
Econ 100A: Intermediate Microeconomic Analysis Lecture 4

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Plan of Today's Lecture

- Consumer preferences: an application
- Consumer utility
- Utility function
 - Cardinal and Ordinal utility
- Budget:
 - Budget line
 - Budget constraint
- Budget line changes:
 - If income changes
 - If prices change
- Consumer choices:
 - Consumer optimal point (utility maximization)

Consumer Preferences: performance more valued than styling

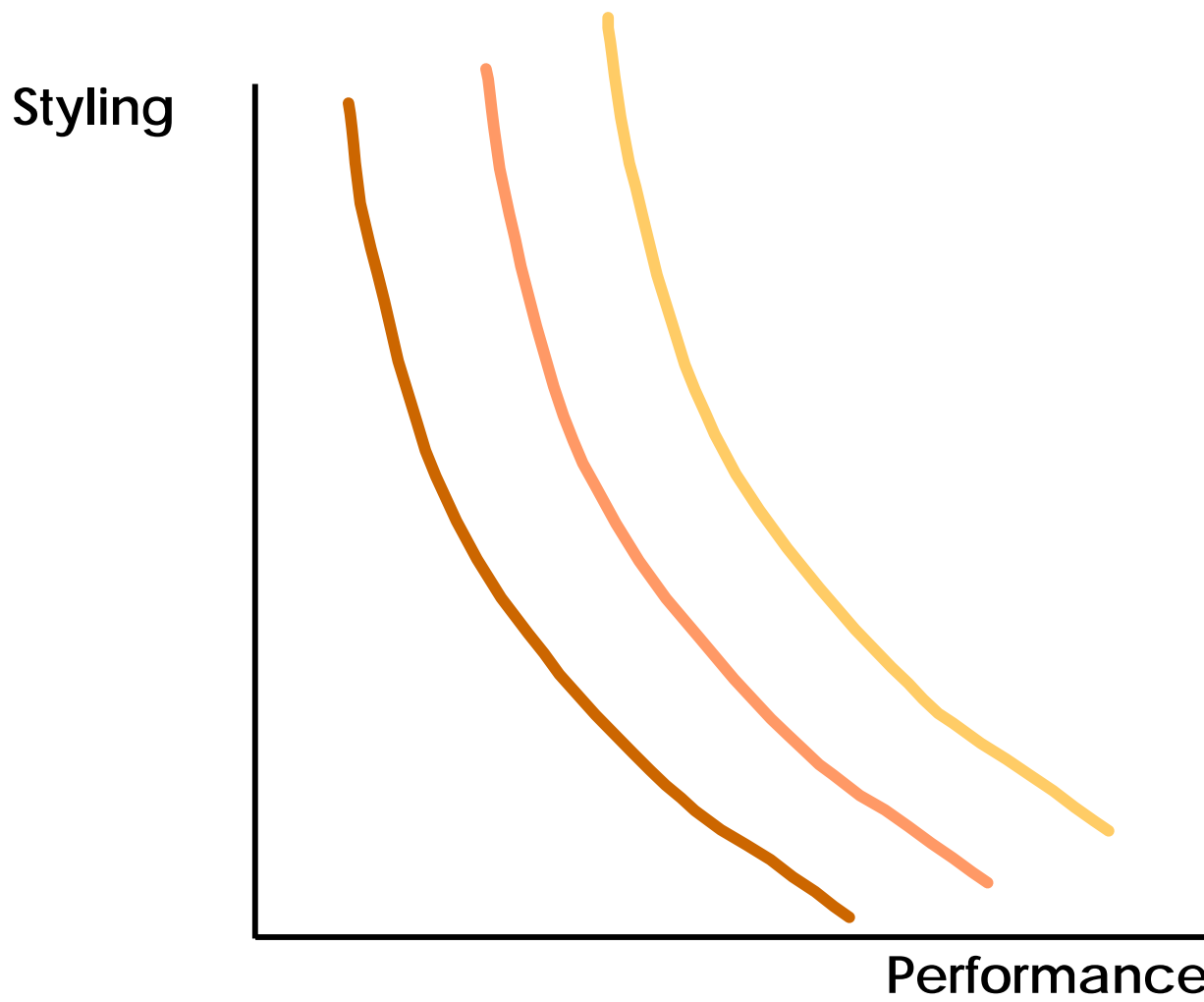
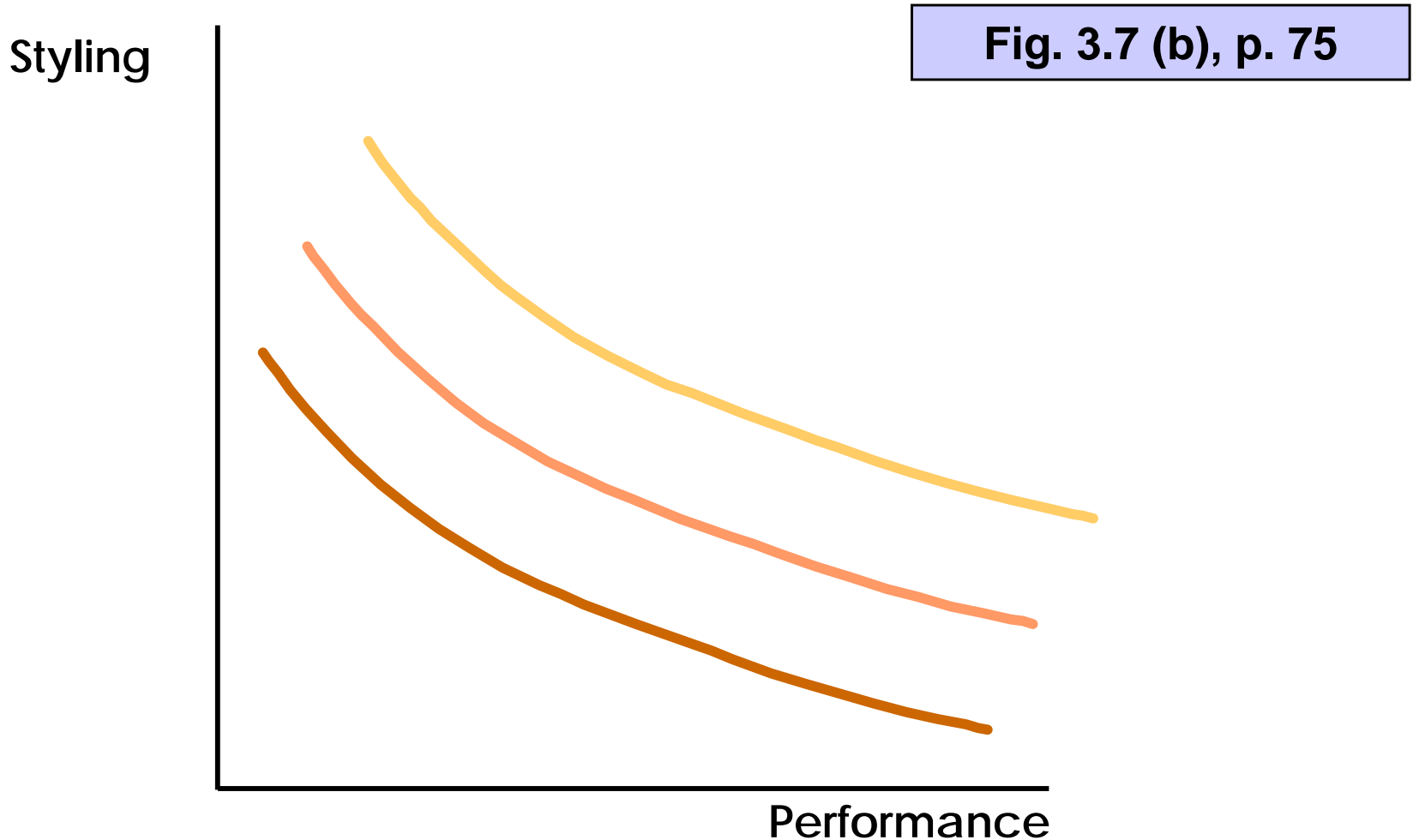


Fig. 3.7 (a), p. 75

Consumer Preferences.

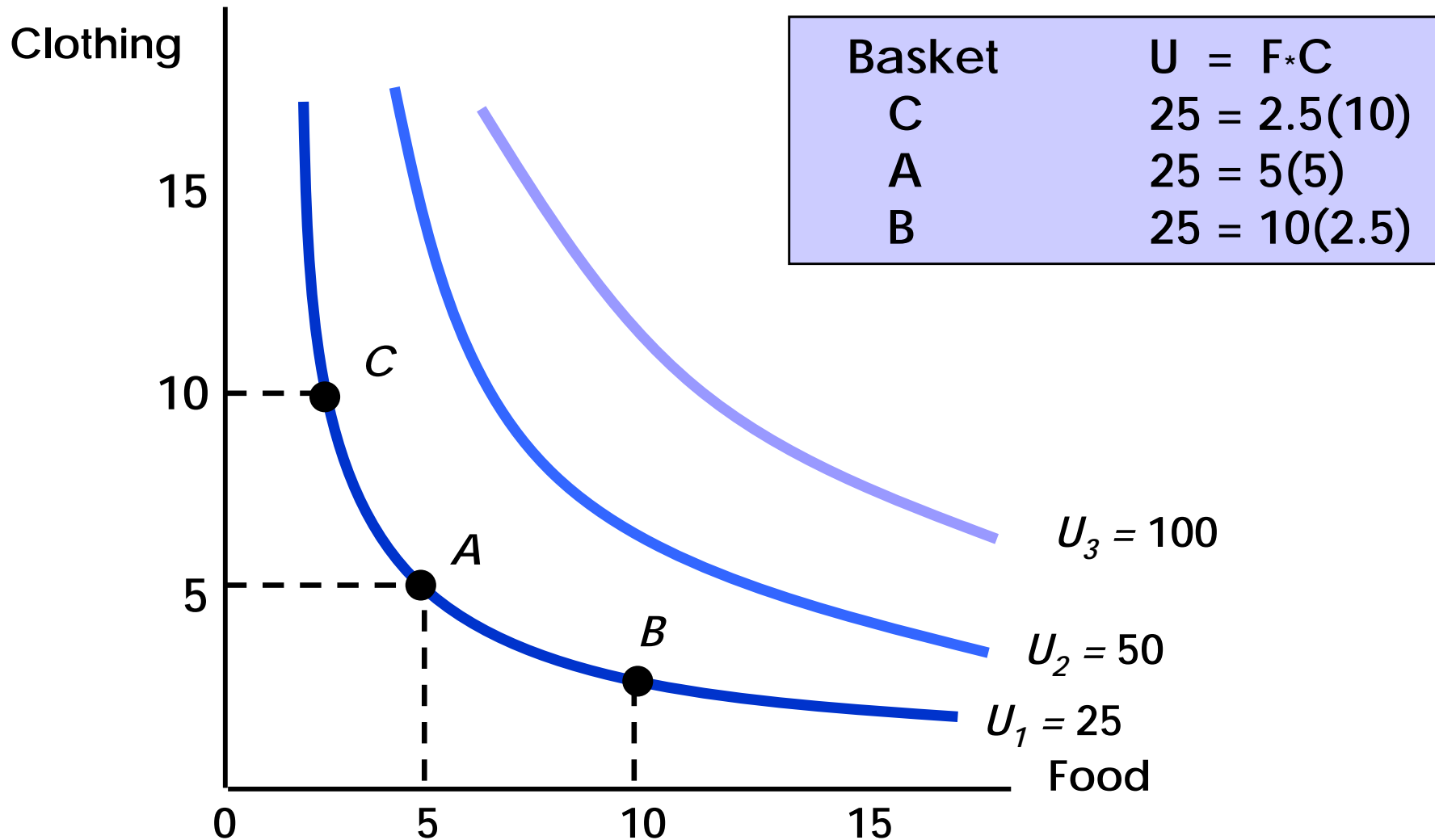
styling more valued than performance



Utility & Utility Function, M., p. 76

- **Utility** is a number representing consumer satisfaction from a given market basket
- **Utility function**
 - Formula that assigns a level of utility to market baskets
 - If the utility function is
$$U(F, C) = F + 2C$$
8 units of food and
3 units of clothing = utility of 14:
$$A: 14 = 8 + 2(3)$$
 - Let B: $6 + 2(4) = 14$ & C: $4 + 2(4) = 12$
 - Then: Consumer is indifferent between A & B and prefers both to C

Utility Function – Example, M. p. 76



Utility: Ordinal and Cardinal

- *Ordinal Utility Function*

- Orders market baskets from most preferred to least preferred; does not indicate by how much one market basket is preferred to another

- *Cardinal Utility Function*

- Utility function describing the extent to which one market basket is preferred to another

The Budget Line: two Goods

- We assume that only 2 goods are consumed (and we do not consider savings)
- ***The Budget Line***
 - includes all combinations of goods for which total money spent equals total income

The Budget Line: the Notation

- Let
 - F be the amount of food purchased
 - C be the amount of clothing purchased
- Prices:
 - P_F = price of food
 - P_C = price of clothing
- Then
 - P_FF is the amount of money spent on food
 - P_CC is the amount of money spent on clothing

Equation of the Budget Line

When all income is allocated to food (F) and/or clothing (C)

- The budget line then can be written:

$$P_F F + P_C C = I$$

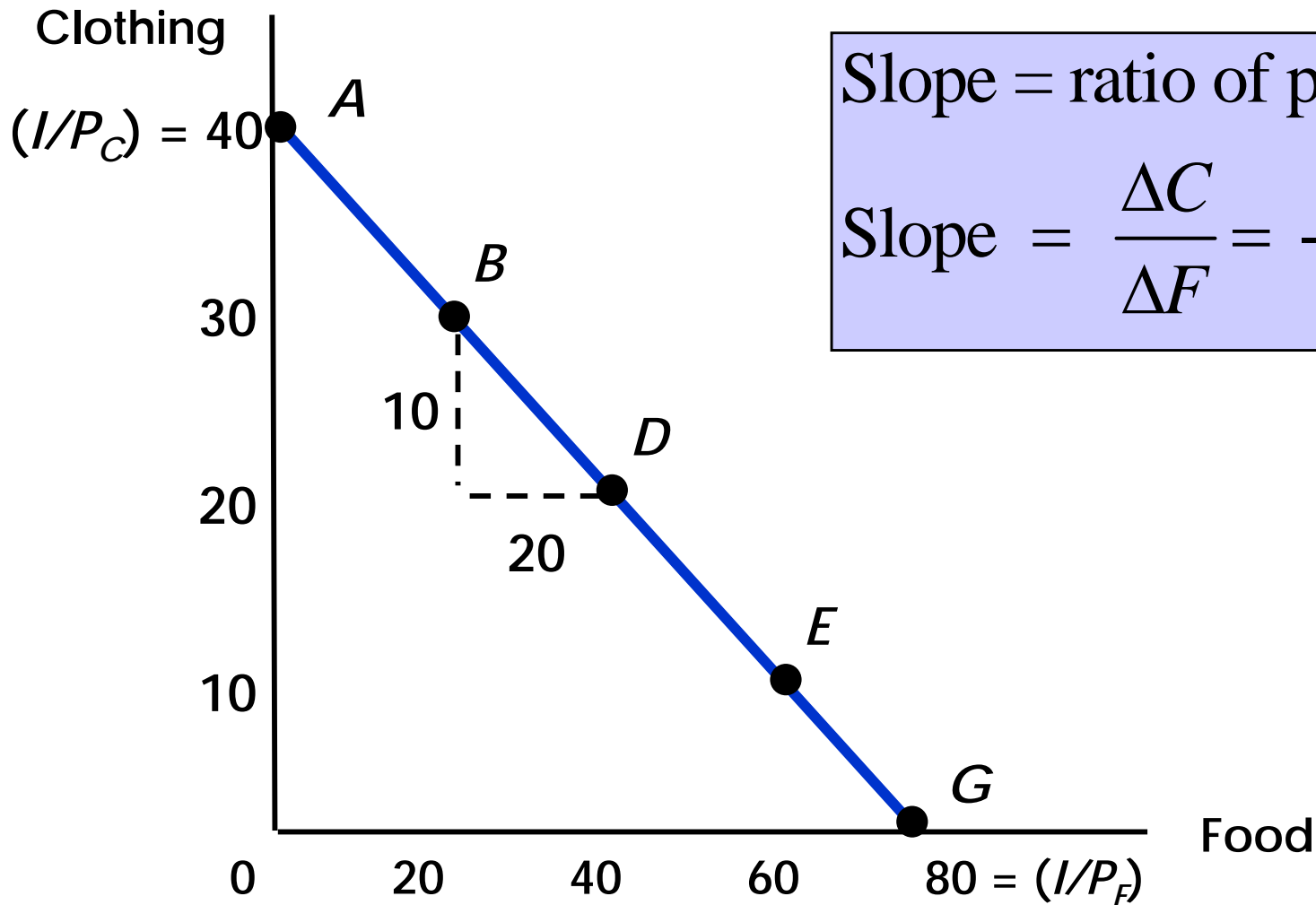
- The budget line then can be written:

When all income is allocated to good (X) and/or good (Y)

$$I = P_X X + P_Y Y \quad \rightarrow \quad I - P_X X = P_Y Y$$

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

The Graph of Budget Line

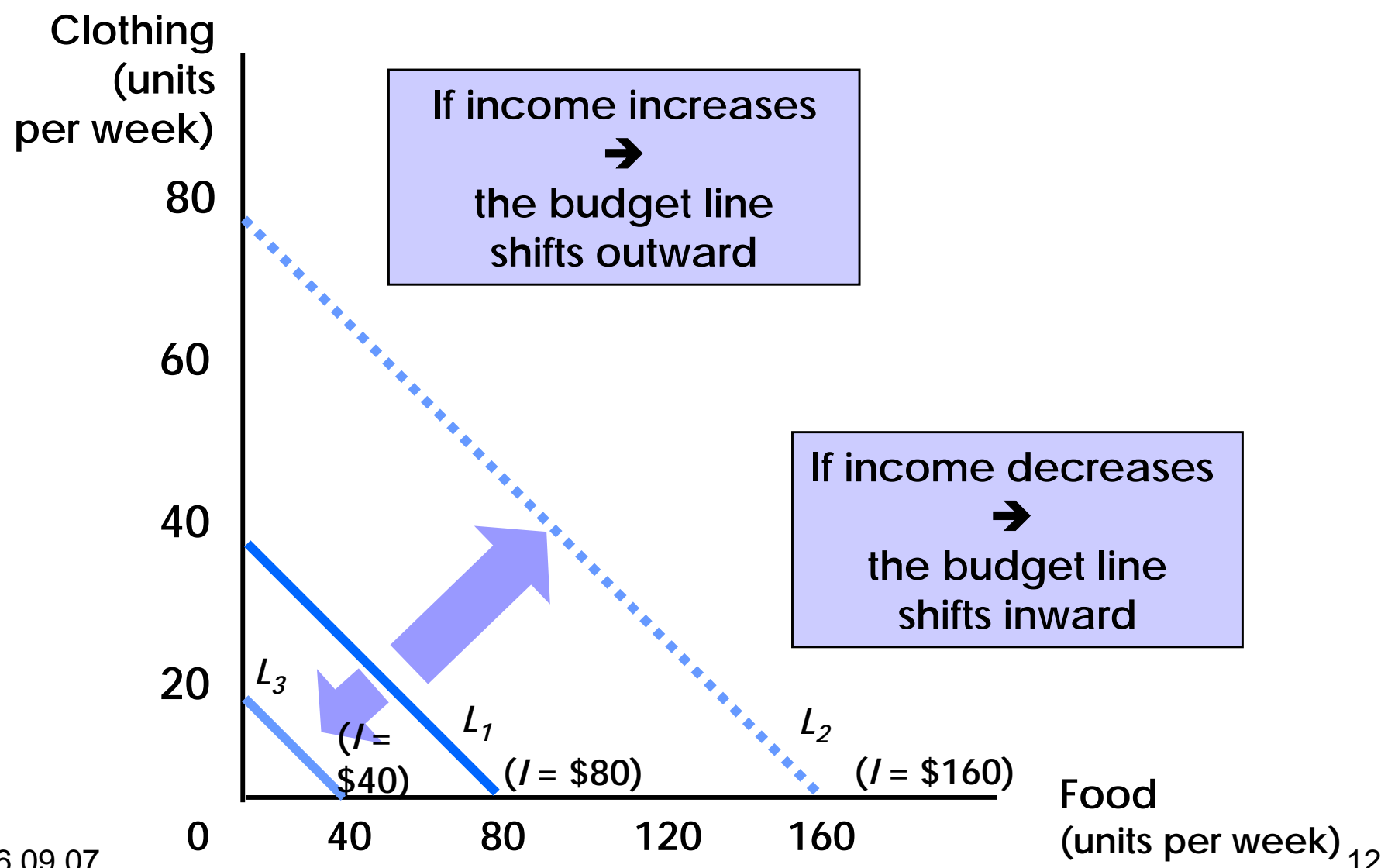


Slope = ratio of prices

$$\text{Slope} = \frac{\Delta C}{\Delta F} = -\frac{1}{2} = -\frac{P_F}{P_C}$$

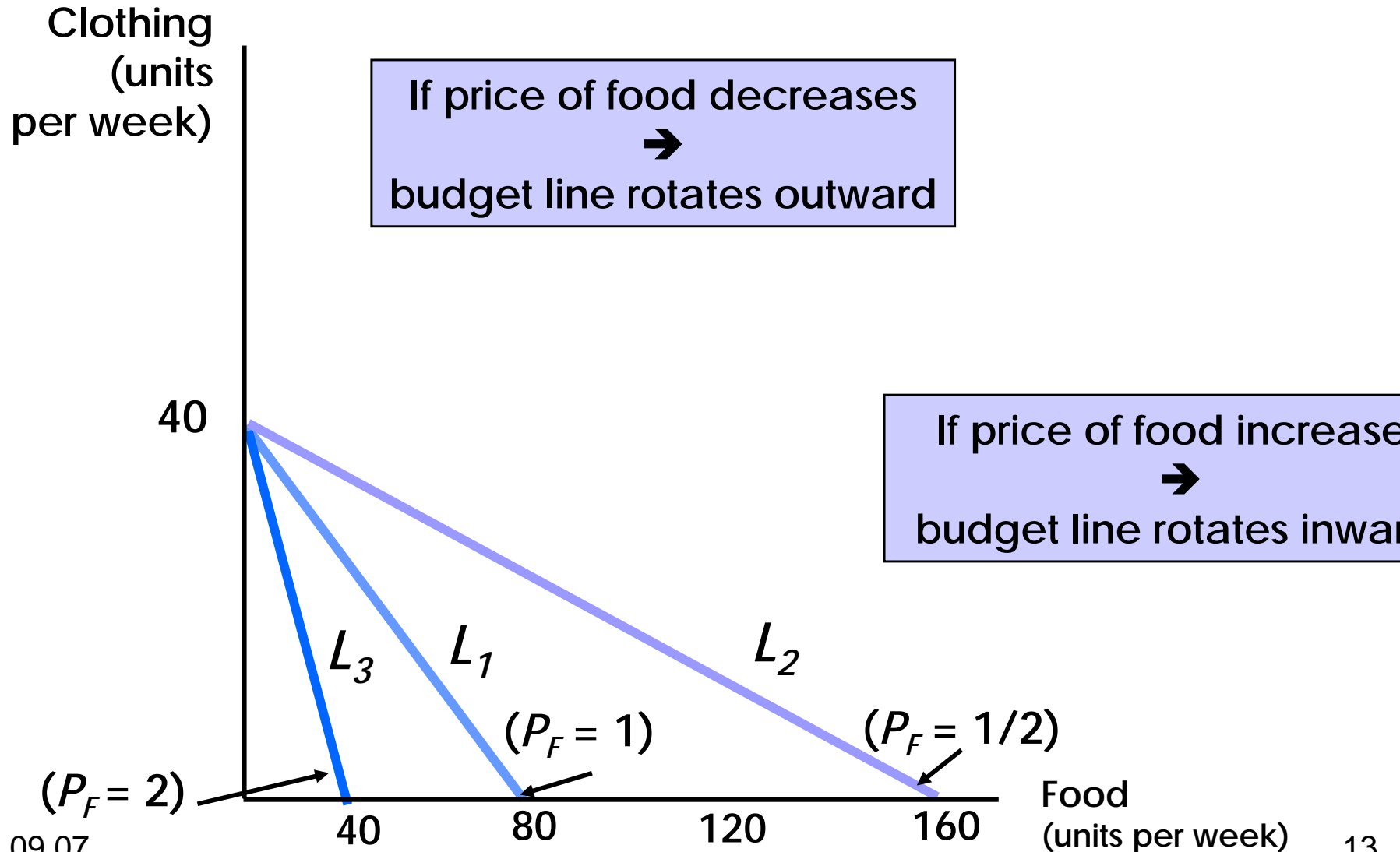
The Budget Line.

How it Changes with Income



The Budget Line

When One of the Prices Changes



The Budget Line Response to the Changes of Prices

- If Prices Increase
 - If both goods prices increase, but the price ratio unchanged, the budget line:
 - slope does not change
 - The line shifts **inward** (parallel to original line)
- If Prices Decrease
 - If both goods prices decrease, but the price ratio unchanged, the budget line:
 - slope does not change
 - The line shifts **outward** (parallel to original line)

The Formulation of the Problem: Consumer Choice

- Question: Given
 - preferences and
 - budget constraints
- How do consumers choose what to buy?
- Answer: Consumers choose a market basket to maximize their satisfaction (given the limited budget available)

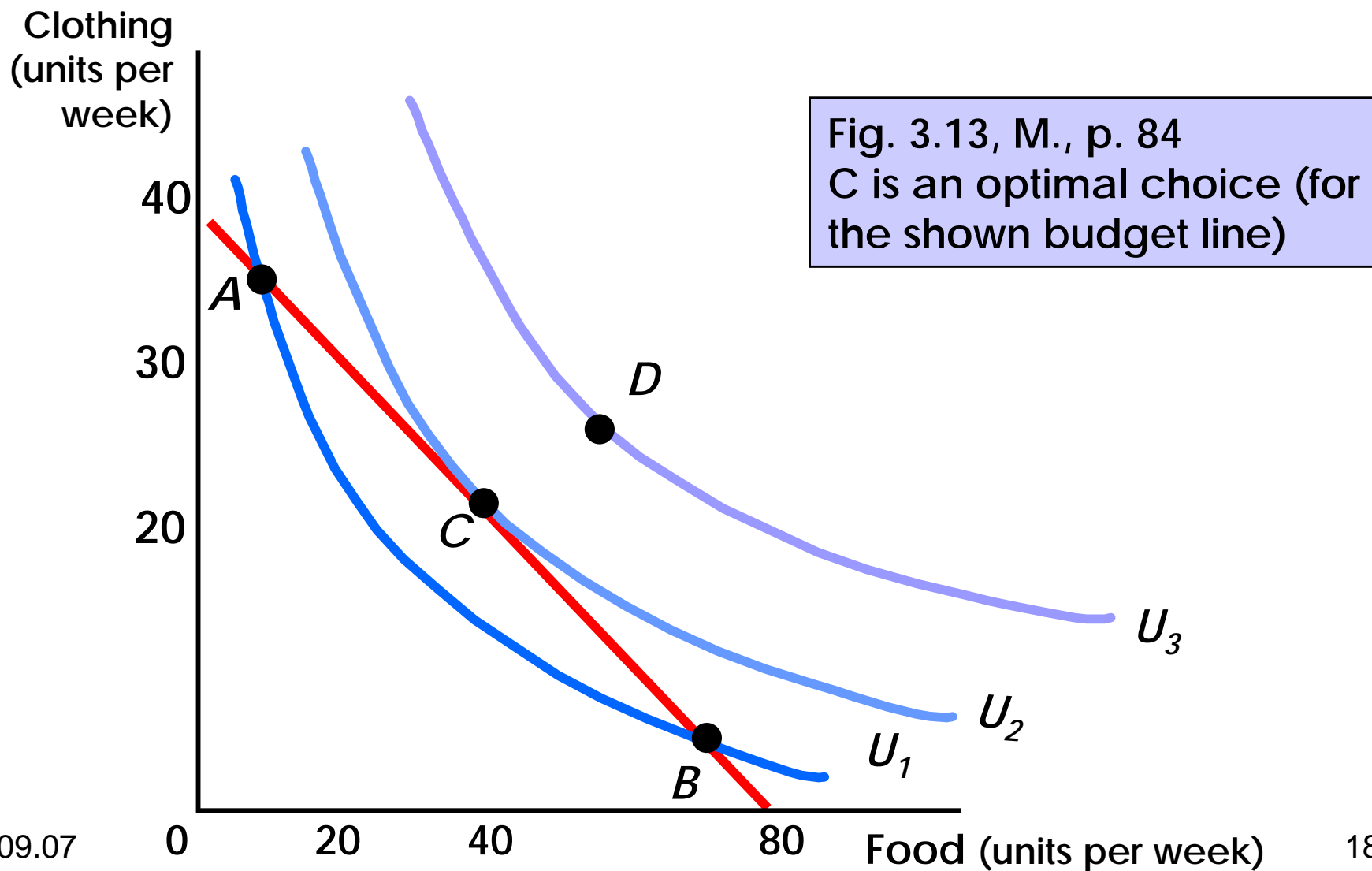
Optimal market basket: the conditions

- The maximizing market basket satisfies two conditions:
 1. It must be located on the budget line
 - entire income is spend (the more the better)
 2. It must give the consumer his most preferred combination of goods

Consumer Choice: Graphical Approach

- We draw consumer's indifference map (his choice of clothing versus food)
- For these indifference curves:
$$U_3 > U_2 > U_1$$
- The consumer's goal: To reach the highest utility (within his budget)

Maximizing Consumer Satisfaction



Consumer Choice. Algebraic Approach

- Recall, the slope of an indifference curve is:

$$MRS = -\frac{\Delta C}{\Delta F}$$

The slope of the budget line is:

$$Slope = -\frac{P_F}{P_C}$$

At Optimal Consumption Point

- We infer that at consumer's optimal consumption point:

$$MRS = \frac{P_F}{P_C}$$

Satisfaction is maximized when:

marginal rate of substitution (of F and C) is equal to the ratio of the prices (of F and C)

Note: this is ONLY true at the optimal consumption point

Summary of Today & plan for the next lecture

- Ch. 3 (continued)
- Consumer preferences: an application
- Consumer utility
- Utility function
 - Cardinal utility
 - Ordinal utility
- Budget:
 - Budget line
 - Budget constraint
- Budget line changes with
 - Income
 - Prices
- Consumer choices (for the given preferences and income)
 - Optimal Point of the Consumer
- Your preparation: read Ch. 3 and 4
- Next lecture
- The Determination of Optimal Consumer Point
 - $MC = MB$ (Marginal cost equals Marginal benefit)
- Marginal Utility and Maximal Consumer Satisfaction
- Have a Nice Day