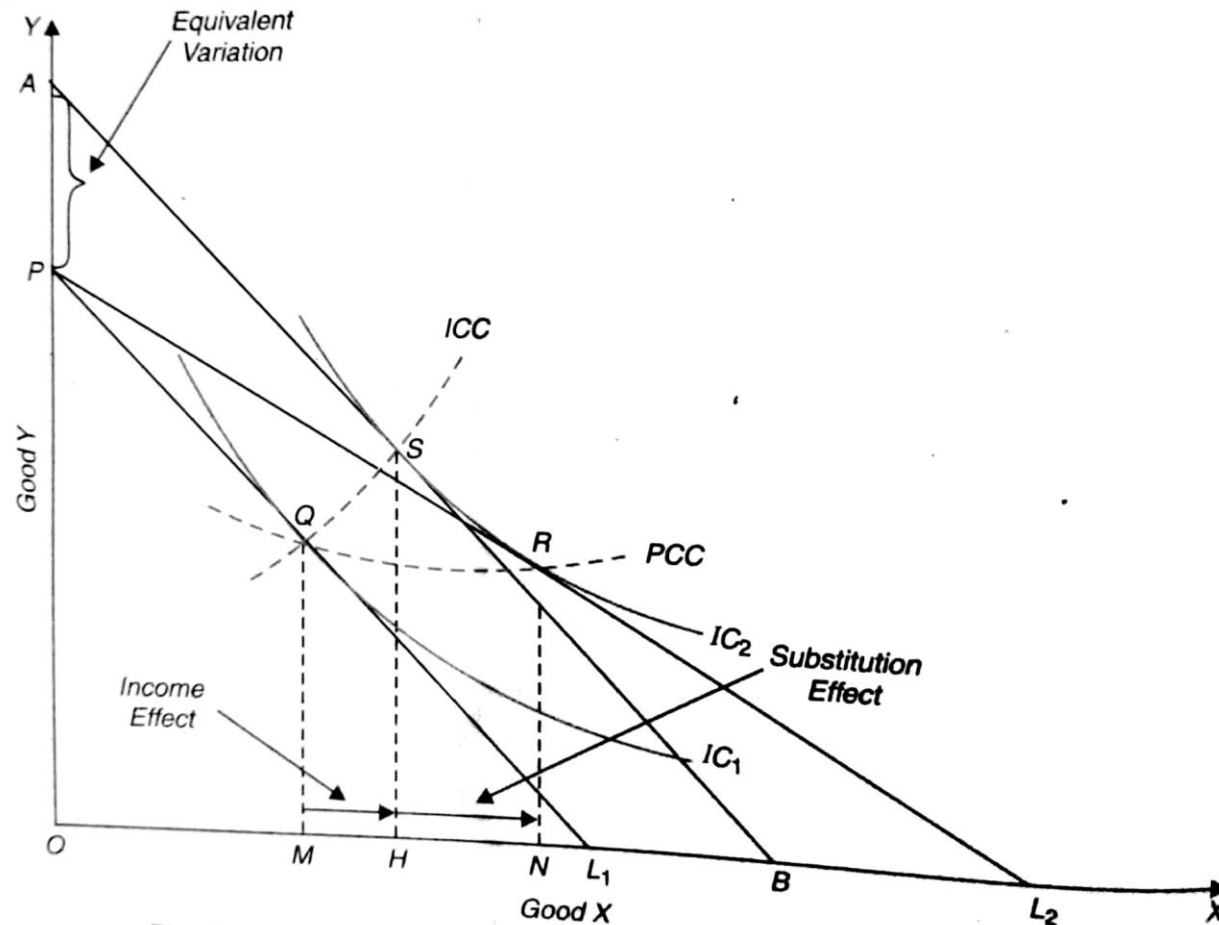


Fig 8.11 Price Effect



Thank
you!!