LECTURE 8
MIDTERM RECAP
CONCEPTS OF COST
COST IN THE SHORT RUN

Question 1: Fixed Cost vs. Sunk Cost

- Suppose you rent a plant for production
  - The monthly rent is $10,000
- Suppose you want to temporarily shut down the plant, i.e., produce Q=0
- If you can sublet the plant at the price of $8000, how much is your sunk fixed cost?
- The sunk fixed cost is $2000
  - When you do not produce, you still have to pay $2000 of rent

Question 1: Fixed Cost vs. Sunk Cost

- Suppose the variable cost is Q^2
  - And there is no other fixed cost
- What is the equation of *STC*?
- When $Q>0$

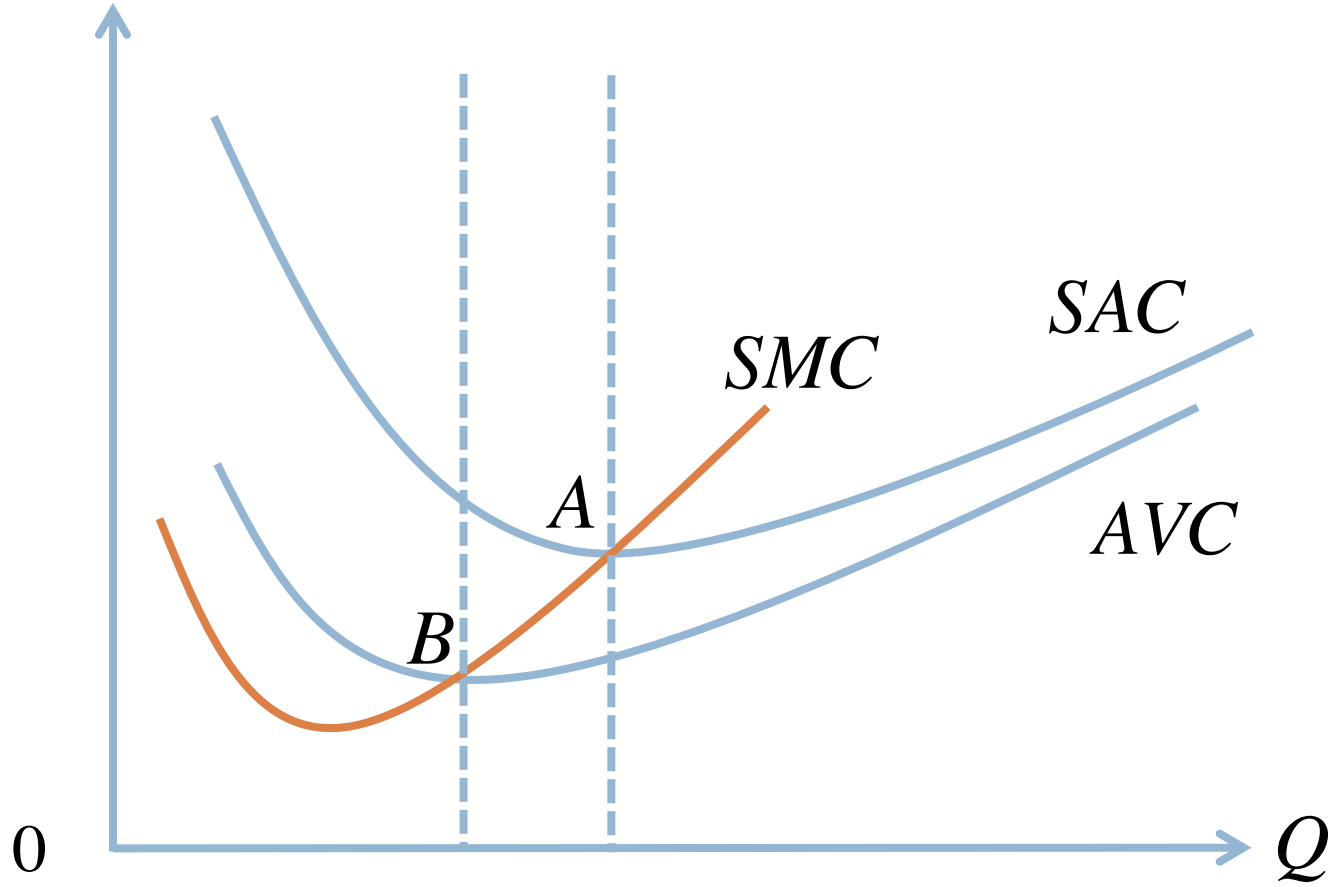
$$STC(Q) = 10000 + Q^2$$

- When $Q=0$

$$STC(Q) = 2000$$

- Can you draw the graph?

Question 2: *SMC* vs. *AVC*



If we differentiate *AVC* w.r.t. *Q*, what do we get?

Question 2: *SMC* vs. *AVC* Solution

- Since

$$AVC(Q) = \frac{VC(Q)}{Q}$$

- We have

$$\frac{dAVC(Q)}{dQ} = \frac{d(\frac{VC(Q)}{Q})}{dQ} = \frac{SMC(Q)Q - VC(Q)}{Q^2} = \frac{SMC(Q) - AVC(Q)}{Q}$$

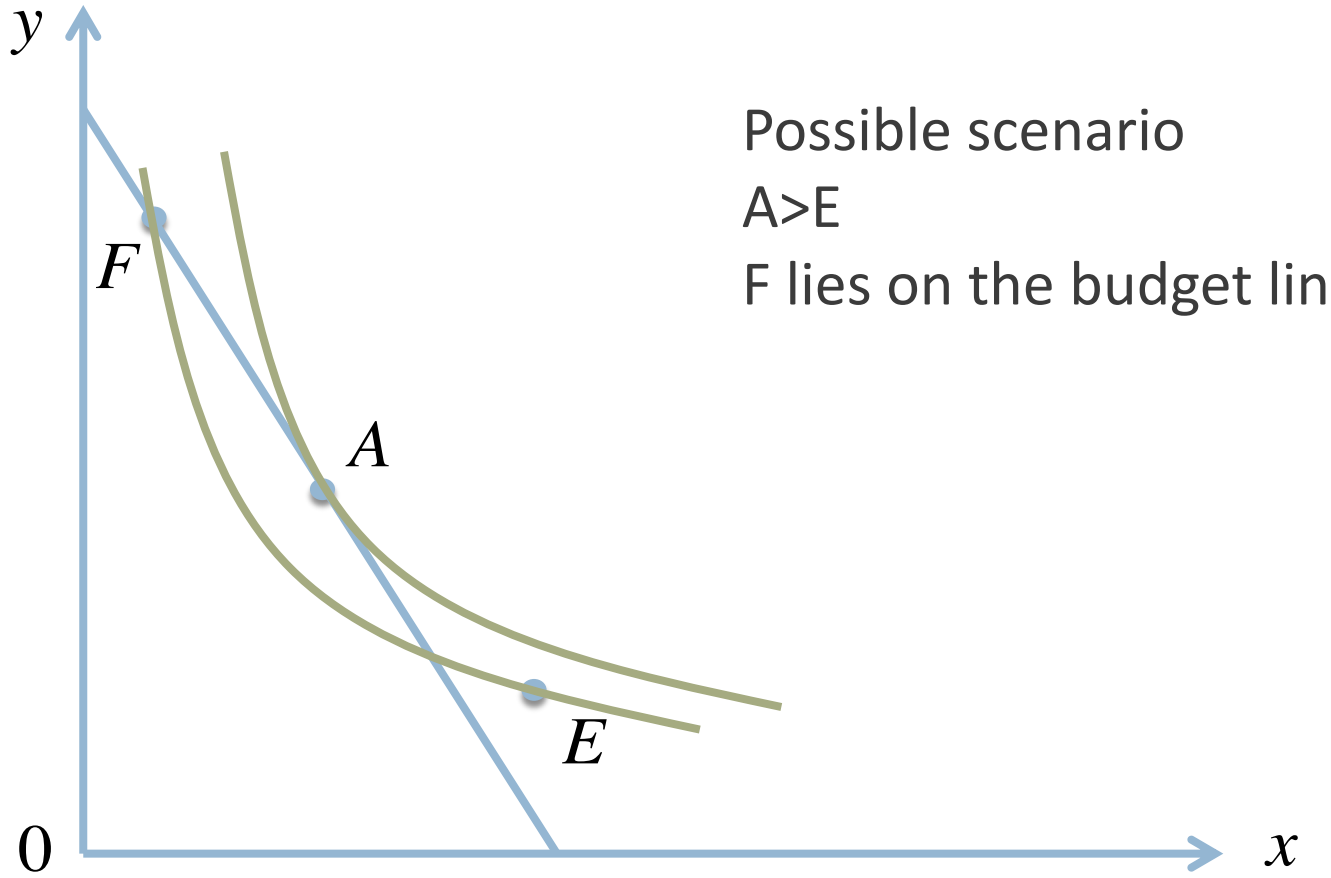
Question 3: Midterm MCQ 4

- A consumer's preference over *x* and *y* satisfies the three assumptions — completeness, transitivity, and more is better. When the price of *x* is $2, the price of *y* is $2, and the consumer's income is $20, the optimal basket is basket A. Consider two baskets, E and F. Suppose basket E costs more than $20, and basket A is strictly preferred to basket F. Which of the following scenarios is possible?
- What is this question about?
  - Revealed preference
  - Logic

Question 3: Midterm MCQ 4 Cont'

- Two conclusions from revealed preference
  - If A is optimal, and if E>A, E should lie above the budget line
  - If A is optimal, and if F lies below the budget line, A>F
- How about the reverse?
  - If E lies above the budget line, can we conclude that E>A?
  - If A>F, can we conclude that F lies below the budget line?
- The answer should be no

Question 3: Midterm MCQ 4 Solution

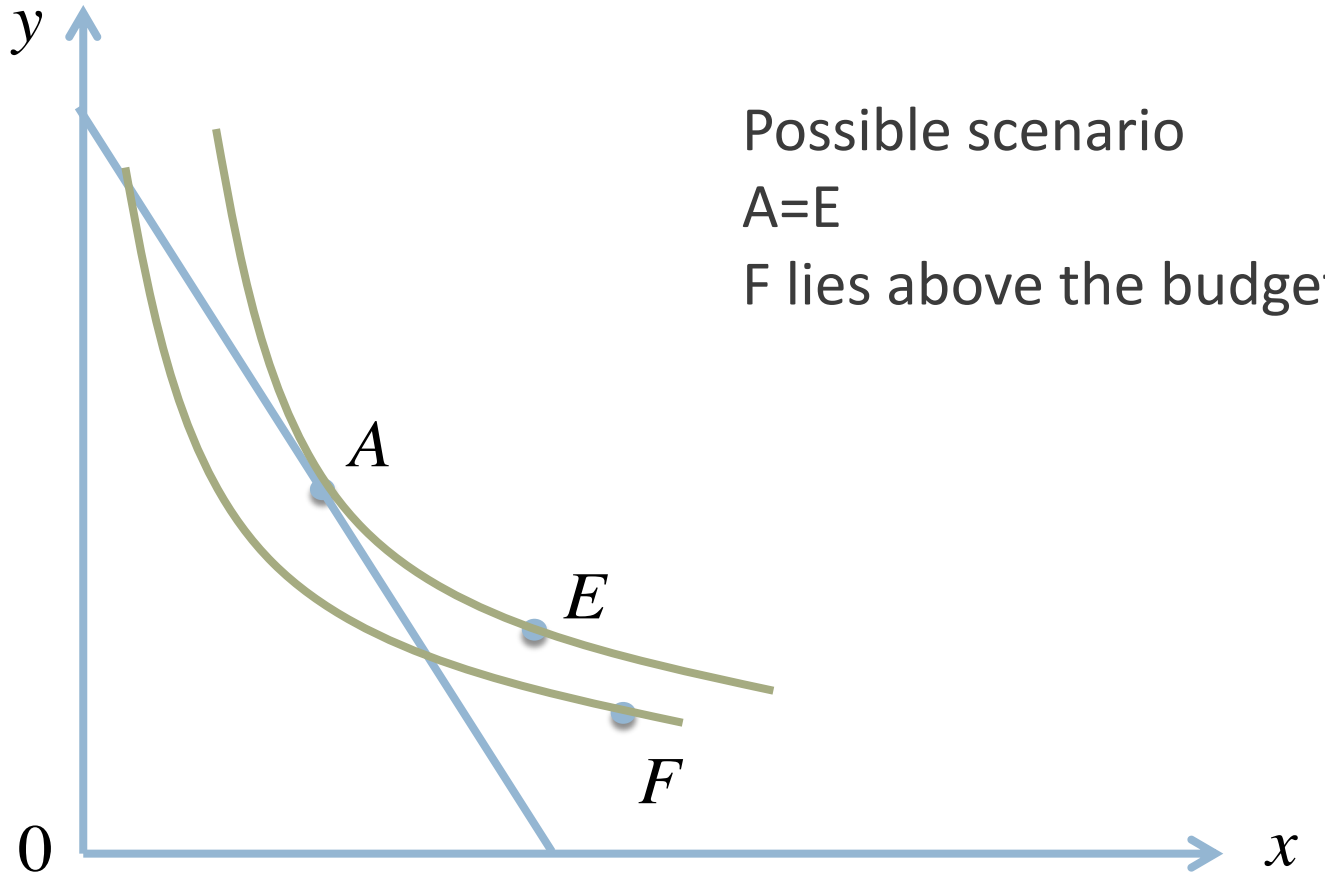


Possible scenario

A>E

F lies on the budget line

Question 3: Midterm MCQ 4 Solution



Possible scenario

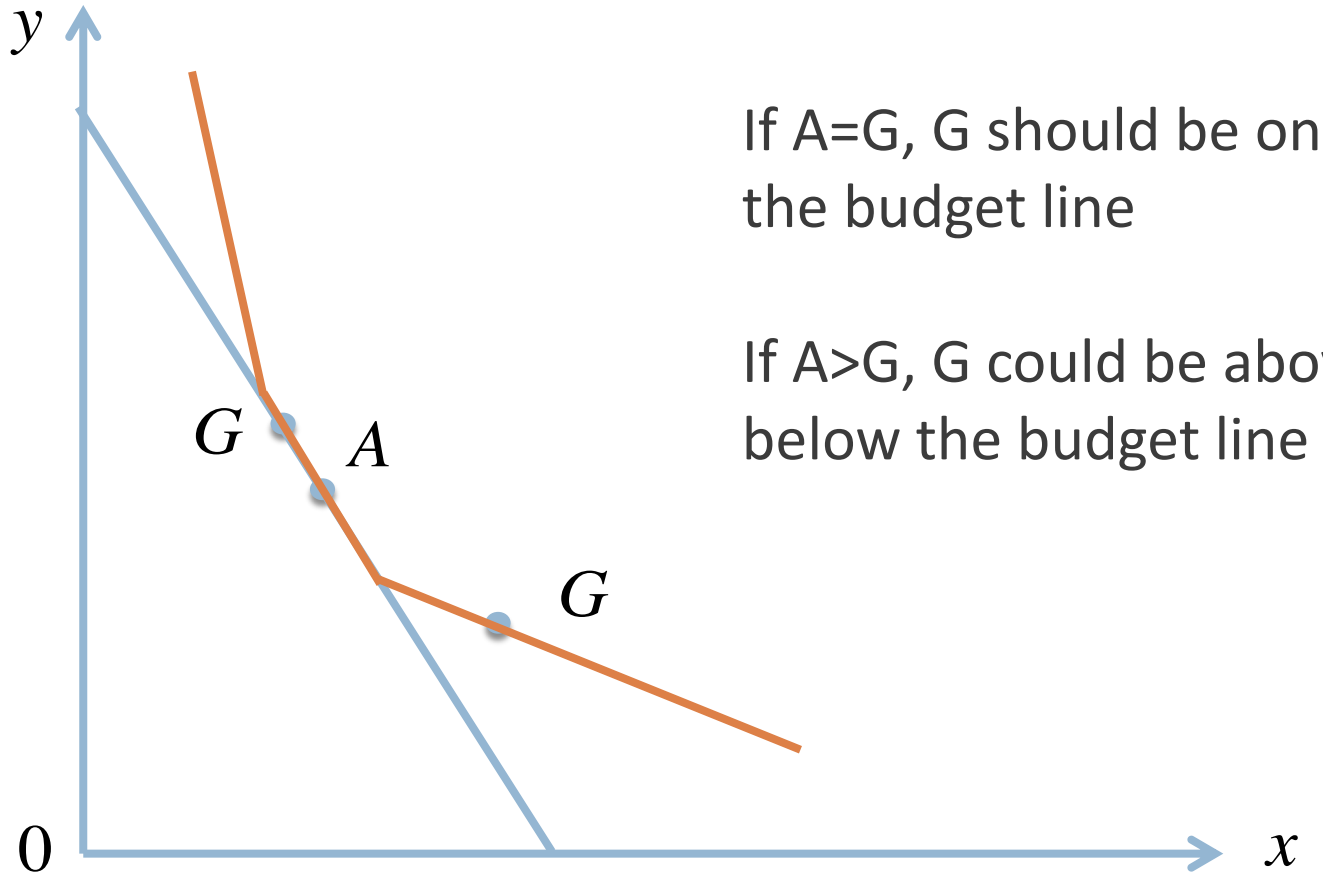
A=E

F lies above the budget line

Question 3: Midterm MCQ 4 Cont'

- Suppose A is the optimal basket, and A>=G
- Where is basket G?
- Our conclusion from revealed preference
  - If A is optimal, and if G lies on the budget line, A>=G
- The reverse is not true

Question 3: Midterm MCQ 4 Solution



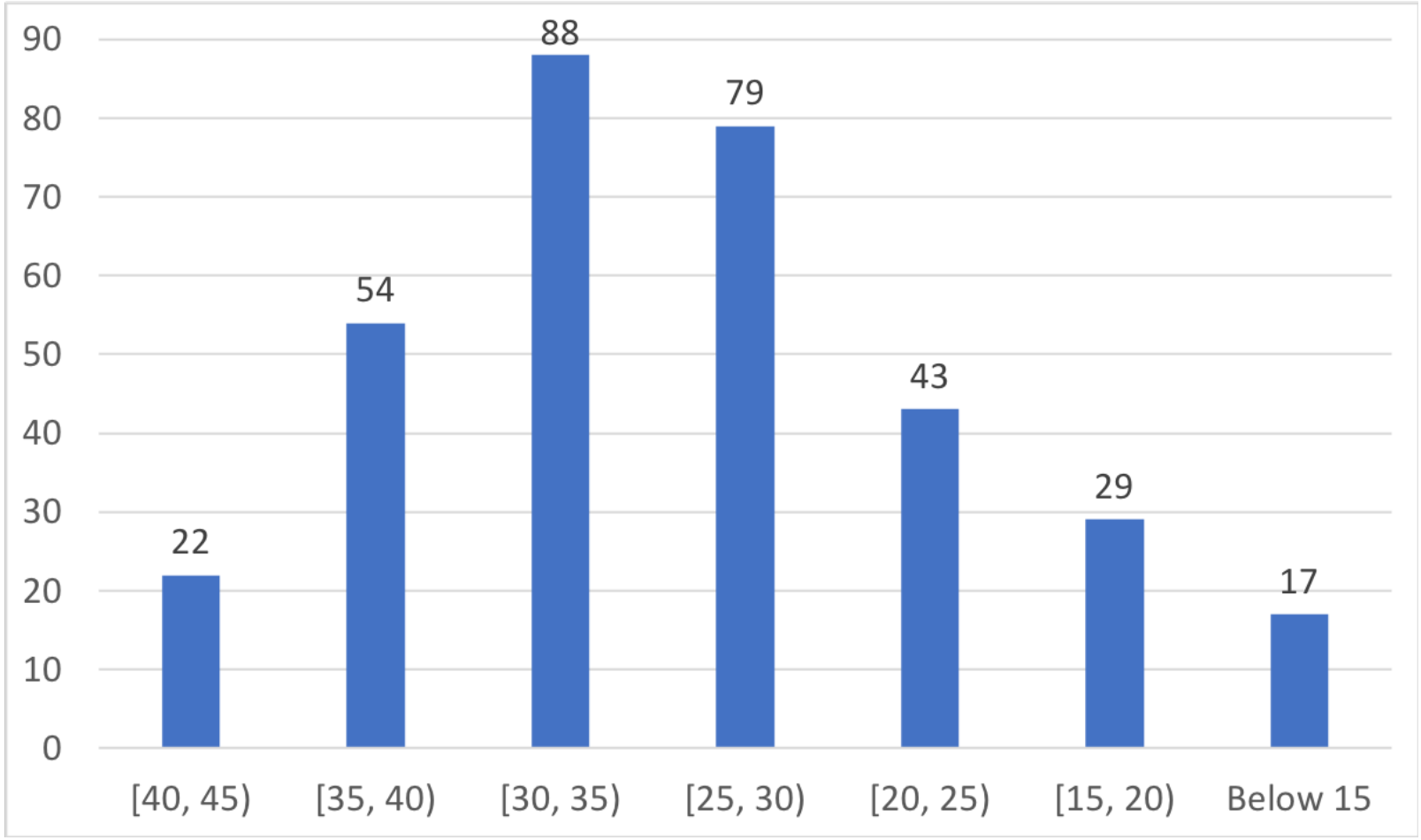
If A=G, G should be on or above the budget line

If A>G, G could be above, on, or below the budget line

Midterm Statistics

Median	29.5
Mean	29
Standard Deviation	7.6
Highest Score	44.5
75^{th} Percentile	34
25^{th} Percentile	24.5

Midterm Distribution



Midterm Statistics by Question

- MCQ (18 marks)
  - Mean: 10.2; Median: 9
- Q1 (9 marks)
  - Mean: 6.6; Median: 6.5
- Q2 (11 marks)
  - Mean: 7; Median: 7
- Q3 (12 marks)
  - Mean: 5.2; Median: 5.5

Q&A on Lecture 8