

Theory of Consumer Behavior

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Theory of Consumer Behavior

Consumer Choice and Budget Constraint

- *Rational Behavior*
- *Clear-Cut Preferences*
- *Transitivity*
- *Non-satiation (prefers more of a good)*
- *Subject to a Budget Constraint*
- *Responds to Price Changes*

☐ Useful for understanding the demand side of the market

☐ *Utility* – benefits or satisfaction consumers obtain from the goods and services they consume

☐ *Utility function* – An equation that shows an individual's perception of the level of utility that would be attained from consuming each conceivable bundle of goods, i.e.,

$$U = f(X, Y)$$

☐ unit of measurement \Rightarrow utils

Theory of Consumer Behavior

Utility concepts

- *cardinal utility* – is a quantifiable, objective measure which can be used for comparisons.
- *ordinal utility* – a rank orderable subjective measure.

Assume consumers have complete information about availability, prices, and utility levels of all goods & services

All bundles of goods can be ranked based on their ability to provide utility – for any pair of bundles A & B :

Prefer bundle A to bundle B

Prefer bundle B to bundle A

Indifferent between the two bundles

Total Utility and Marginal Utility

- ***Total utility (TU)*** - the overall level of satisfaction derived from consuming a good or service
- ***Marginal utility (MU)*** - additional satisfaction that an individual derives from consuming an additional unit of a good or service.

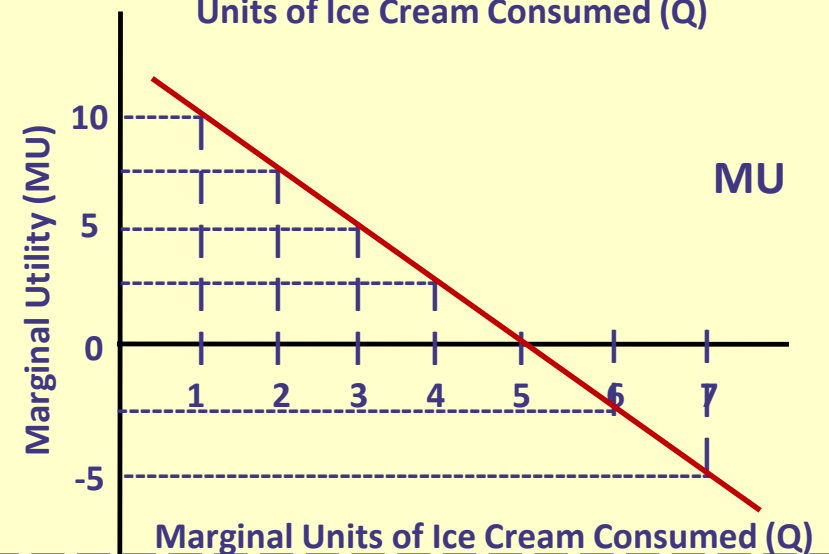
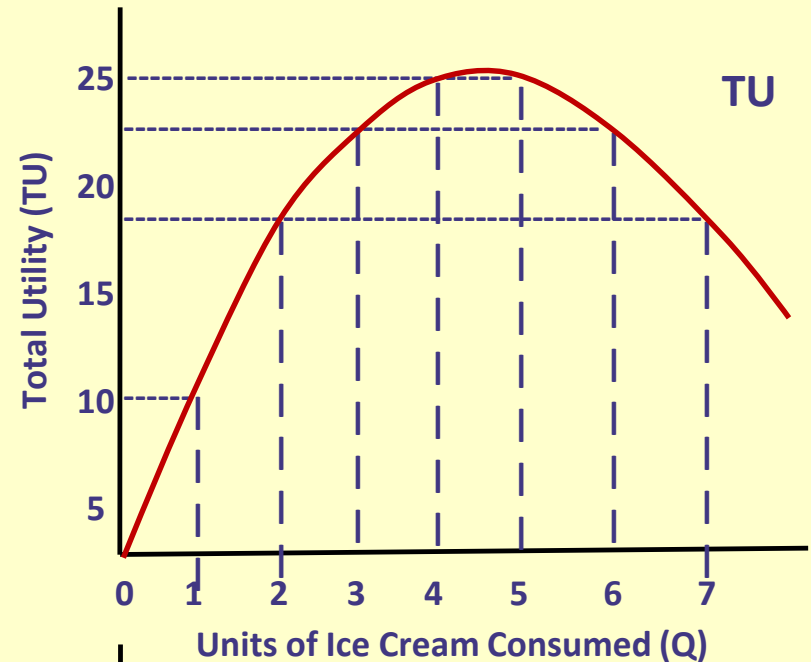
$$MU = \frac{\Delta TU}{\Delta Q}$$

Law of Diminishing Marginal Utility

- ❑ The law states that eventually, marginal utility diminishes as a consumer consumes more of a commodity.

Total & Marginal Utilities from Ice Cream Consumption for Individual X

Units (Q)	Total Utility	Marginal Utility
1	10	10
2	18	8
3	23	5
4	25	2
5	25	0
6	23	-2
7	18	-5

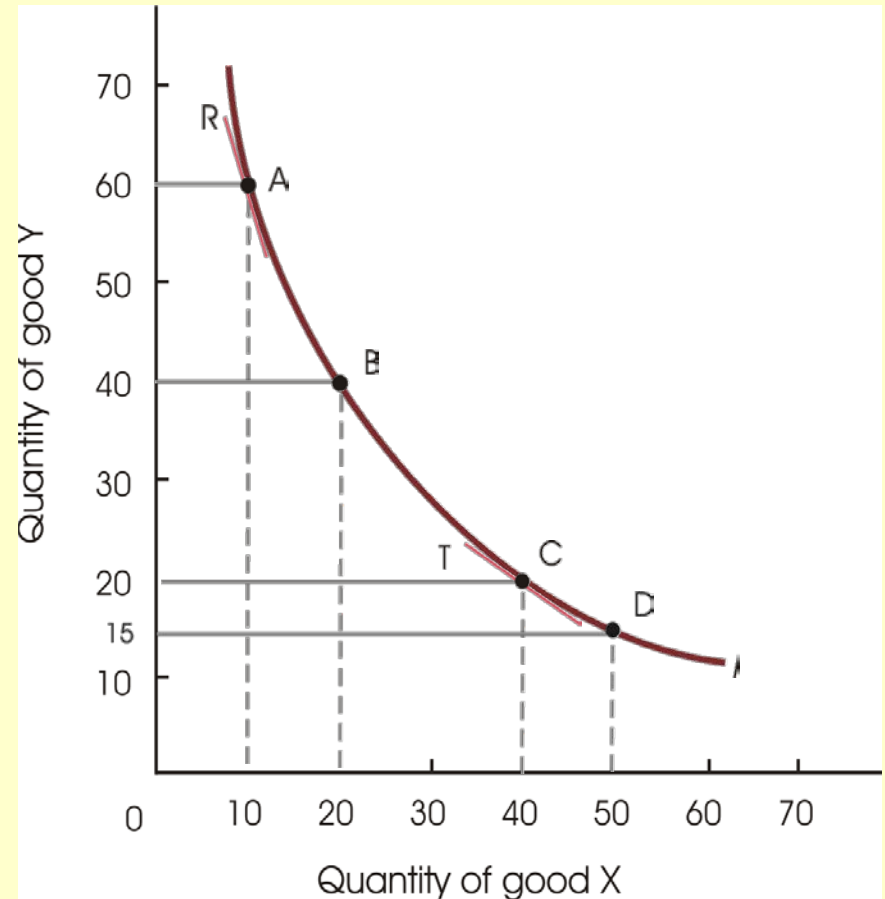


Indifference Curves

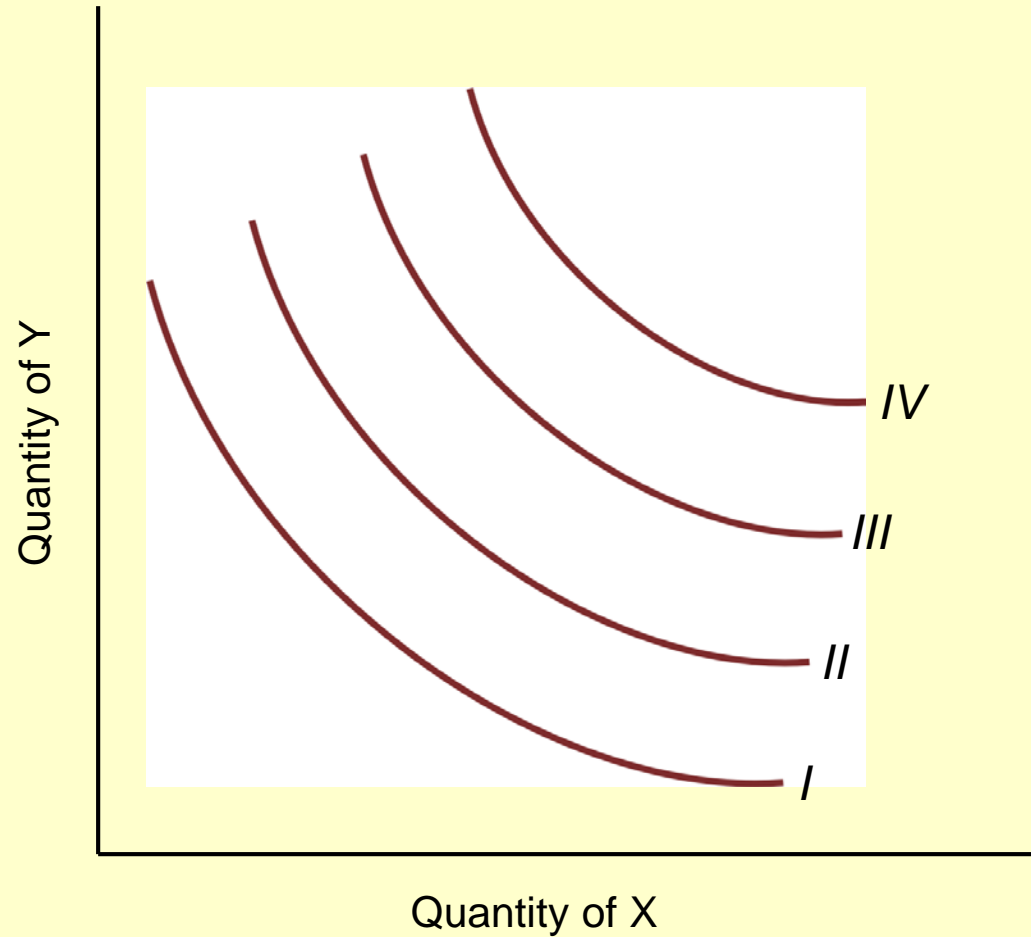
A locus of points representing different bundles of goods and services, each of which yields the same level of utility.

Properties of Indifference Curves:

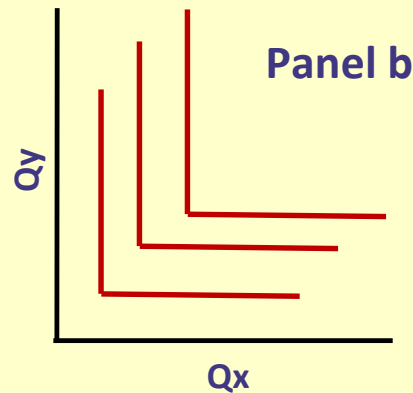
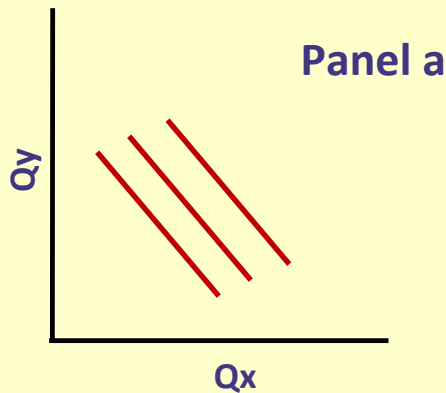
- An indifference curve is downward sloping
- Indifference curves are convex to the origin
- Indifference curves never intersect each other



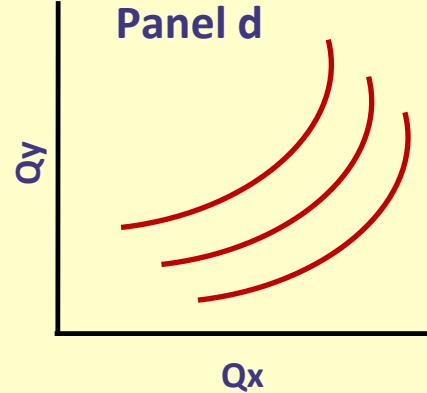
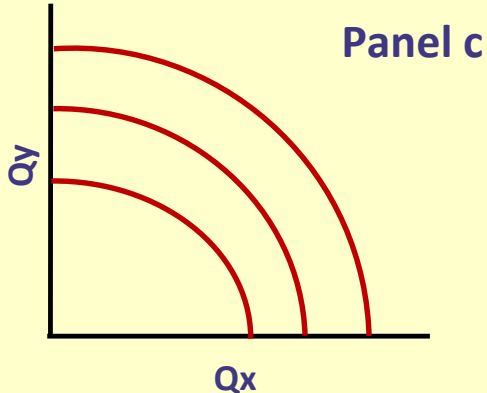
Indifference Map



Special Types of Indifference Curves



- Panel a shows negatively sloping linear IC which means that X & Y are perfect substitutes. MRS is constant
- Panel b shows perfect complements which cannot be substituted at all
- Panel c is concave IC where the consumer is willing to give up more and more units of one to happen, this is most unlikely commodity
- Panel d shows commodity for additional units of the other. This refers to a commodity which is “bad” (not a ‘good’) such as pollution; health hazards; unemployment; etc.



Marginal Rate of Substitution

- *MRS* shows the rate at which one good can be substituted for another while keeping utility constant
 - Negative of the slope of the indifference curve
 - Ratio of the marginal utilities of the goods

$$MRS \equiv -\frac{\Delta Y}{\Delta X} = \frac{MU_X}{MU_Y}$$

Consumer's Budget Line

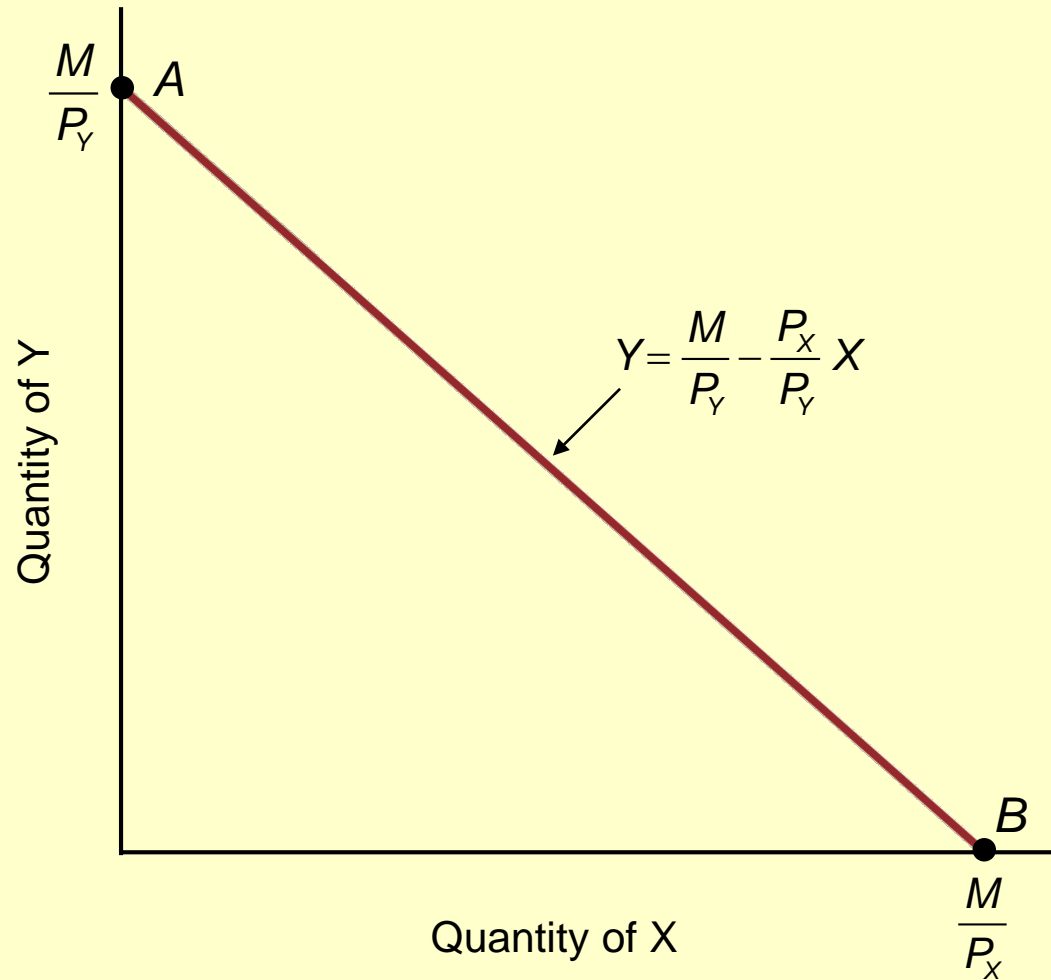
- Shows all possible commodity bundles that can be purchased at given prices with a fixed money income

$$M = P_X X + P_Y Y$$

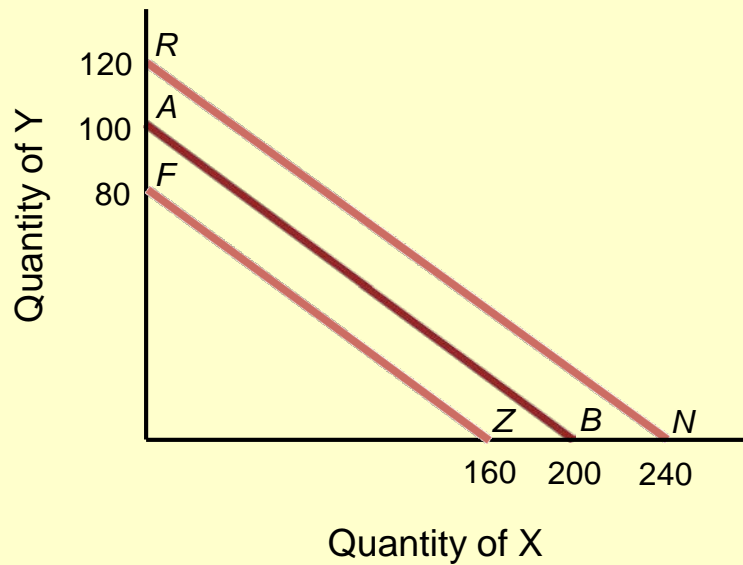
or

$$Y = \frac{M}{P_Y} - \frac{P_X}{P_Y} X$$

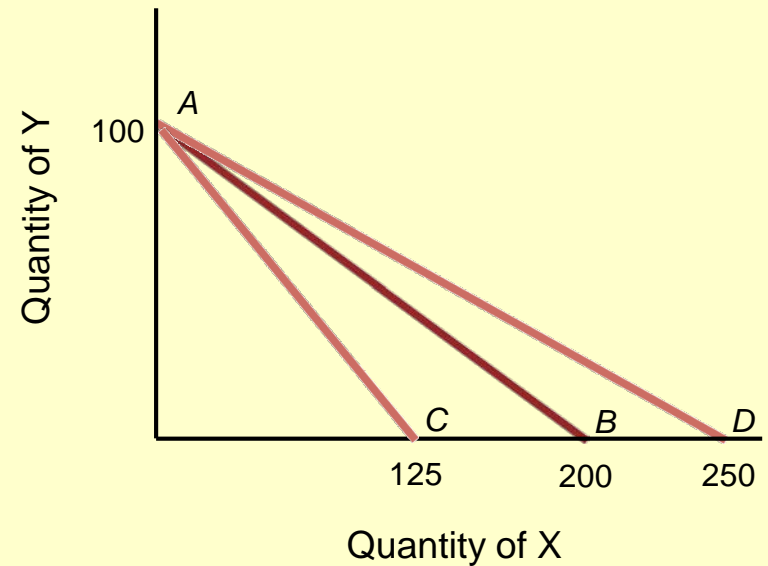
Typical Budget Line



Shifting Budget Line



Panel A – Changes in money income



Panel B – Changes in price of X

Utility Maximization

- Utility maximization subject to a limited money income occurs at the combination of goods for which the indifference curve is just tangent to the budget line

$$MRS = -\frac{\Delta Y}{\Delta X} = \frac{MU_X}{MU_Y} = \frac{P_X}{P_Y}$$

- Consumer allocates income so that the marginal utility per dollar spent on each good is the same for all commodities purchased

$$\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$$

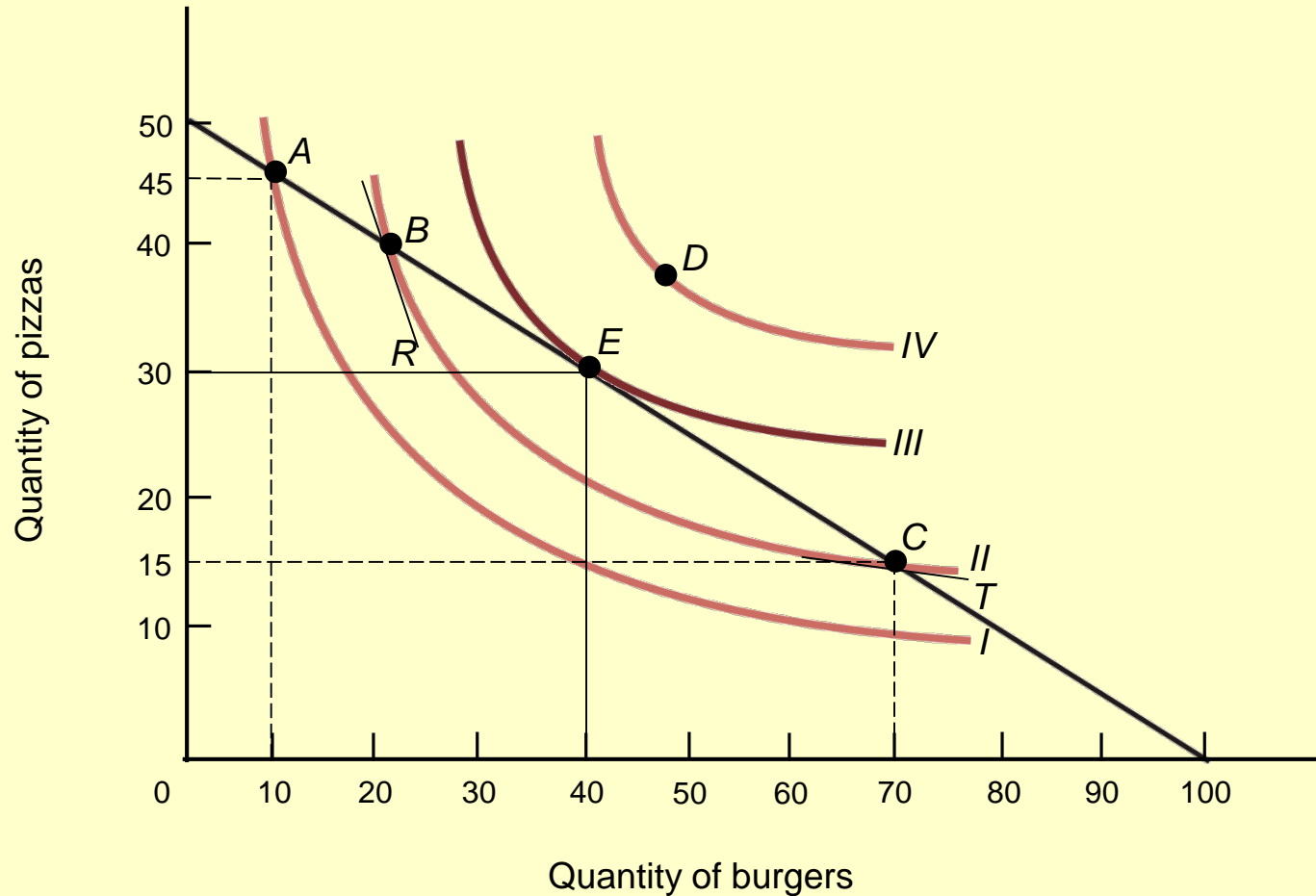
Unconstrained optimization: An optimization problem in which the decision maker can choose the level of activity from an unrestricted set of values.

Unconstrained maximization

Constrained optimization: An optimization problem in which the decision maker chooses values for the choice variables from a restricted set of values.

*Constrained maximization and
Constrained minimization*

Constrained Utility Maximization



THE END