HSS-01: Economics

Lesson: 02

Consumer Behavior

Consumer Preferences, Budget Constraints, Consumer Choice, Revealed Preference, Marginal Utility

Shopping Time

You are at a supermarket to buy some food and clothes.

- Price of cloth is $2 per unit.
- Price of food is $1 per unit.

- You've got $80 in your wallet.
- You want to spend this amount for food and clothes only.

- How many units of cloth and food will YOU buy?

Shopping Time

You are at a supermarket to buy some food and clothes.

- Did you choose quantities C and F such that

  $2 x C + $1 x F = $80

- Why are your choices different?

- What is the best or the most ideal basket (C, F) to choose?

Theory of Consumer Behavior

Description of how **consumers allocate incomes among different goods** and services to maximize their wellbeing.

- Rational models
- More realistic models – behavioral economics

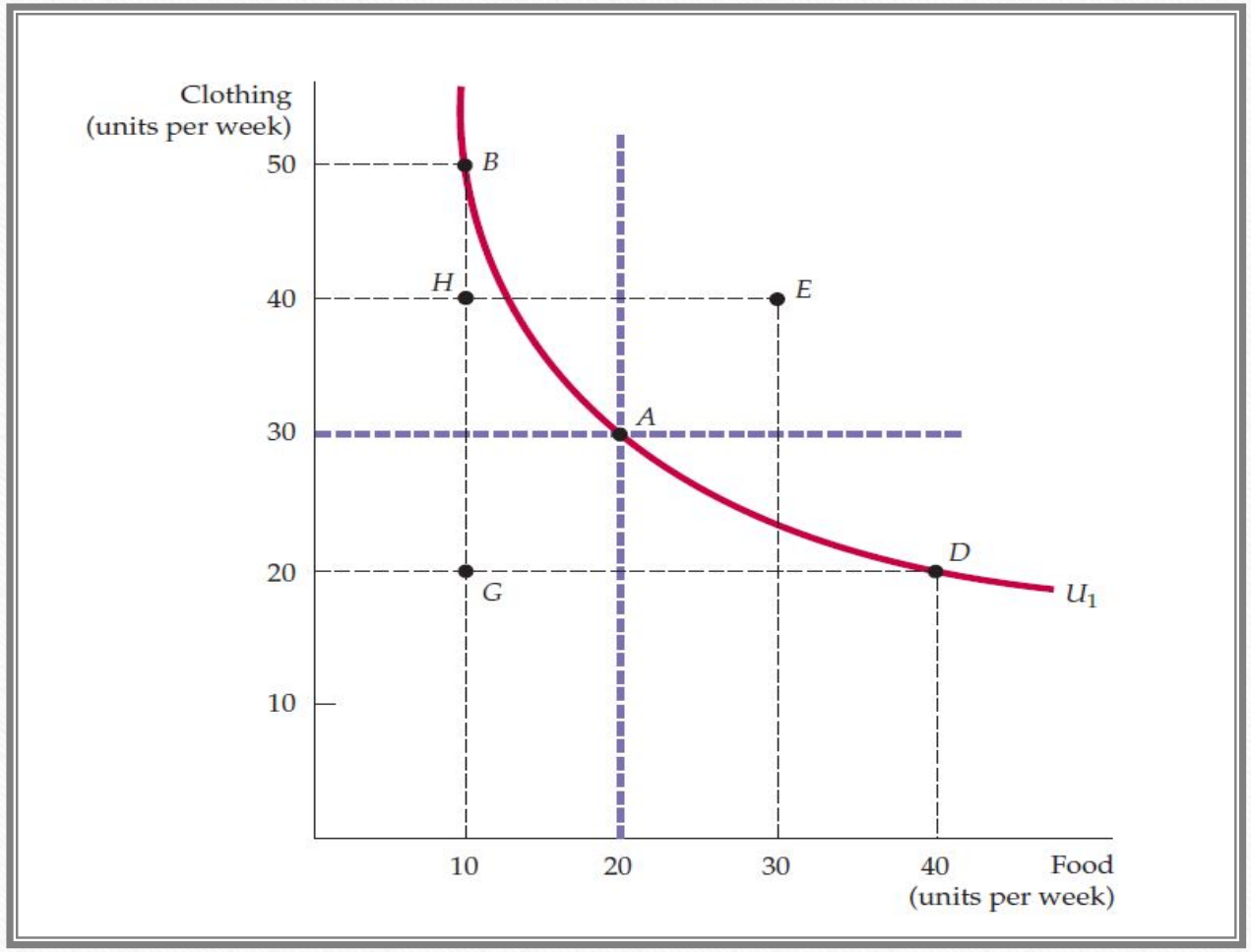
3.1. CONSUMER PREFERENCES

Preferences for Baskets of Goods

MARKET BASKET	UNITS OF FOOD	UNITS OF CLOTHING
A	20	30
B	10	50
D	40	20
E	30	40
G	10	20
H	10	40

Assumptions of Consumer Theory

- Completeness
- Transitivity
- More is better than less

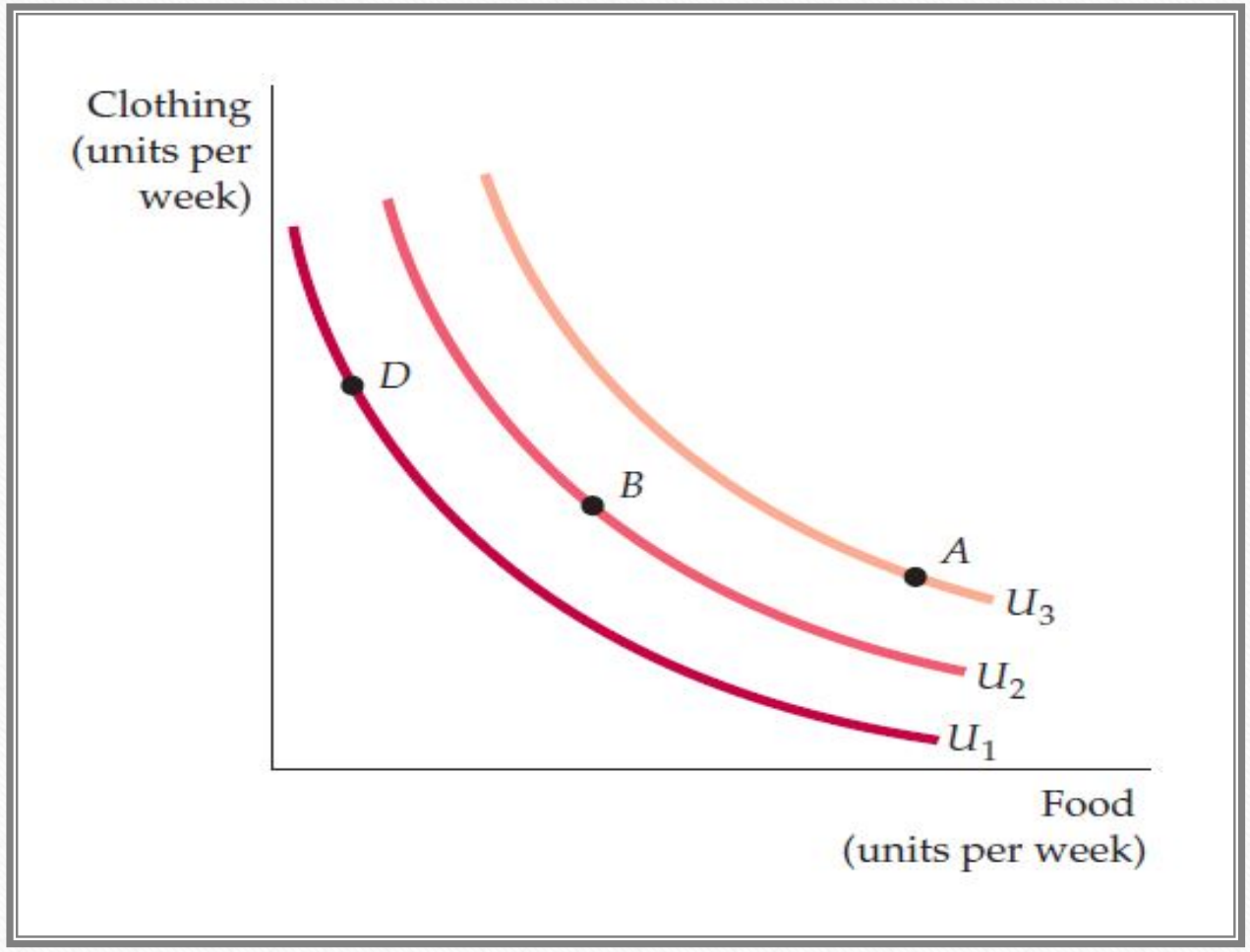


Indifference Curve

All combinations of market baskets that provide a consumer with the same level of satisfaction.

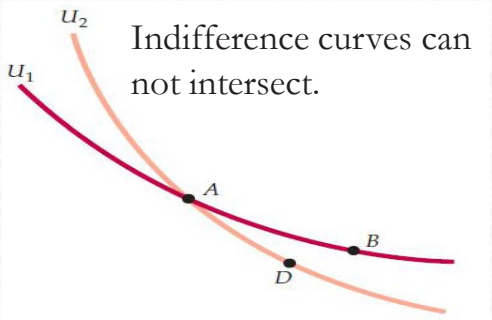
The indifference curve *U*1 that passes through market basket *A* shows all baskets that give the consumer the same level of satisfaction as does market basket *A*; these include baskets *B* and *D*.

Our consumer prefers basket *E*, which lies above *U*1, to *A*, but prefers *A* to *H* or *G*, which lie below *U*1.

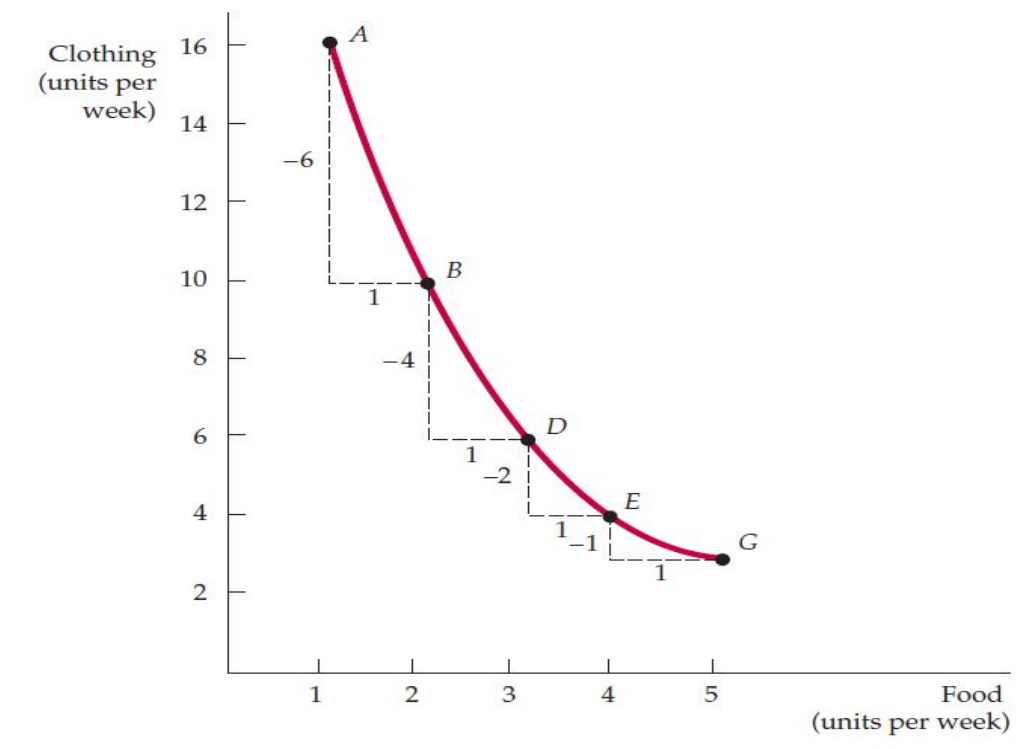


Indifference Maps

A set of indifference curves showing the market baskets among which a consumer is indifferent.



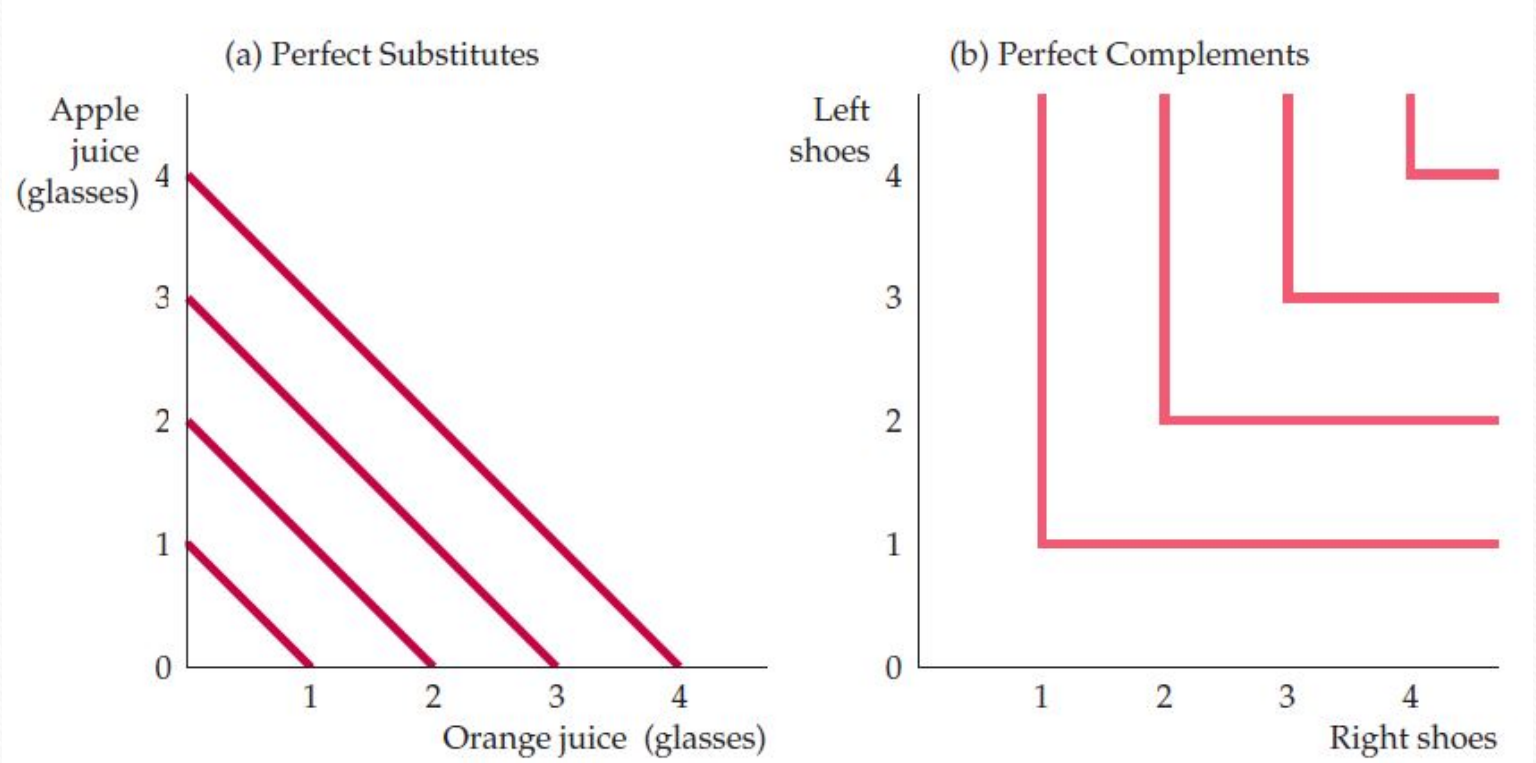
Shape of Indifference Curves

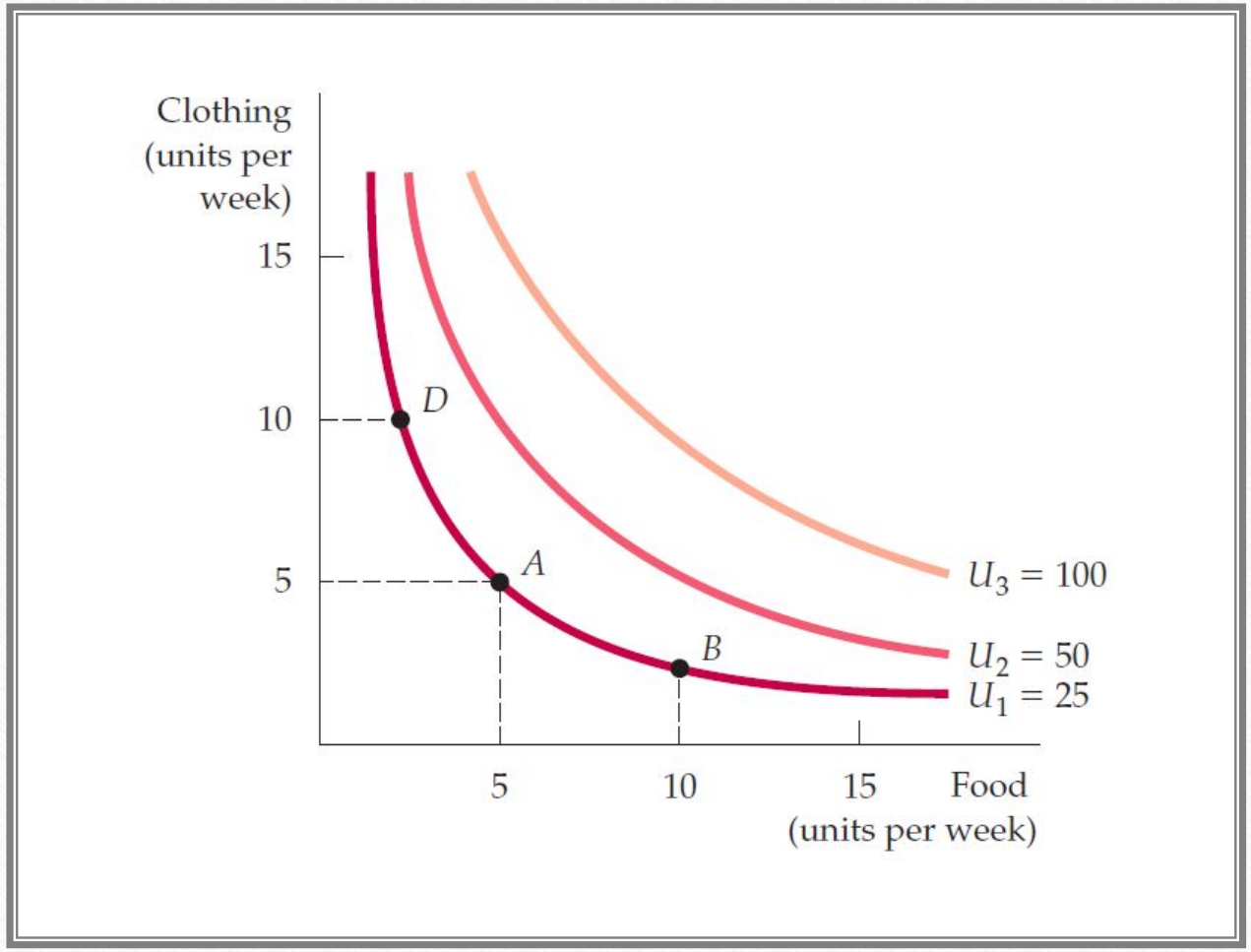


The **MRS of food F for clothing C** is the maximum amount of clothing that a person is willing to give up to obtain one additional unit of food.

- $-\Delta C / \Delta F$
- Diminishing marginal rate of substitution (MRS)
  - an indifference curve is convex if the MRS diminishes along the curve

Shape of Indifference Curves





Comparing Indifference Curves - **Utility**

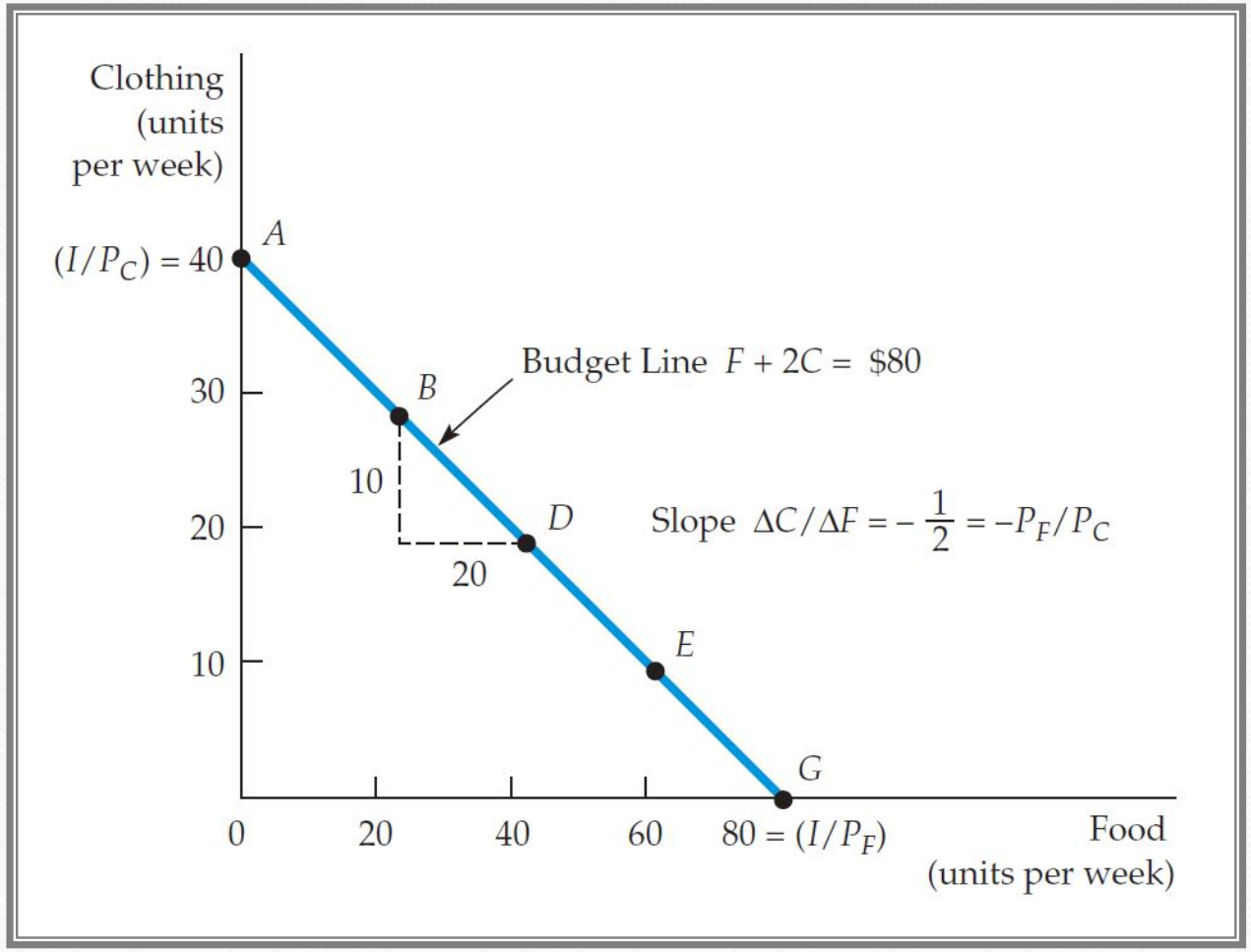
Utility is a numerical score representing the satisfaction that a consumer gets from a given market basket.

Utility function assigns a level of utility to each market basket.

- **Ordinal vs. Cardinal function**

Indifference curve is an **isoutility curve**.

3.2. BUDGET CONSTRAINTS



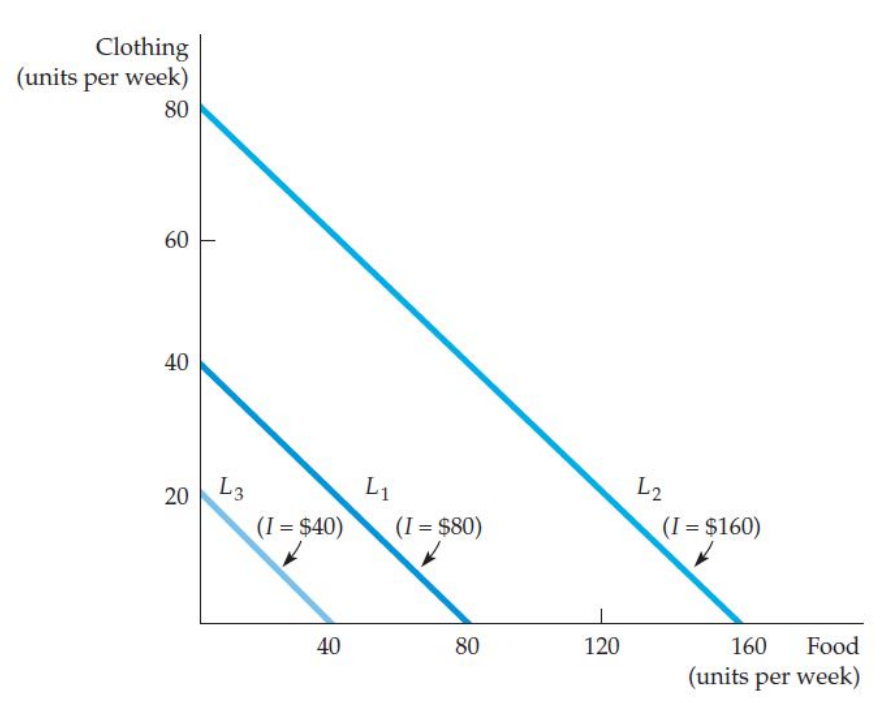
Budget Line

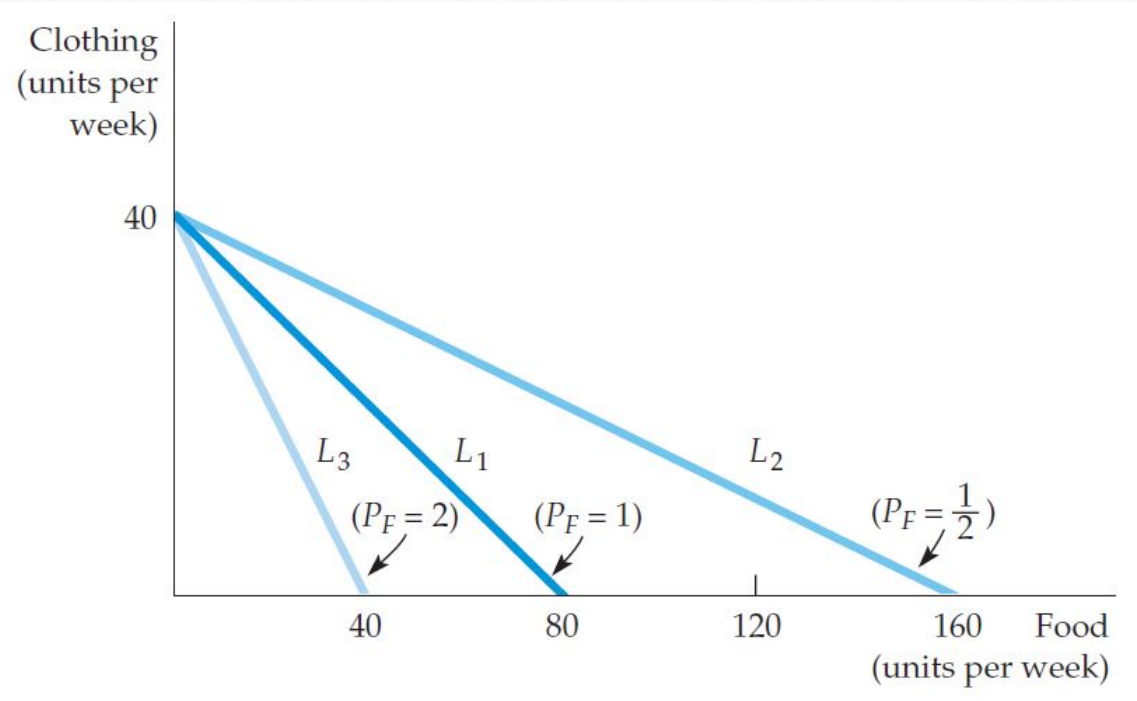
A budget line describes the combinations of goods that can be purchased given the consumer's **income** and the **prices** of the goods.

Line *AG* (which passes through points *B, D*, and *E*) shows the budget associated with an income of $80, a price of food of P_F = $1 per unit, and a price of clothing of P_C = $2 per unit.

The slope of the budget line (measured between points *B* and *D*) is $-P_F/P_C$ = -10/20 = -1/2.

Effects of Changes in Income and Price on the Budget Line





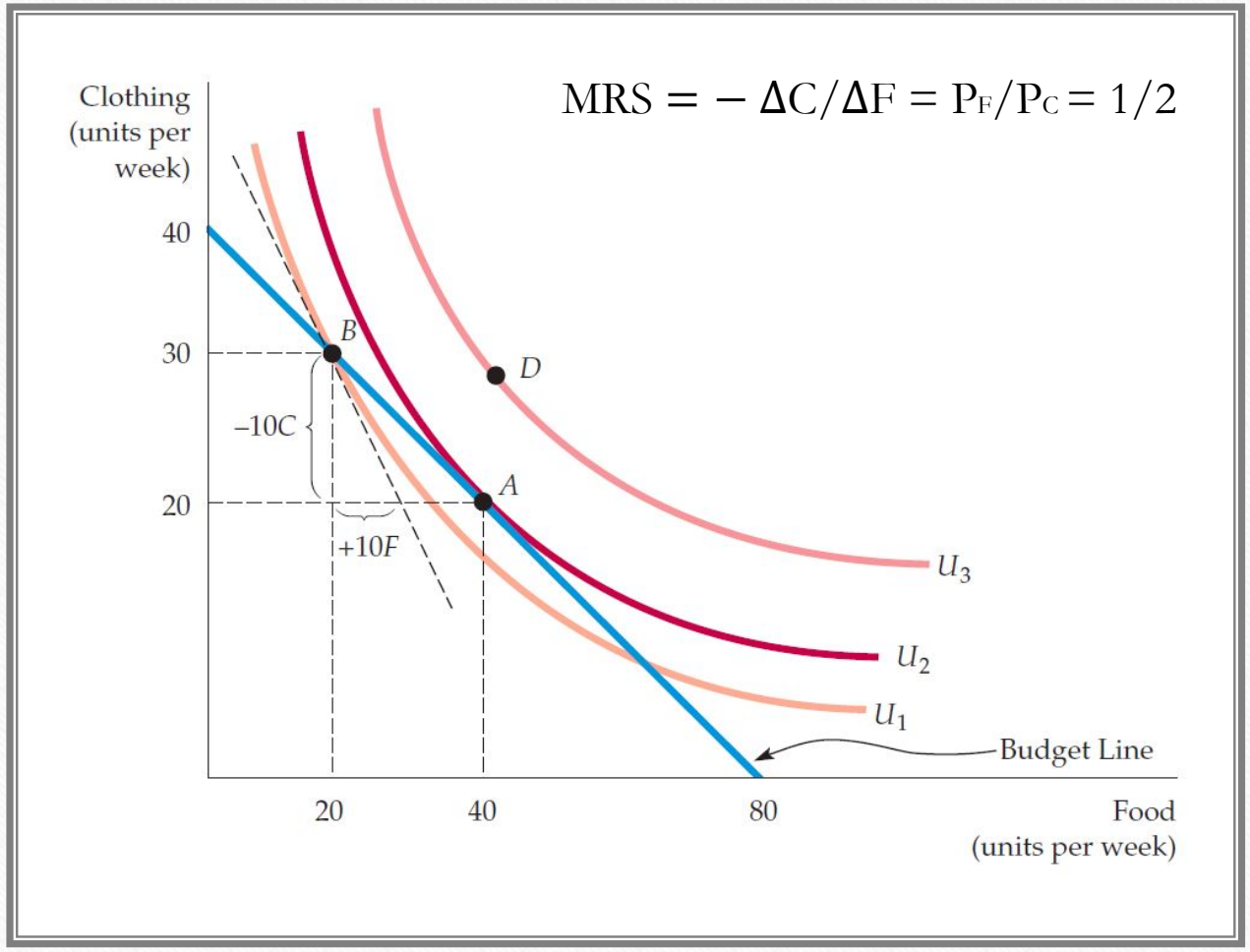
3.3. CONSUMER CHOICE

How do (rational) consumers choose a market basket?

Consumers see **goods in the market**, and have **money in the pocket**.

A particular consumer therefore chooses a basket

- ✓ located on the budget line
- ✓ with the highest preference (highest utility)



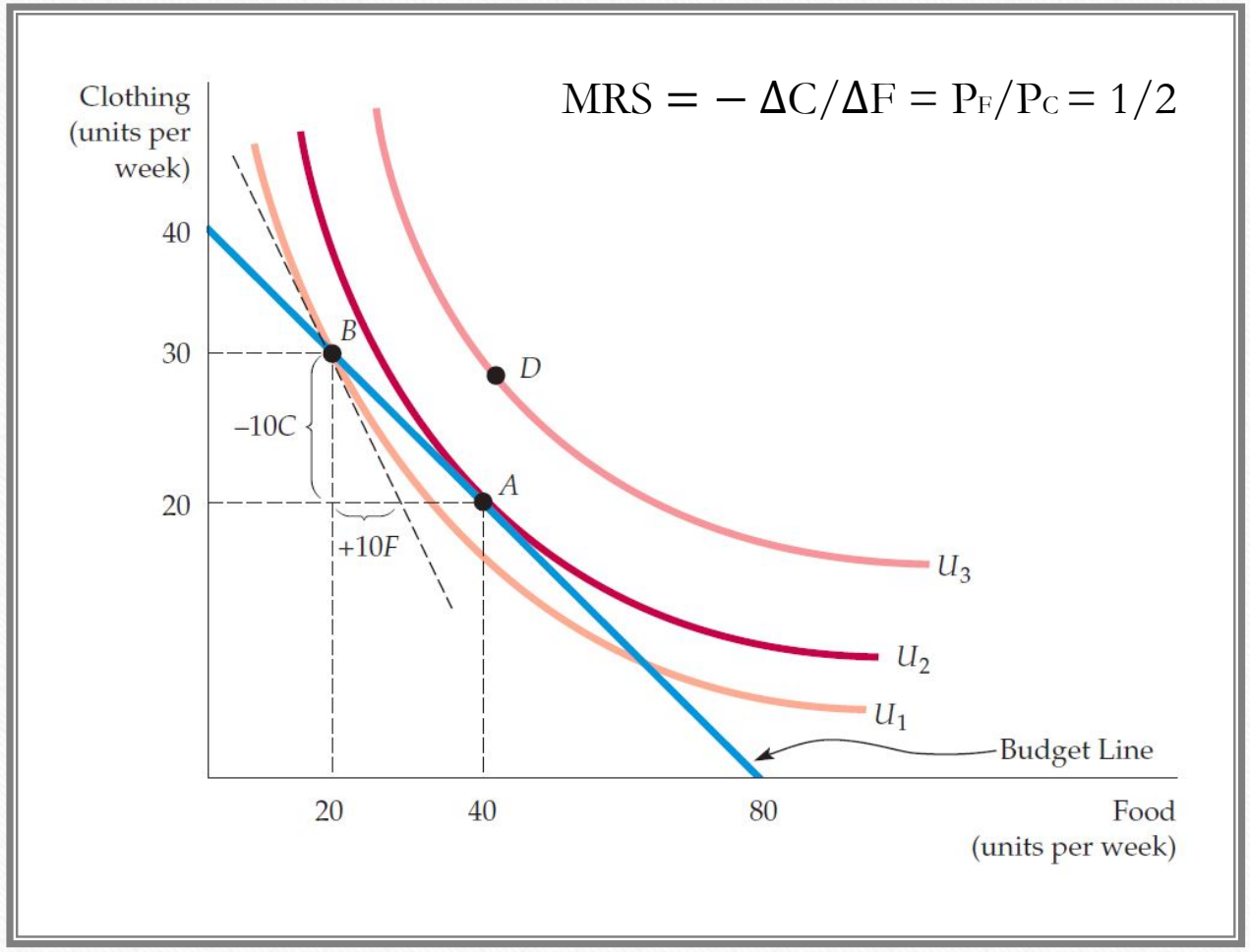
Maximize Utility

A consumer maximizes satisfaction by choosing market basket *A*.

At this point, the budget line and indifference curve U_2 are tangent, and no higher level of satisfaction (e.g., market basket *D*) can be attained.

At *A*, the point of maximization, the MRS between the two goods equals the price ratio.

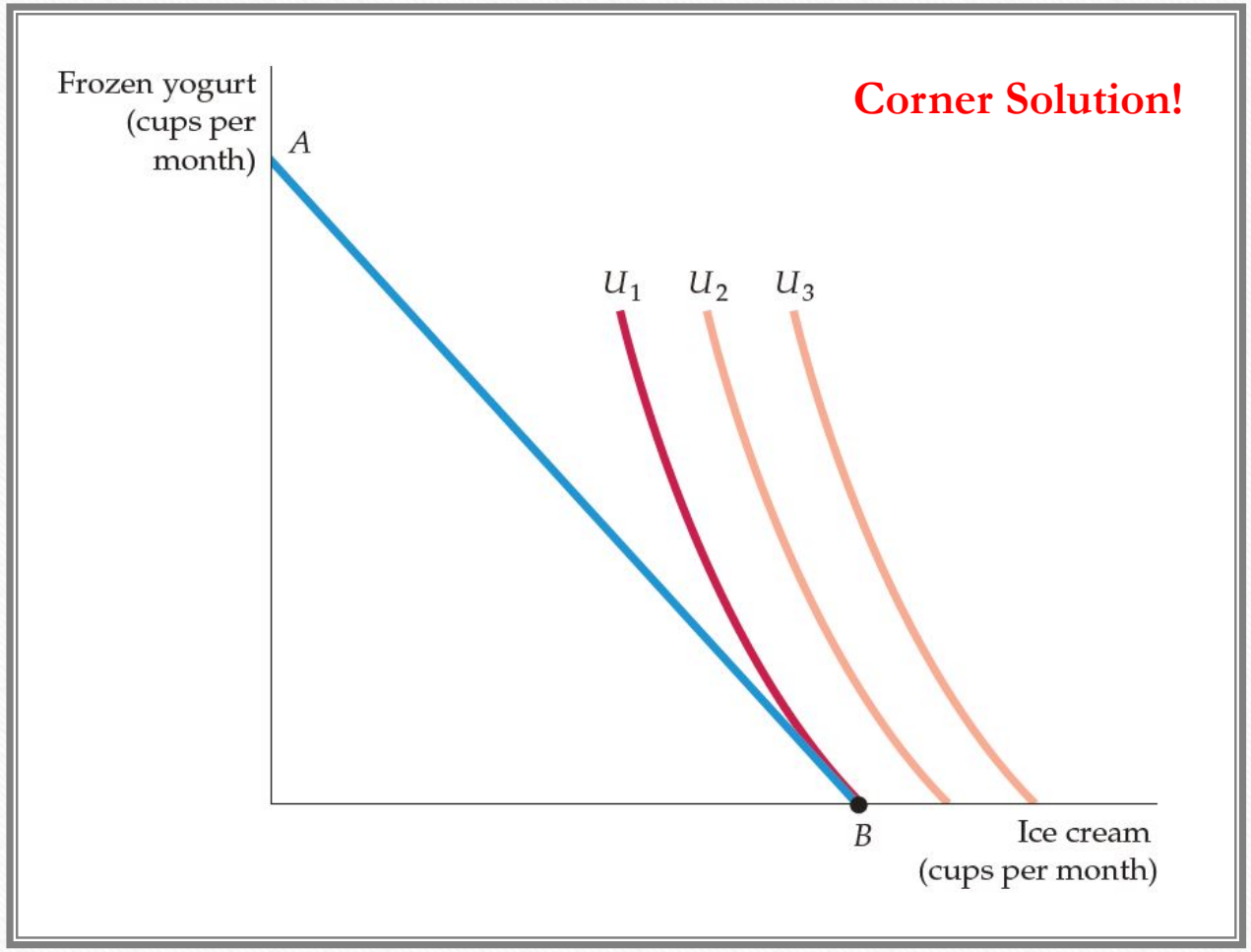
At *B*, however, because the MRS [-(-10/10) = 1] is greater than the price ratio (1/2), satisfaction is not maximized.



Maximize Utility

Satisfaction is maximized when *the marginal rate of substitution* (of *F* for *C*) *is equal to the ratio of the prices* (of *F* to *C*).

Satisfaction is maximized when the **marginal benefit**—the benefit associated with the consumption of one additional unit of food—is equal to the **marginal cost**—the cost of the additional unit of food. The marginal benefit is measured by the MRS.

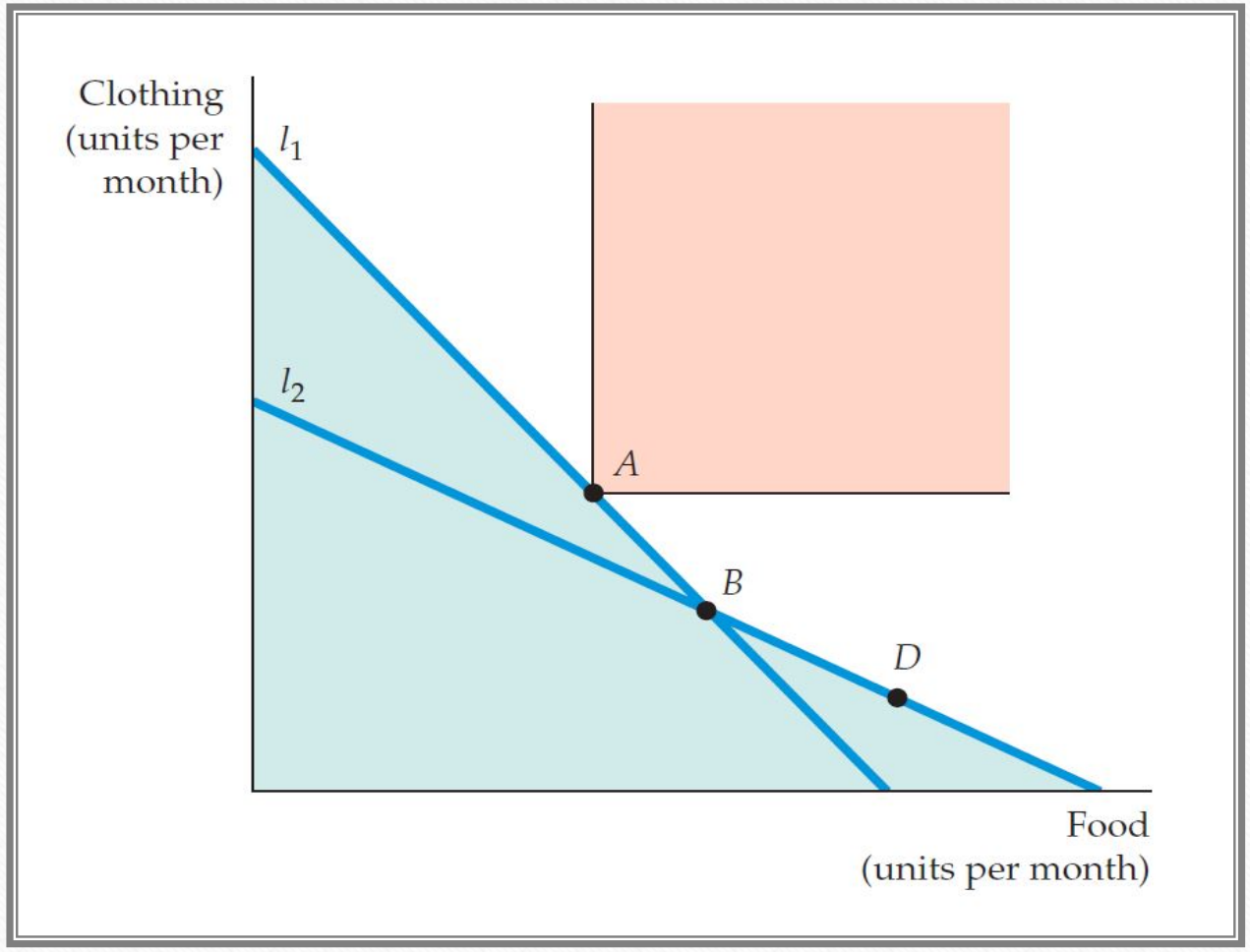


Maximize Utility

Satisfaction is maximized when *the marginal rate of substitution* (of F for C) *is equal to the ratio of the prices* (of F to C). **But not always!**

If the MRS of ice cream for frozen yogurt is substantially greater than the price ratio, as in the Figure on left, then a small decrease in the price of frozen yogurt will not alter the consumer's choice; he will still choose to consume only ice cream. **But if the price of frozen yogurt falls far enough, the consumer could quickly choose to consume a lot of frozen yogurt.**

3.4. REVEALED PREFERENCE

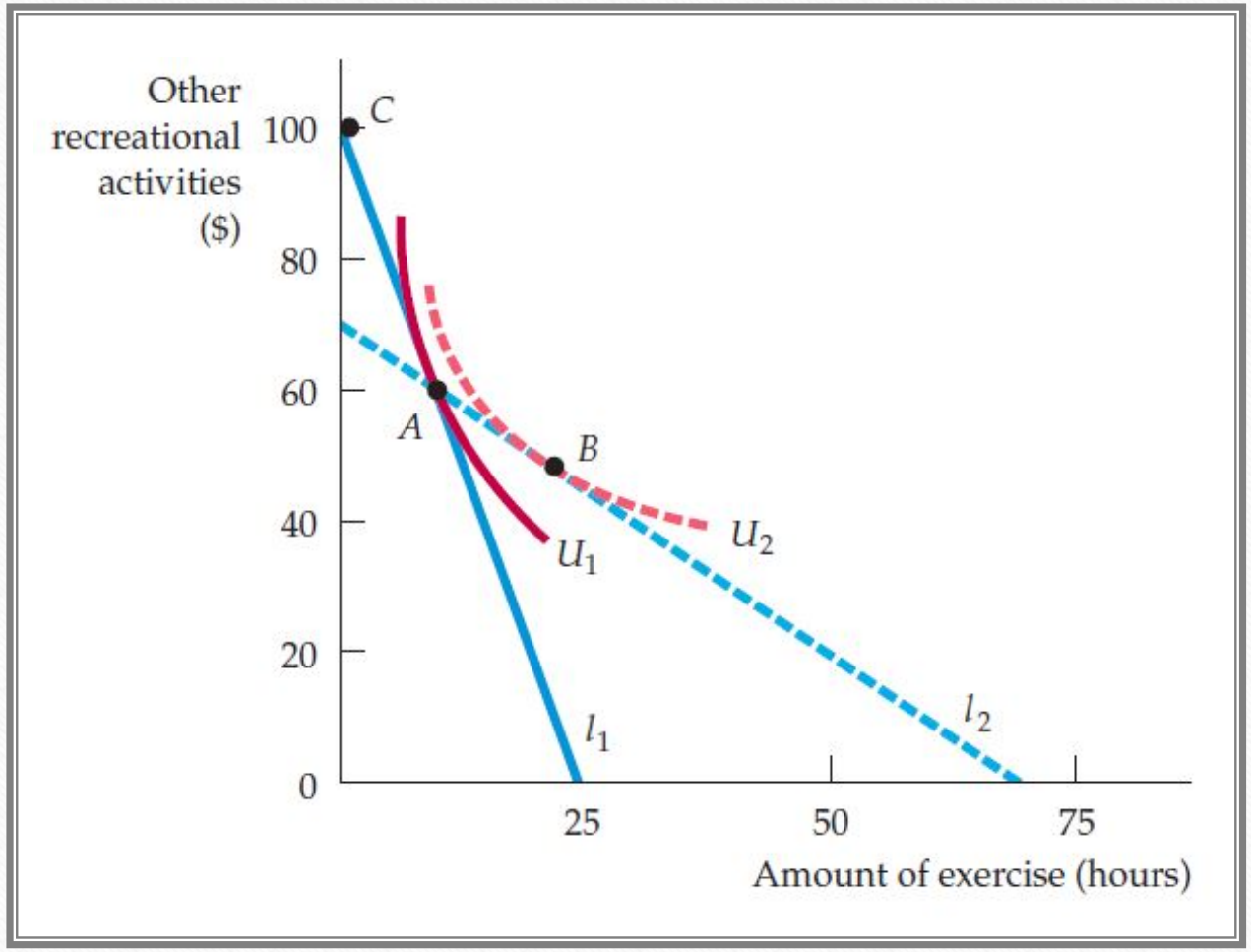


Infer Preferences post Choices

If an individual facing budget line I_1 chose market basket *A* rather than market basket *B*, *A* is revealed to be preferred to *B*.

Likewise, the individual facing budget line I_2 chooses market basket *B*, which is then revealed to be preferred to market basket *D*.

Whereas *A* is preferred to all market baskets in the green-shaded area, all baskets in the pink-shaded area are preferred to *A*.



Inferring Preferences – An Example

When facing budget line I_1, an individual chooses to use a health club for 10 hours per week at point *A*.

When the fees are altered, she faces budget line I_2. She is then made better off because market basket *A* can still be purchased, as can market basket *B*, which lies on a higher indifference curve.

3.5. MARGINAL UTILITY

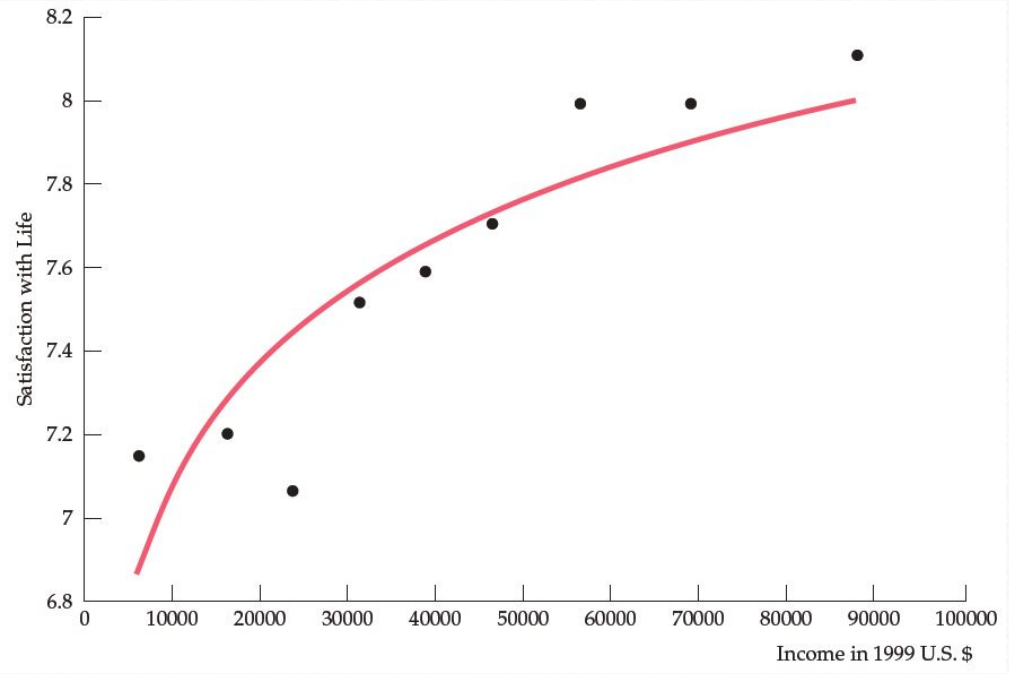
Diminishing Marginal Utility

MARGINAL UTILITY (MU)

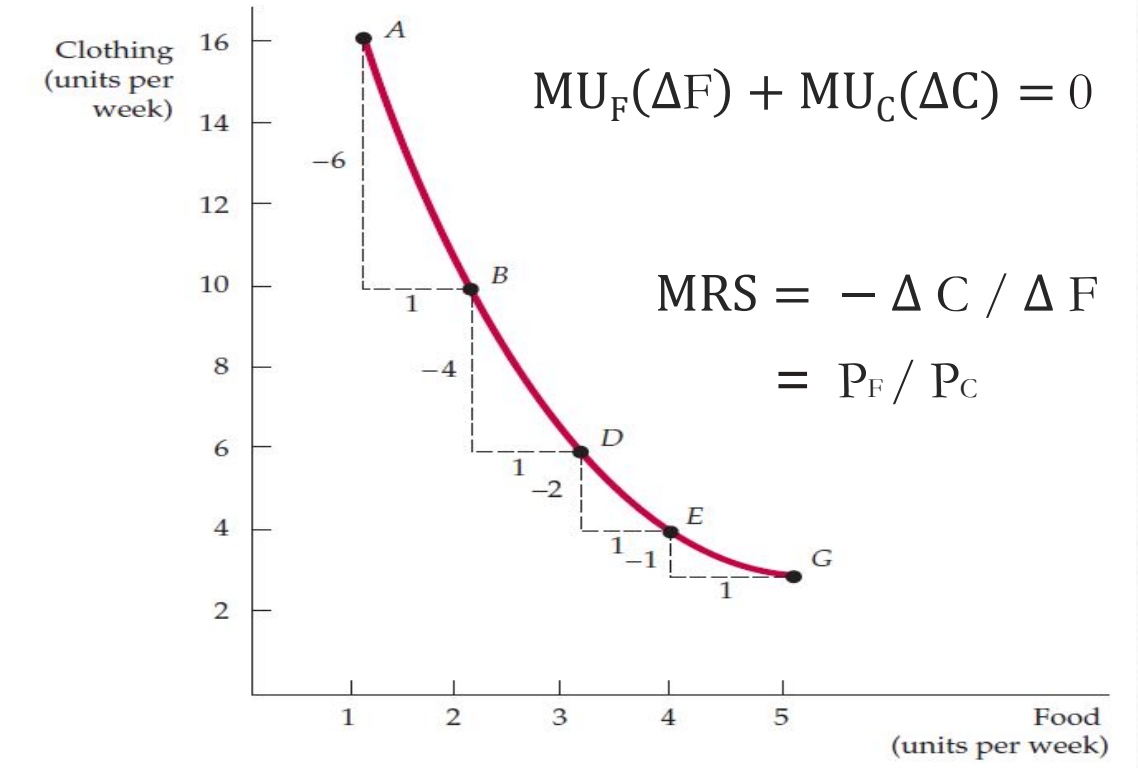
- Additional satisfaction obtained from consuming one additional unit of a good.

DIMINISHING MU

- Principle that as more of a good is consumed, the consumption of additional amounts will yield smaller additions to utility.



Marginal Utility & Consumer Choice



$$MU_F(\Delta F) + MU_C(\Delta C) = 0$$ ✓

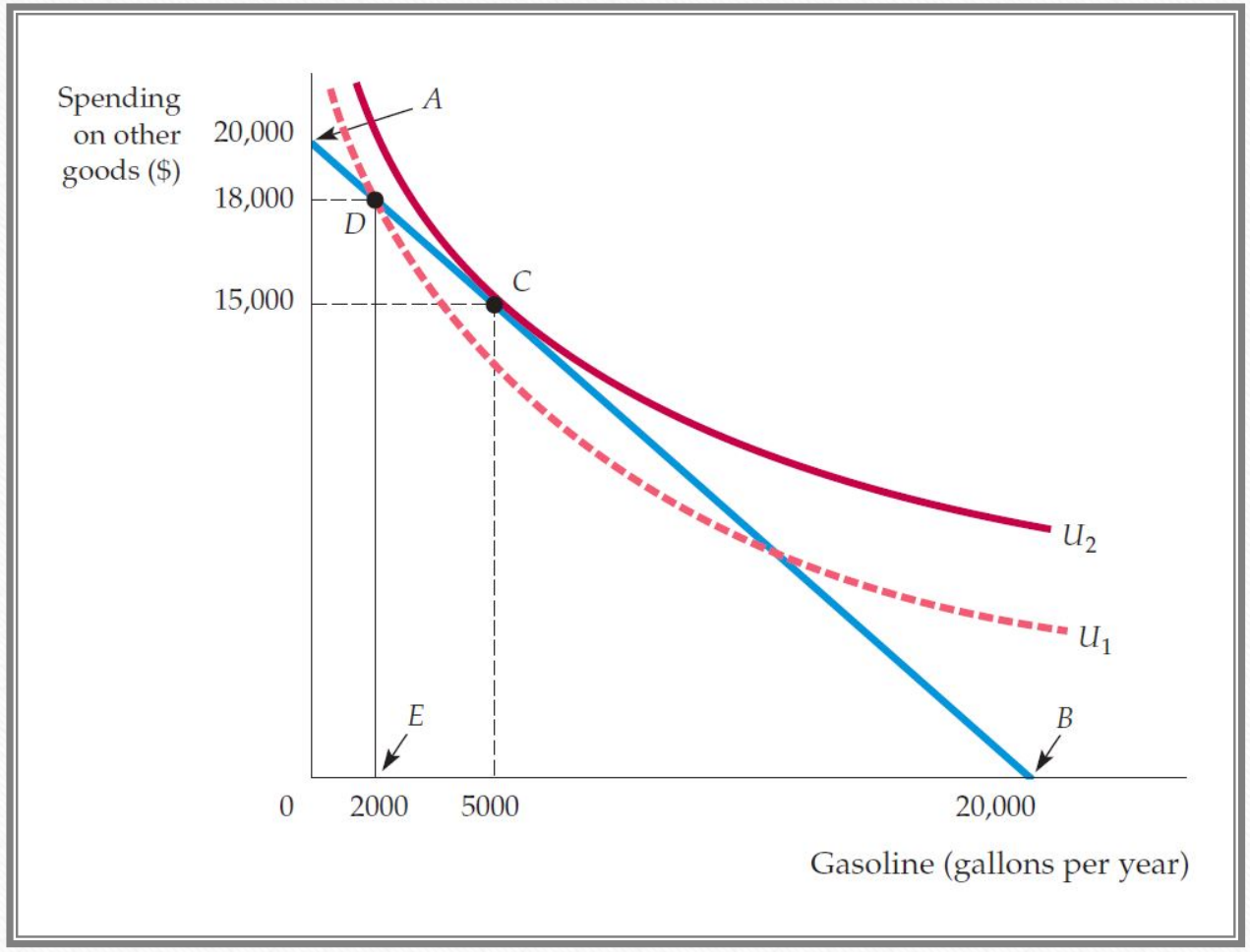
$$MRS = -\Delta C / \Delta F$$ ✓

$$= P_F / P_C$$

$$\frac{MU_F}{MU_C} = -\frac{\Delta C}{\Delta F}$$

$$\boxed{\frac{MU_F}{P_F} = \frac{MU_C}{P_C}}$$

Equal Marginal Principle



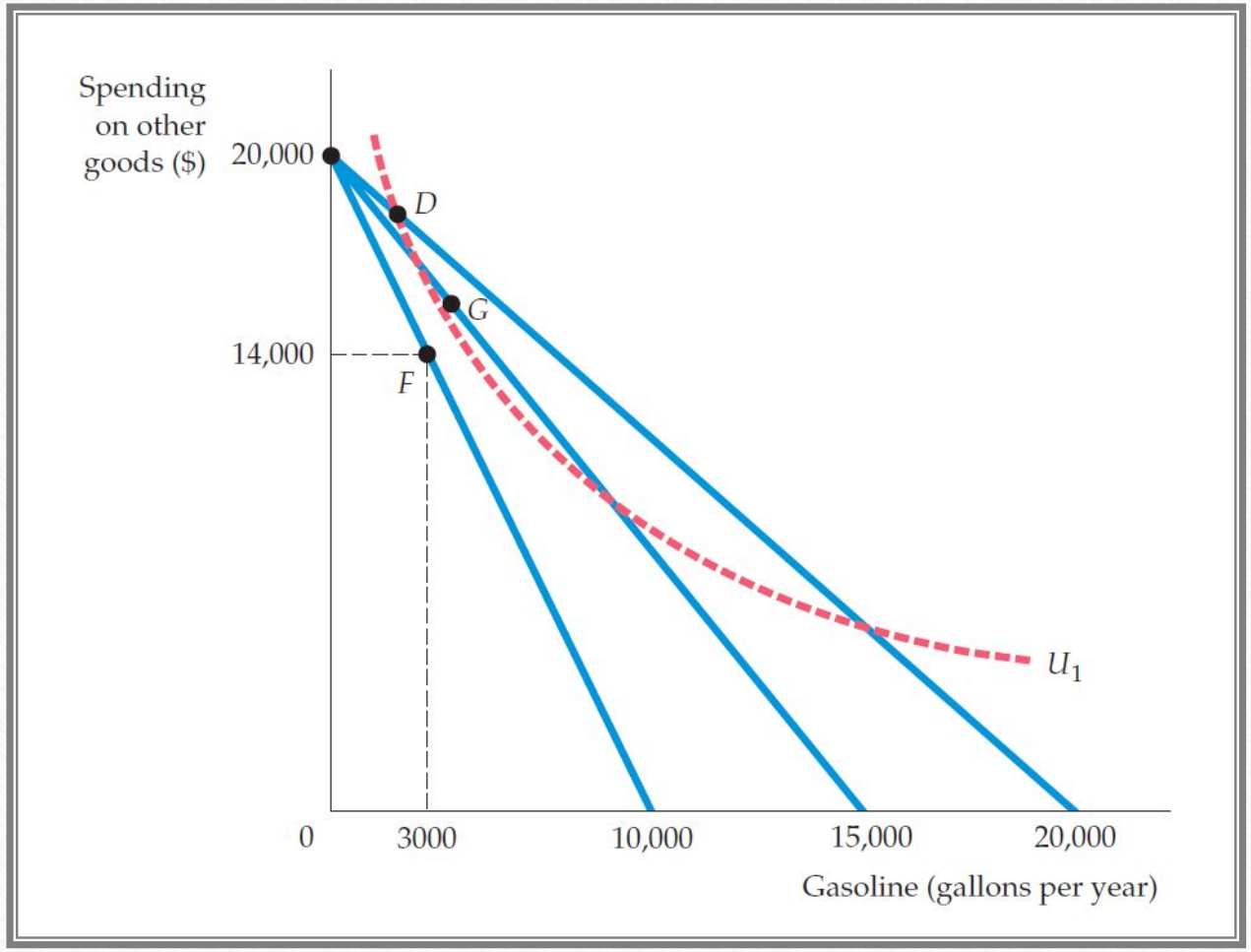
Rationing & The Poor Lady

When a good is rationed, less is available than consumers would like to buy. Consumers *may be* worse off.

Without gasoline rationing, up to 20,000 gallons of gasoline are available for consumption (at point *B*).

The consumer, a lady, chooses point *C* on indifference curve U_2, consuming 5000 gallons of gasoline.

However, with a limit of 2000 gallons of gasoline under rationing (at point *E*), the consumer moves to *D* on the lower indifference curve U_1.



Rationing & The Free Market

Some consumers will be worse off, but others may be better off with rationing.

With rationing and a gasoline price of $1.00 she buys the maximum allowable 2000 gallons per year, putting her on indifference curve U_1.

Had the competitive market price been $2.00 per gallon with no rationing, she would have chosen point *F*, which lies below indifference curve U_1.

However, had the price of gasoline been only $1.33 per gallon, she would have chosen point *G*, which lies above indifference curve U_1.