

# LECTURE 9

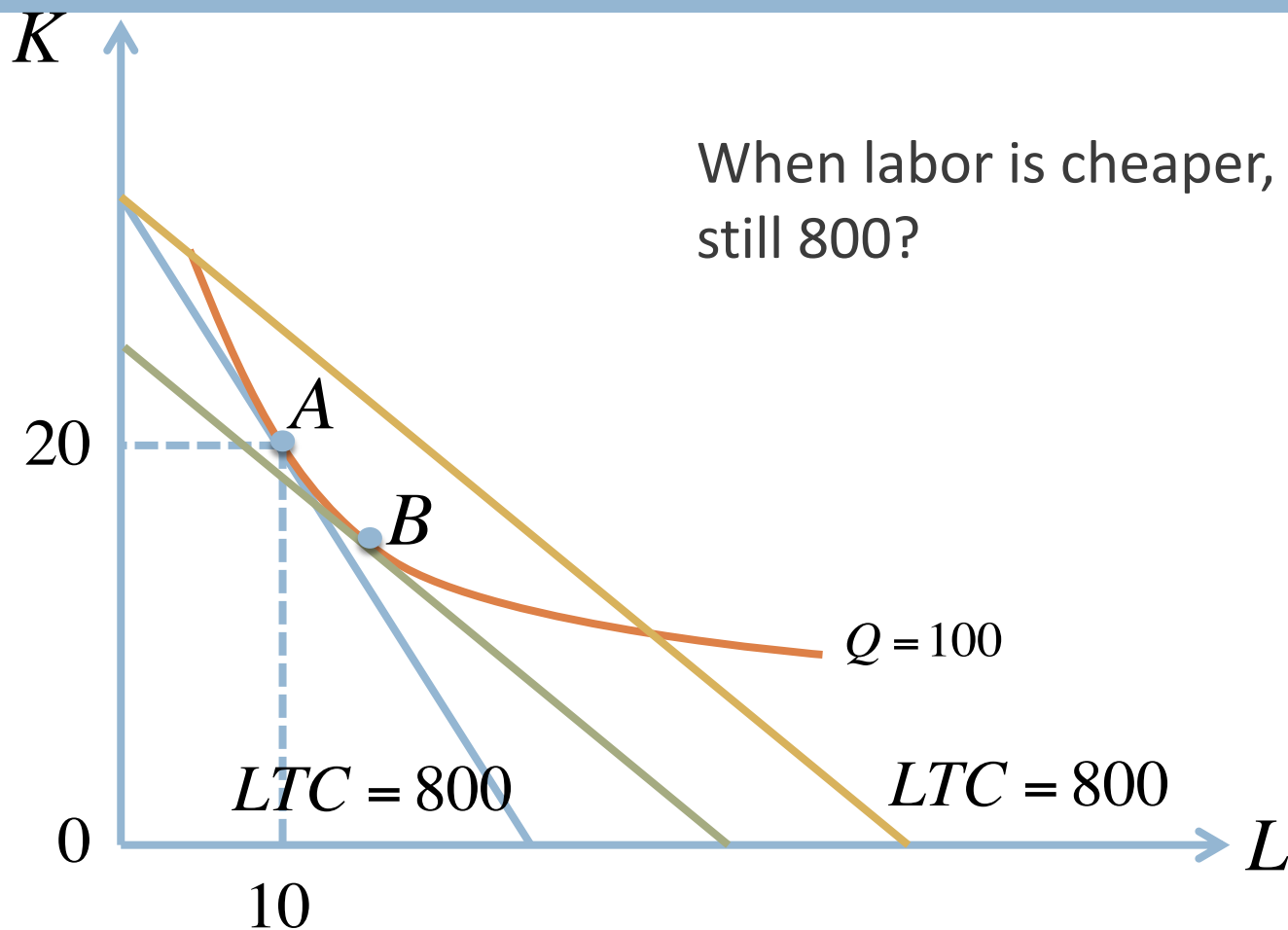
## COST IN THE LONG RUN

### SHORT-RUN COST VS. LONG-RUN COST



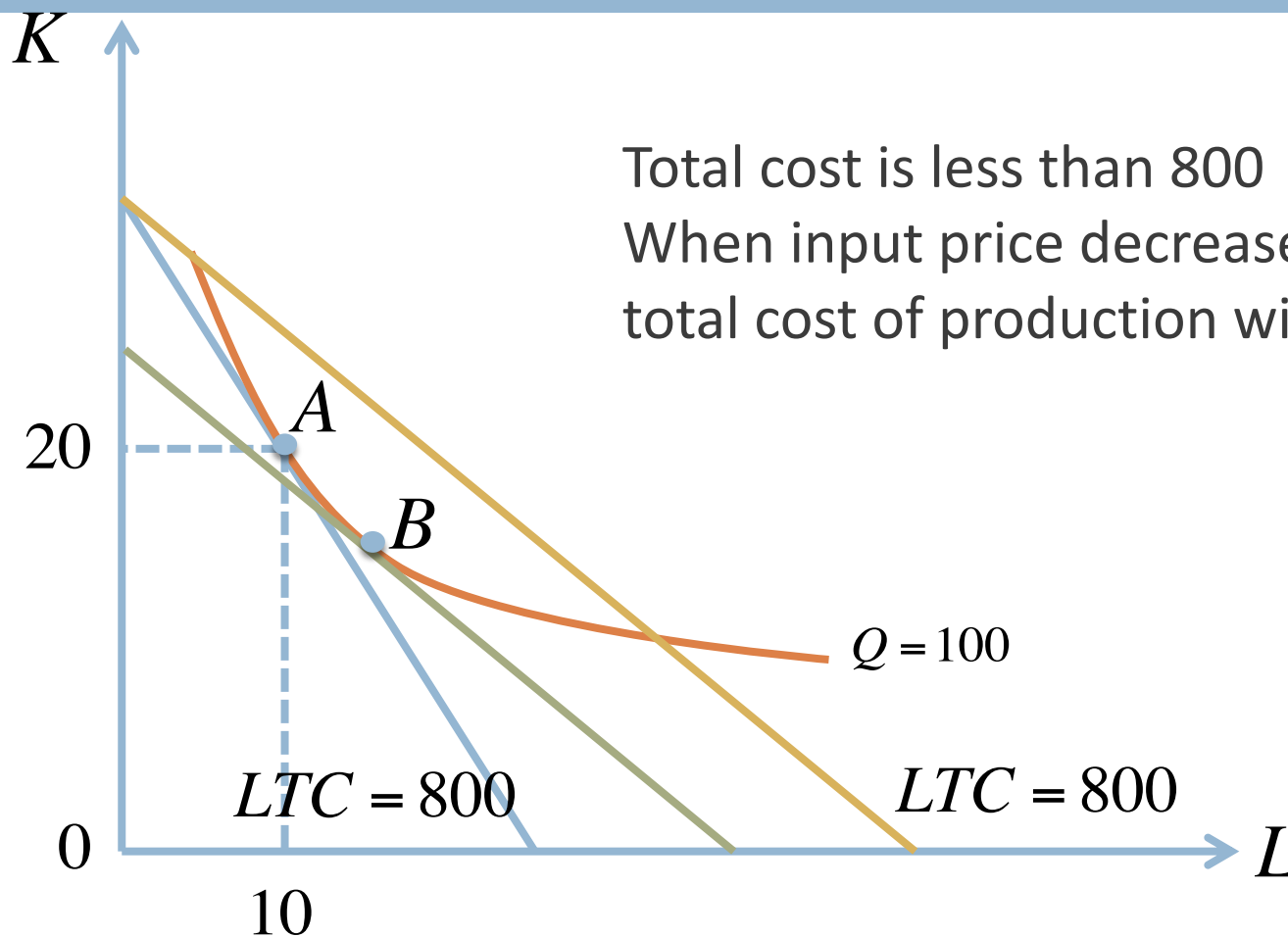
# Question 1: Input Price and $LTC$

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# Question 1: Solution

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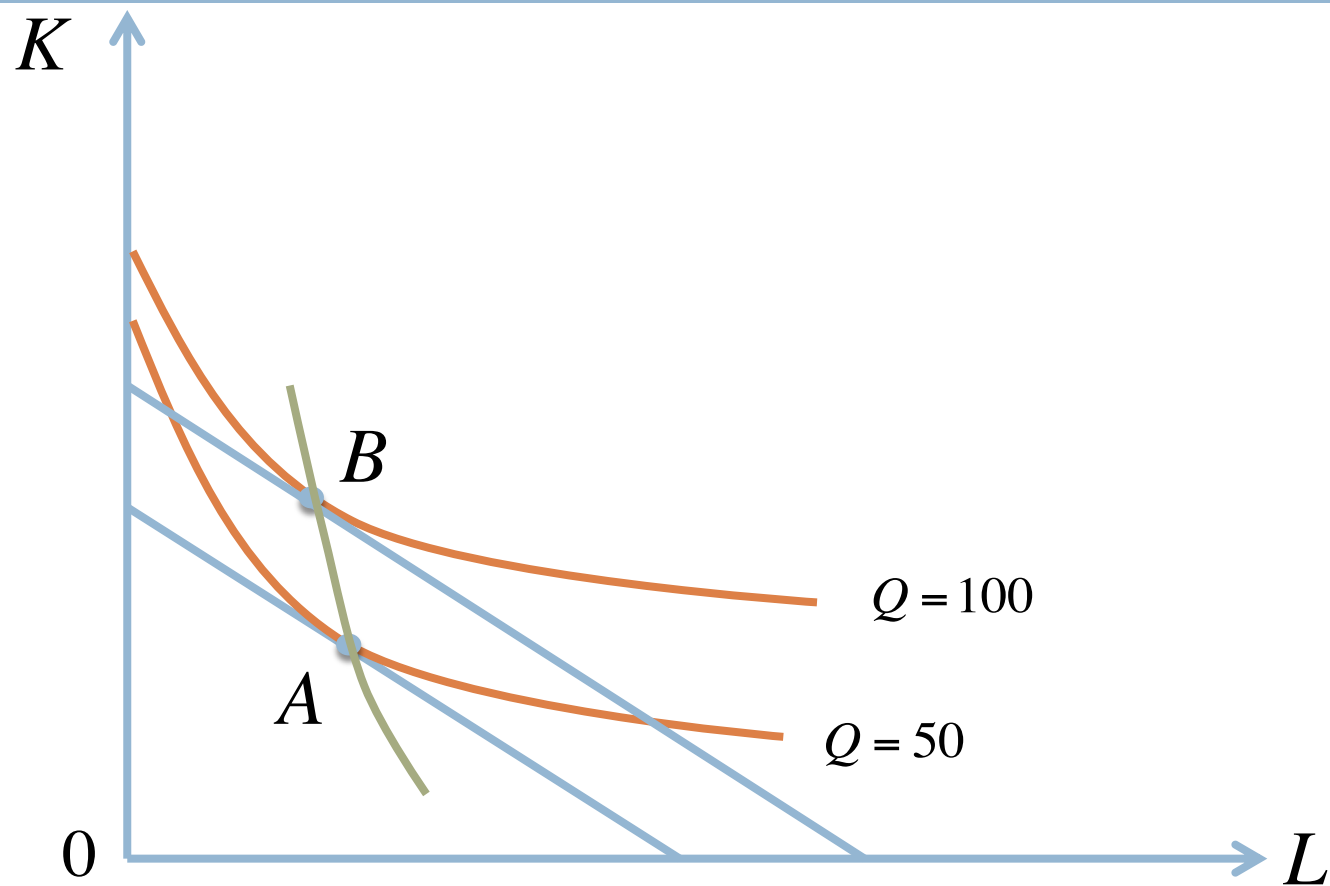
# Question 2: Expansion Path with Inferior Input

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- Definition 9.2 *Inferior input*
  - ▣ The cost-minimizing quantity of the input decreases when output increases
  - ▣ Holding input prices fixed
- Suppose labor is inferior and capital is normal
- Is the long-run expansion path downward sloping or upward sloping?

# Question 2: Solution

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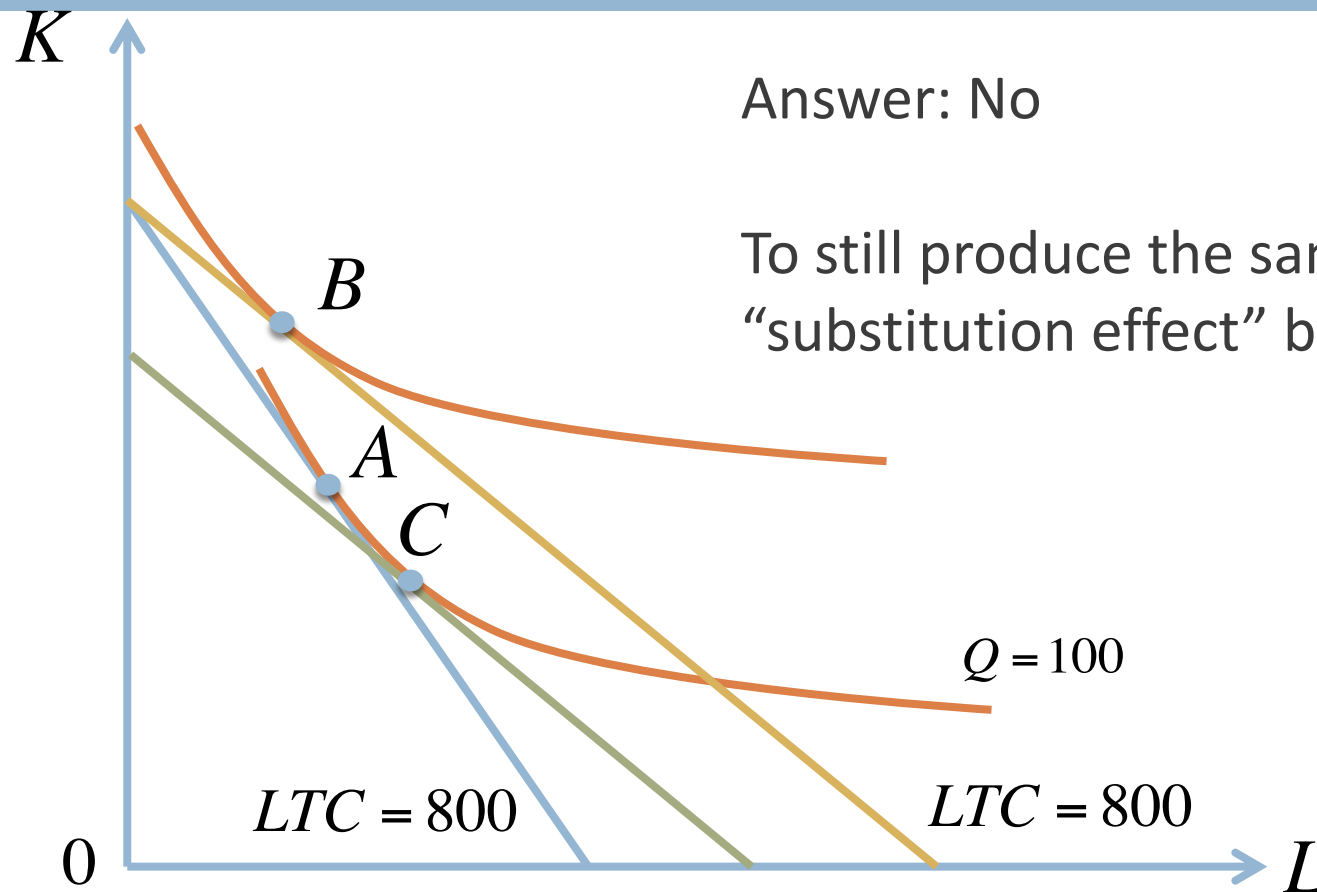
# Question 3: Giffen Input

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- In consumer theory, we have Giffen goods
  - ▣ When price decreases, consumption of the Giffen good drops
- Do we have Giffen inputs?
- Is it possible for labor to be a Giffen input?
  - ▣ That is, when labor becomes cheaper, to produce the same quantity of output, the firm uses less labor?

# Question 3: Solution

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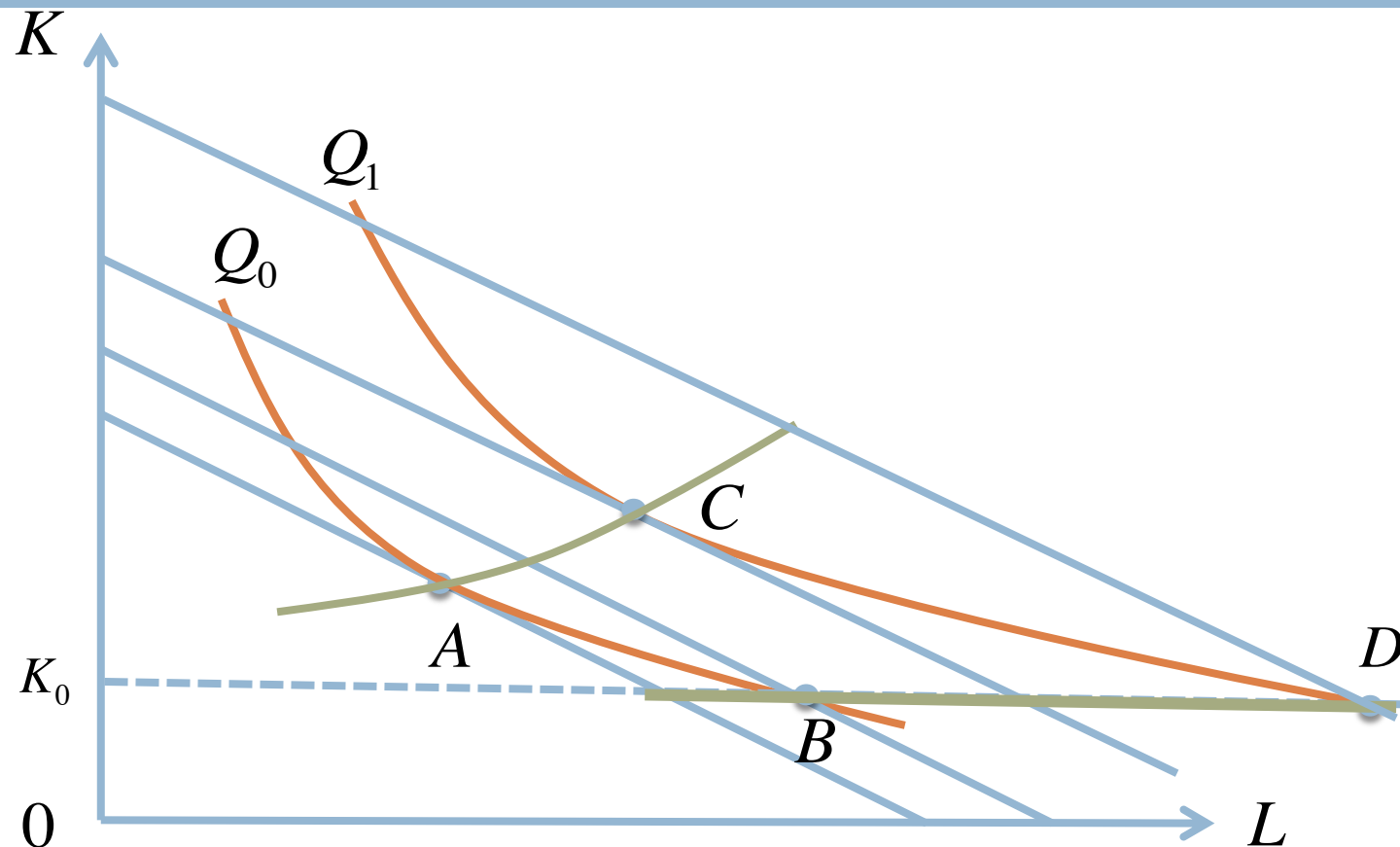


Answer: No

To still produce the same  $Q$ , there is  
“substitution effect” but no “income effect”

# Question 4: Short-Run Cost-Minimizing Choice of Inputs

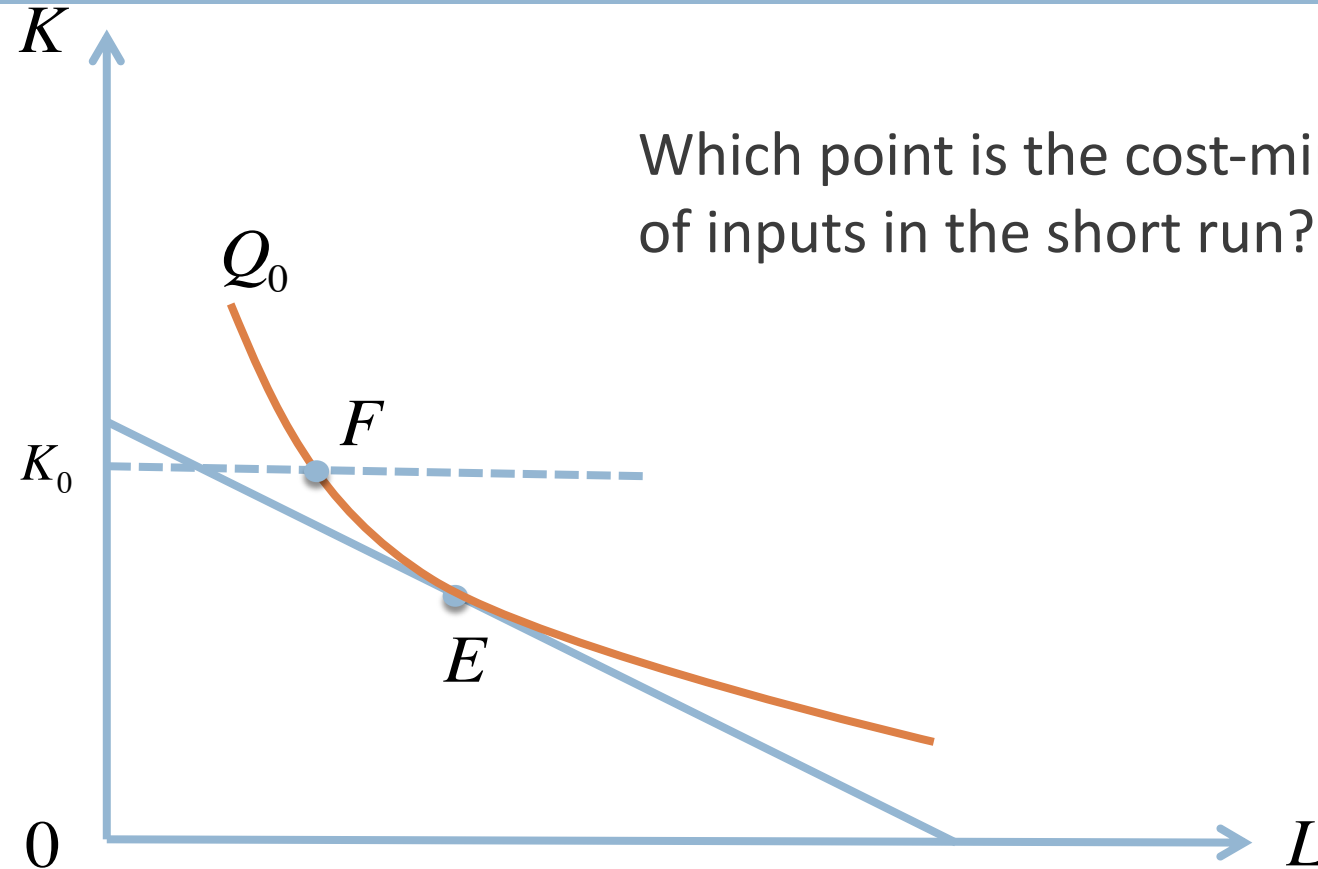
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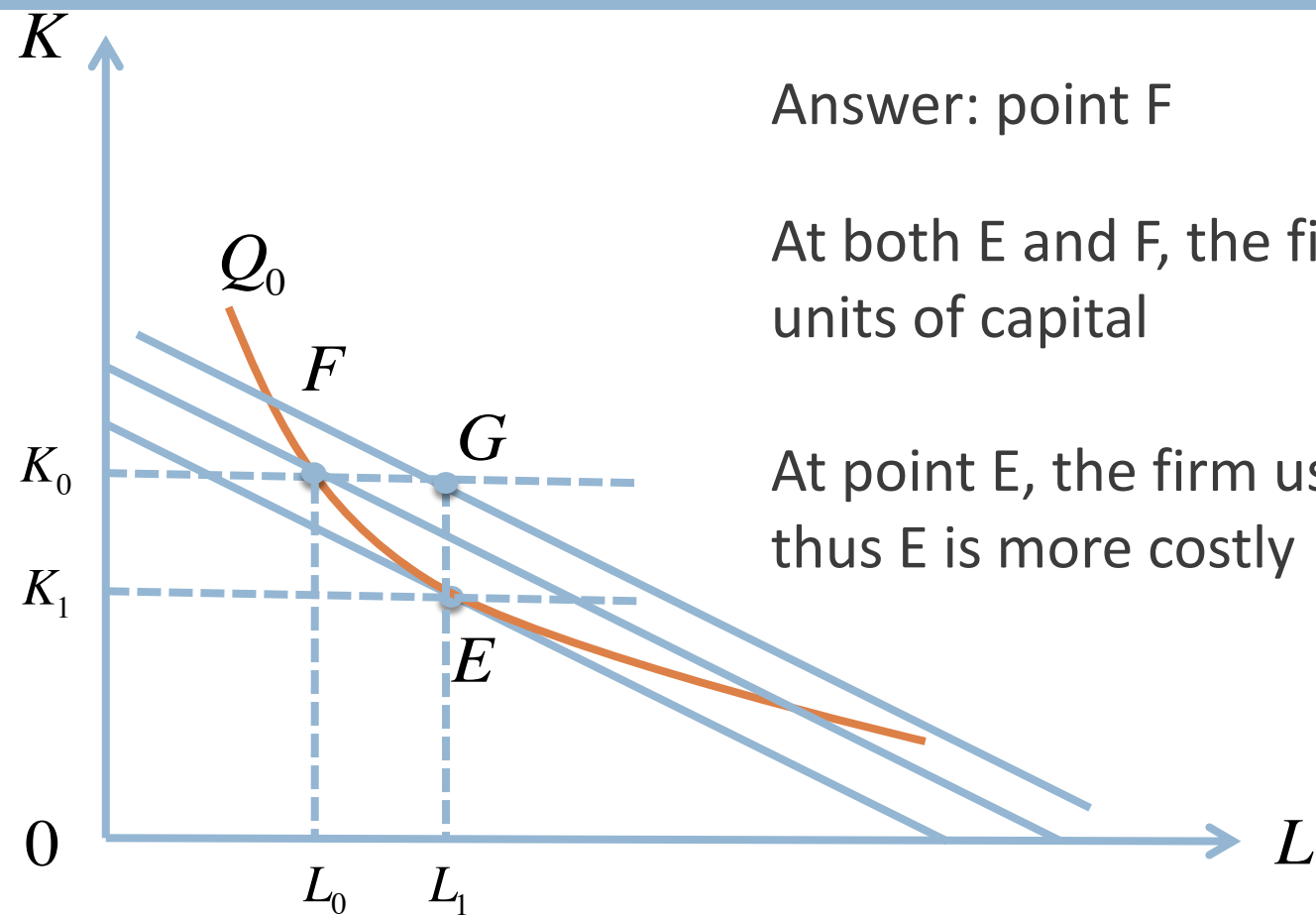
# Question 4: Short-Run Cost-Minimizing Choice of Inputs Cont'

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# Question 4: Solution

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Answer: point F

At both E and F, the firm pays for  $K_0$  units of capital

At point E, the firm uses more labor, thus E is more costly

# Q&A on Lecture 9