PERTEMUAN 7

TEORI DAN ESTIMASI BIAYA

POKOK BAHASAN

7.1. Ragam Biaya
7.2. Fungsi Biaya Jangka Pendek
7.3. Fungsi Biaya Jangka Panjang
7.4. Kurva Pembelajaran
7.5. Minimisasi Biaya Secara Internasional
7.6. Manajemen Logistik atau Pasok Berantai
7.7. Analisis Biaya-Volume-Laba
7.8. Estimasi Fungsi Biaya

7.1. Ragam Biaya

- Biaya Eksplisit
  - Biaya Akuntansi
- Biaya Ekonomi
  - Biaya Implisit
  - Biaya Alternatif atau Oportunitas
- Biaya Relevan
  - Biaya Incremental
  - Biaya terbenam (sunk costs) tidak relevan

7.2. Fungsi Biaya Jangka Pendek

Total Cost = TC = f(Q)

Total Fixed Cost = TFC

Total Variable Cost = TVC

TC = TFC + TVC

Fungsi Biaya Jangka Pendek

Average Total Cost = ATC = TC/Q

Average Fixed Cost = AFC = TFC/Q

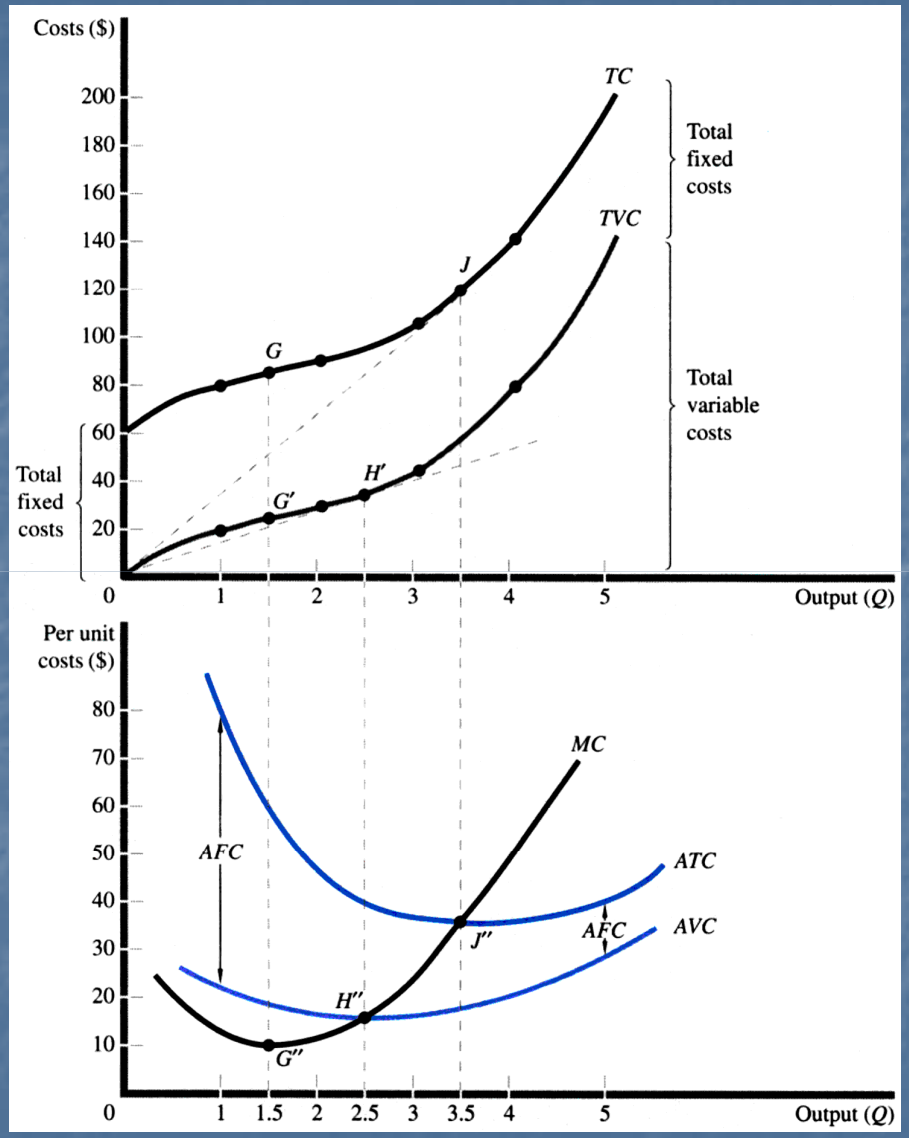
Average Variable Cost = AVC = TVC/Q

ATC = AFC + AVC

Marginal Cost = ΔTC/ΔQ = ΔTVC/ΔQ

Fungsi Biaya Jangka Pendek

Q	TFC	TVC	TC	AFC	AVC	ATC	MC
0	$60	$0	$60	-	-	-	-
1	60	20	80	$60	$20	$80	$20
2	60	30	90	30	15	45	10
3	60	45	105	20	15	35	15
4	60	80	140	15	20	35	35
5	60	135	195	12	27	39	55


Costs ($)
200
180
160
140
120
100
80
60
40
20
0
1
2
3
4
5
Output (Q)
TC
TVC
Total fixed costs
Total variable costs
Total fixed costs
J
G
H′
G′
Per unit costs ($)
80
70
60
50
40
30
20
10
0
1
1.5
2
2.5
3
3.5
4
5
Output (Q)
MC
ATC
AVC
AFC
AFC
J″
H″
G″

Fungsi Biaya Jangka Pendek

Average Variable Cost

$AVC = TVC/Q = w/AP_L$

Marginal Cost

$\Delta TC/\Delta Q = \Delta TVC/\Delta Q = w/MP_L$

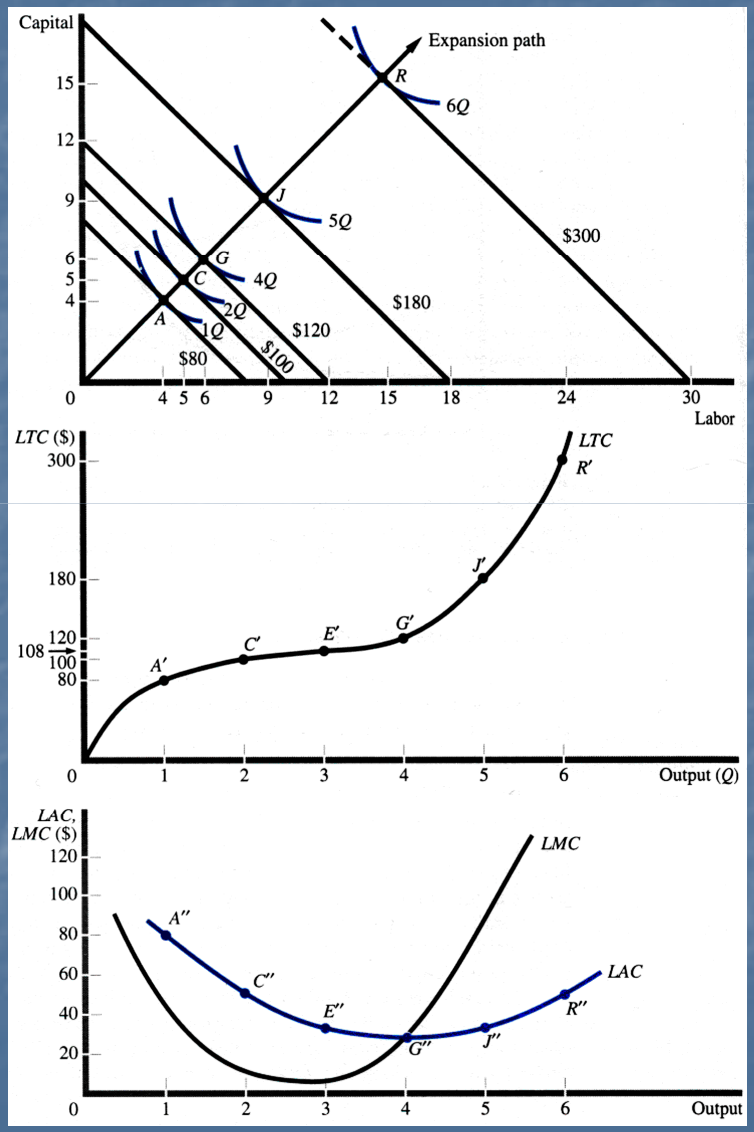
7.3. Fungsi Biaya Jangka Panjang

Long-Run Total Cost = LTC = f(Q)

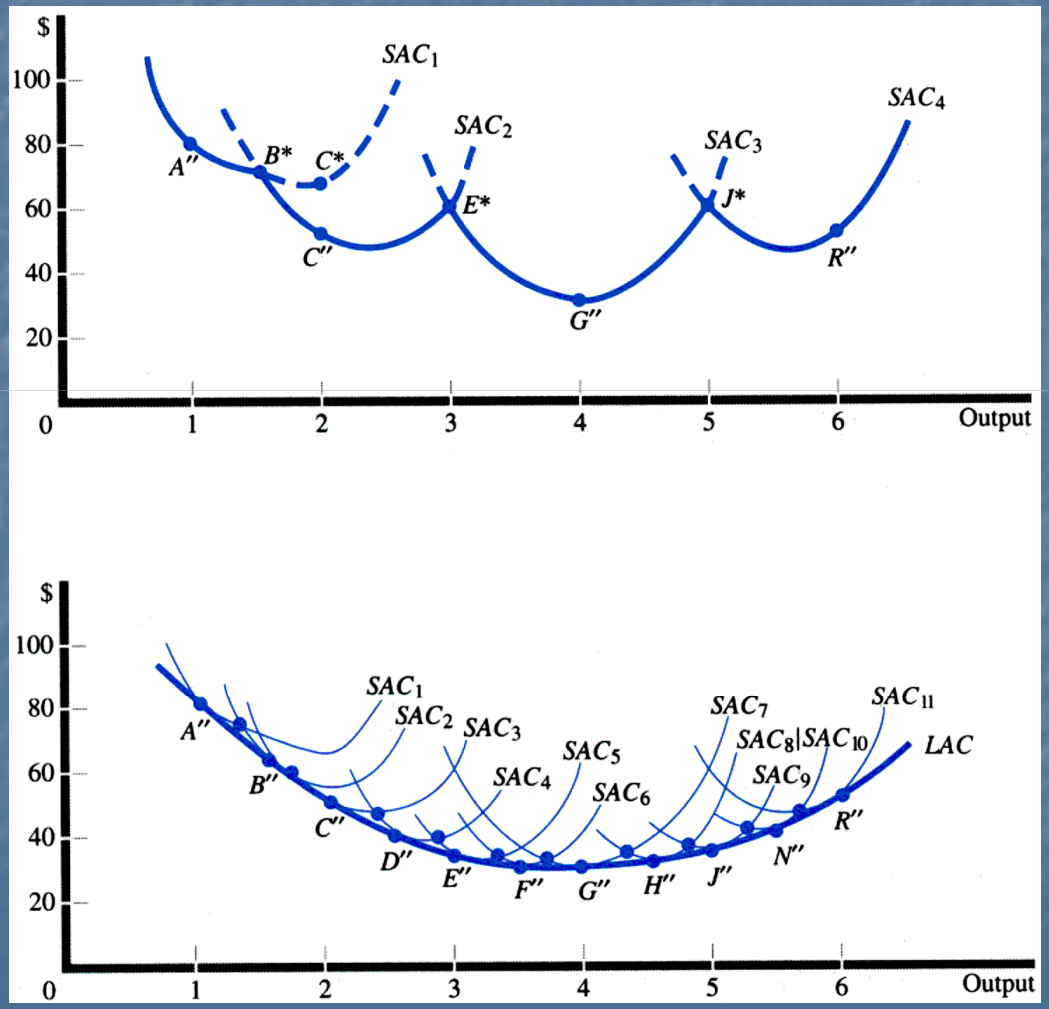
Long-Run Average Cost = LAC = LTC/Q

Long-Run Marginal Cost = LMC = ΔLTC/ΔQ

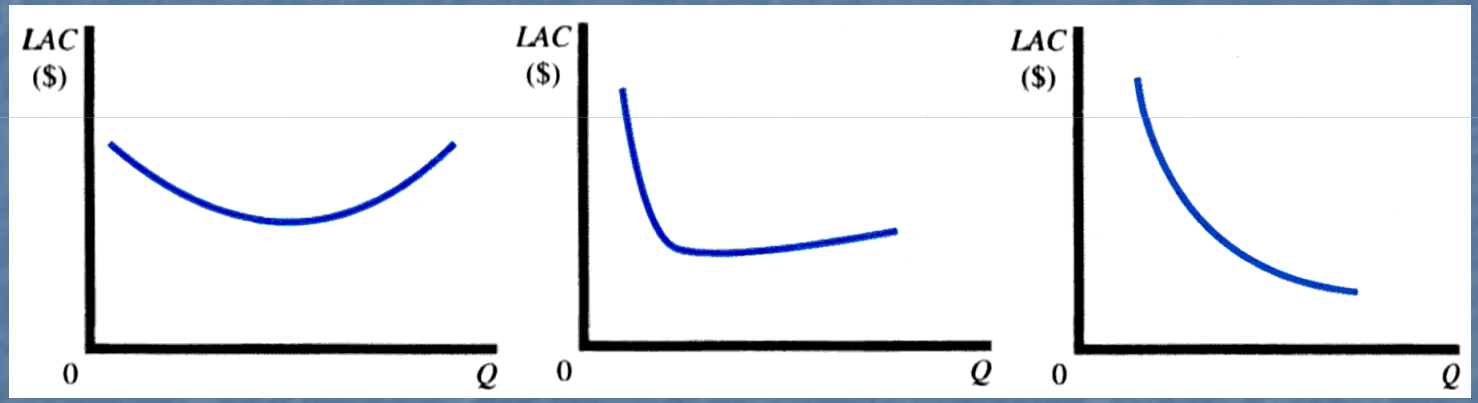
Derivasi Kurva Biaya Jangka Panjang



Hubungan antara Kurva Biaya Rata-rata Jangka Pendek dan Jangka Panjang



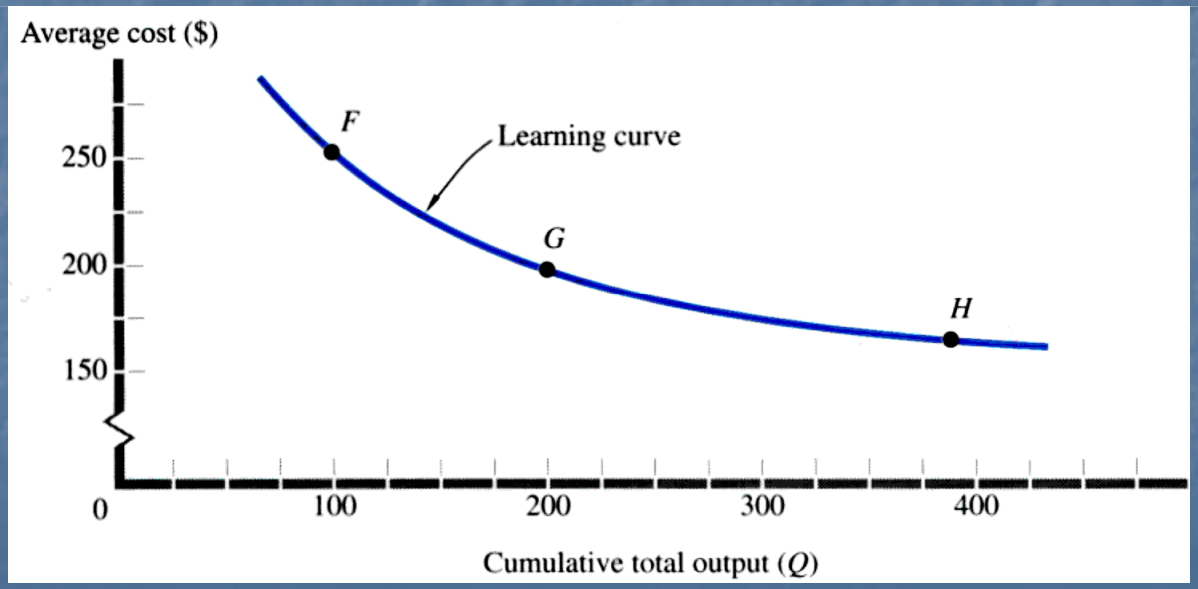
Kemungkinan Bentuk Kurva Biaya Rata-rata Jangka Panjang



7.4. Kurva Pembelajaran

Biaya Rata-rata per Unit Q = C = aQ^b

Bentuk Logaritma: log C = log a + b Log Q



7.5. Minimisasi Biaya Secara Internasional

- Foreign Sourcing of Inputs
- New International Economies of Scale
- Immigration of Skilled Labor
- Brain Drain

7.6. Manajemen Logistik atau Pasok Berantai

- Fungsi penggabungan dan integrasi
  - Pembelian
  - Transportasi
  - Gudang
  - Distribusi
  - Pelayanan Pelanggan
- Sumber keunggulan kompetitif

Manajemen Logistik atau Pasok Berantai

- Alasan untuk pertumbuhan logistik
  - Kemajuan teknologi komputer
    - Penurunan biaya penyelesaian masalah logistik
  - Perkembangan manajemen persediaan just-in-time
    - Kebutuhan pengawasan yang meningkat dan pengelolaan alur input dan output
  - Globalisasi produksi dan distribusi
    - Kompleksitas alur input dan ouput yang meningkat

7.7. Analisis Biaya-Volume-Laba

Total Revenue = TR = (P)(Q)

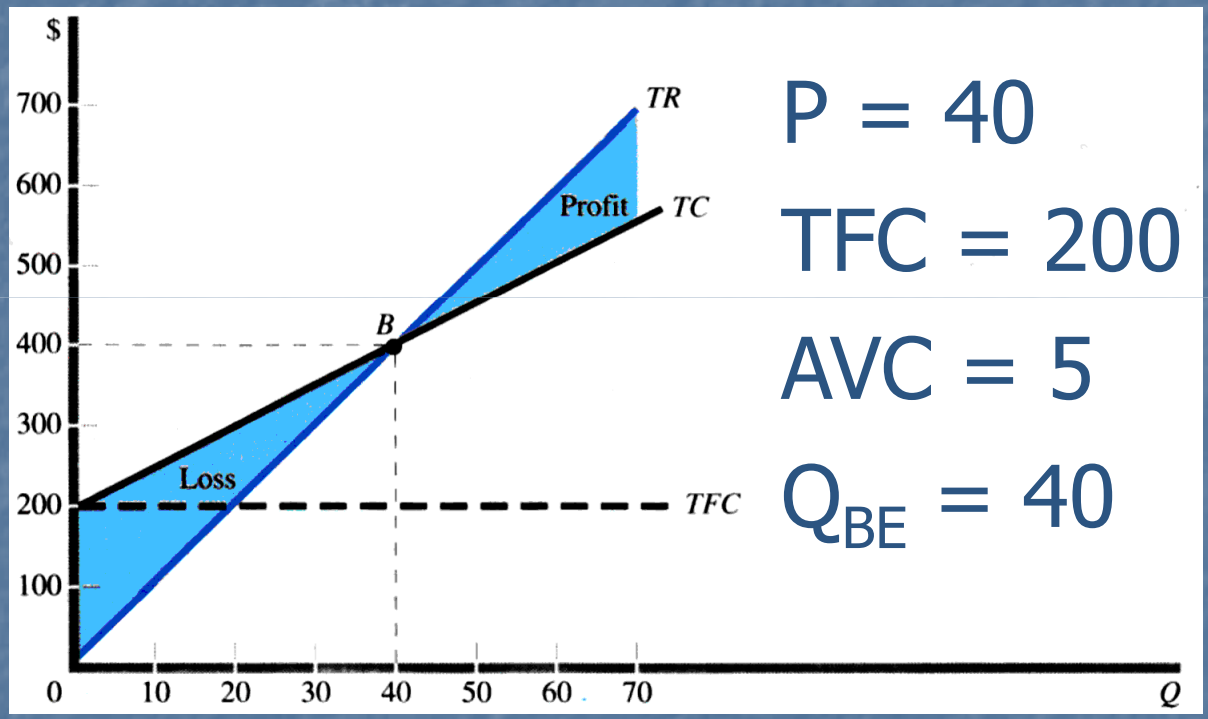
Total Cost = TC = TFC + (AVC)(Q)

Breakeven Volume TR = TC

(P)(Q) = TFC + (AVC)(Q)

Q_{BE} = TFC/(P - AVC)

Analisis Biaya-Volume-Laba



P = 40

TFC = 200

AVC = 5

Q_{BE} = 40

Operating Leverage

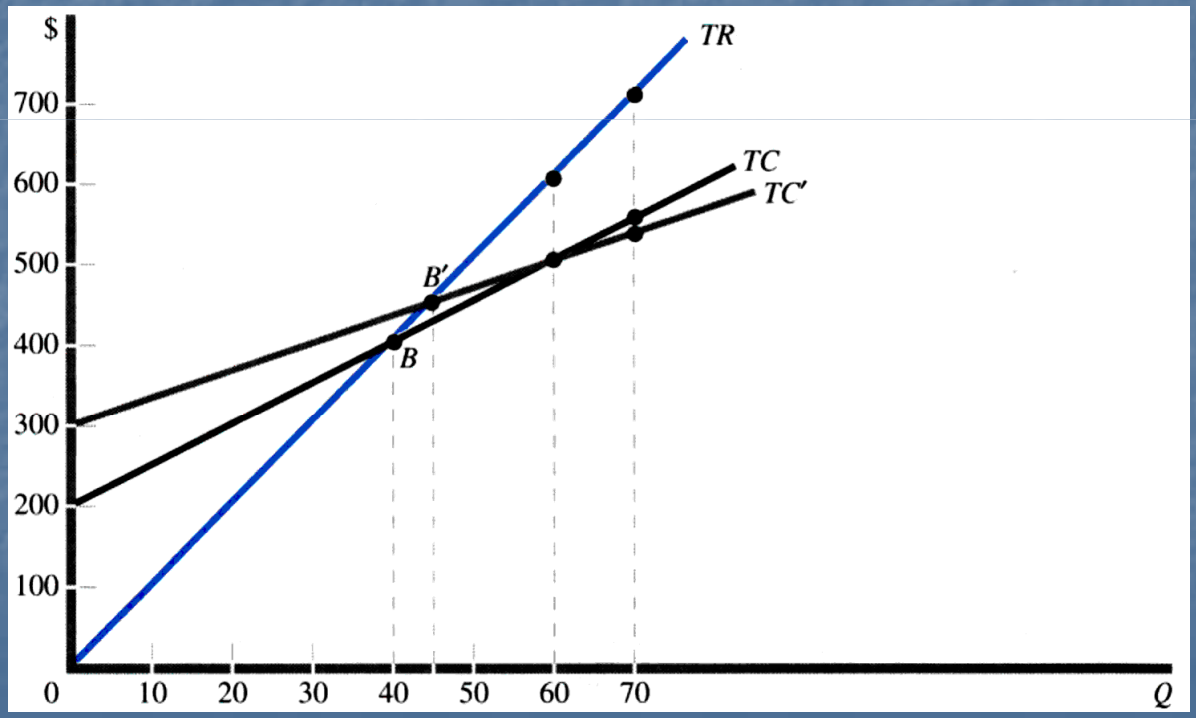
Operating Leverage = TFC/TVC

Degree of Operating Leverage = DOL

$$DOL = \frac{\%\Delta\pi}{\%\Delta Q} = \frac{Q(P - AVC)}{Q(P - AVC) - TFC}$$

Operating Leverage

TC' memiliki DOL yang lebih tinggi daripada TC, dan oleh karena itu lebih tinggi dari Q_{BE}



7.8. Estimasi Fungsi Biaya

Permasalahan dalam pengumpulan data

- Biaya oportunitas harus dipisahkan dari data biaya akuntansi
- Biaya harus dibagi diantara produk
- Biaya harus disesuaikan dengan output sepanjang waktu
- Biaya harus dikoresi terhadap inflasi

Estimasi Fungsi Biaya

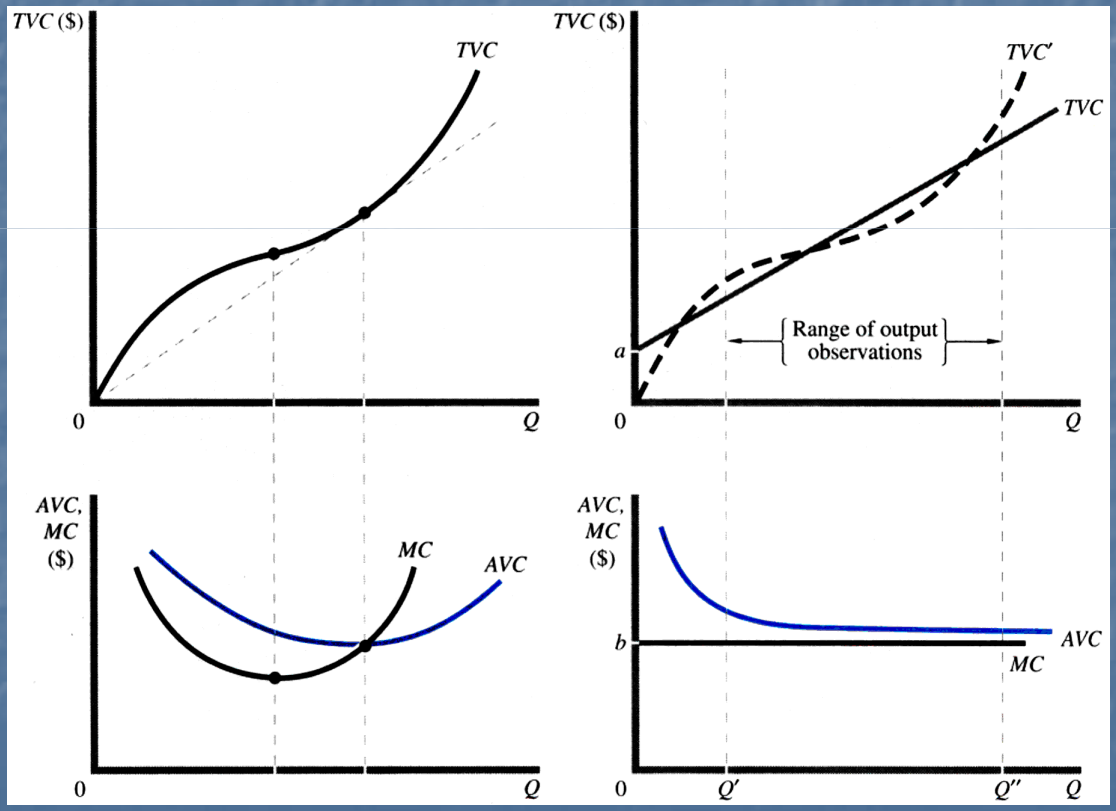
Bentuk Fungsi untuk Fungsi Biaya Jangka Pendek

Bentuk Teoritis	Pendekatan Linier
$TVC = aQ + bQ^2 + cQ^3$	$TVC = a + bQ$
$AVC = \frac{TVC}{Q} = a + bQ + cQ^2$	$AVC = \frac{a}{Q} + b$
$MC = a + 2bQ + 3cQ^2$	$MC = b$

Estimasi Fungsi Biaya

Bentuk Teoritis

Pendekatan Linier



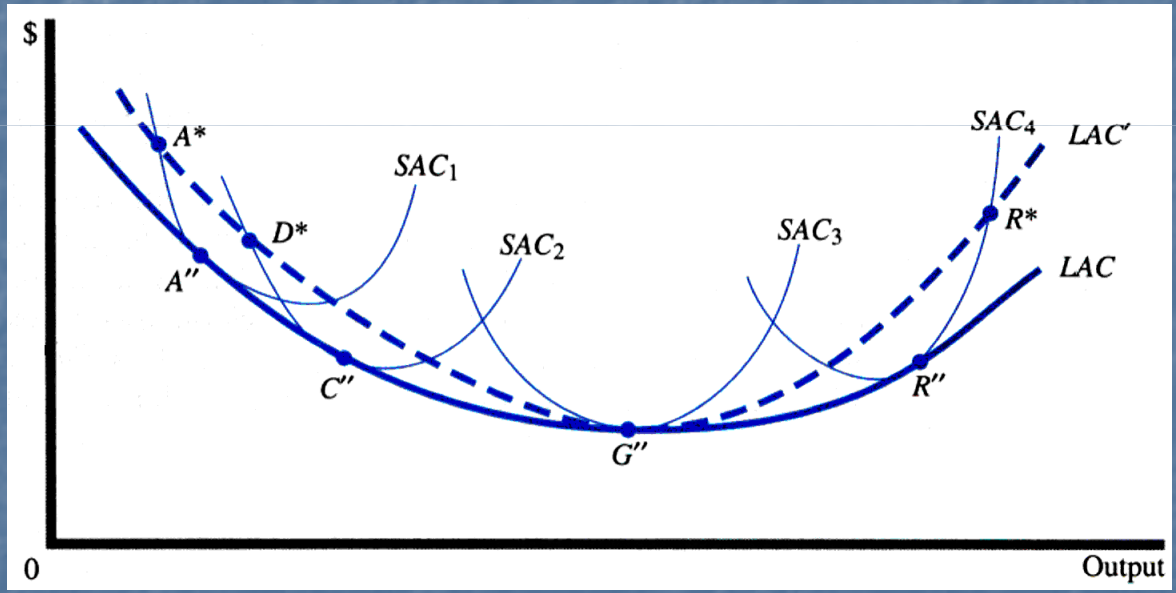
Estimasi Fungsi Biaya

Kurva Biaya Jangka Panjang

- Cross-Sectional Regression Analysis
- Engineering Method
- Survival Technique

Estimasi Fungsi Biaya

LAC aktual versus hasil estimasi LAC'



LATIHAN 7

1. Fairweather Construction, Inc., has the following short-run total cost schedule:

Q	0	1	2	3	4	5	6	7	8	9	10	11
TC	100	106	109	110	112	115	119	124	130	137	145	155

   (i) What is the firm's average fixed cost when Q = 5?

   (ii) What is the firm's average variable cost when Q = 4?

   (iii) What is the firm's average total cost when Q = 4?

   (iv) What is the firm's marginal cost when Q = 10?

   (v) At what level of output does the firm begin to experience diminishing returns?

2. Fairview Construction, Inc., has the following short-run total cost schedule:

Q	0	1	2	3	4	5	6	7	8	9	10	11
TC	50	58	62	64	65	67	71	78	88	102	121	146

(i) What is the firm's average fixed cost when Q = 5?

(ii) What is the firm's average variable cost when Q = 7?

(iii) What is the firm's average total cost when Q = 8?

(iv) What is the firm's marginal cost when Q = 9?

(v) At what level of output does the firm begin to experience diminishing returns?

3. Oceanview Construction, Inc., has the following short-run total cost schedule:

Q	0	1	2	3	4	5	6	7	8	9	10	11
TC	75	85	91	94	95	98	104	114	129	151	181	221

(i) What is the firm's average fixed cost when Q = 5?

(ii) What is the firm's average variable cost when Q = 4?

(iii) What is the firm's average total cost when Q = 10?

(iv) What is the firm's marginal cost when Q = 8?

(v) At what level of output does the firm begin to experience diminishing returns?

4. Farview Construction, Inc., has the following short-run total cost schedule:

Q	0	1	2	3	4	5	6	7	8	9	10	11
TC	30	38	43	46	48	52	59	70	87	112	147	197

   (i) What is the firm's average fixed cost when Q = 10?
   (ii) What is the firm's average variable cost when Q = 4?
   (iii) What is the firm's average total cost when Q = 7?
   (iv) What is the firm's marginal cost when Q = 9?
   (v) At what level of output does the firm begin to experience diminishing returns?

5. Tetrangle Manufacturing has fixed costs of $2,160 per day. The firm manufactures bicycle component upgrade kits. The kits have a short-run average variable cost of $48 and are sold for $66 each.

   (i) What is the breakeven level of daily output for the firm?
   (ii) What is the degree of operating leverage when daily output is Q = 170?

6. Triangle Manufacturing has fixed costs of $2,000 per week. The firm manufactures tricycle kits. The kits have a short-run average variable cost of $25 and are sold for $35 each.

   (i) What is the breakeven level of weekly output for the firm?

   (ii) What is the degree of operating leverage when weekly output is Q = 250?

7. Bob and Bill are college students. They are trying to decide what to do over the next summer. Bob's father has suggested that they both come and work at his plastics manufacturing company where each will earn $3,600 over the summer. Bill's father, who runs the local farmer's market, suggests that they go to a local resort area and sell fresh fruit and vegetables to tourists. Their markup on the produce would be twenty-five percent, so each $1.00 of revenue would involve a variable cost of $0.80. In addition to purchasing the produce, they would have to rent a location. The cost to rent a small roadside stand for the summer is $2,400.

   (i) How many dollars worth of produce will they have to sell in order to break even in an accounting sense?

   (ii) How many dollars worth of produce will they have to sell in order to break even in an economic sense?

8. Barb and Cheryl are college students. They are trying to decide what to do over the next summer. Barb's mother has suggested that they both come and work at her plastics manufacturing company where each will earn $5,250 over the summer. Cheryl's mother, who runs the local farmer's market, suggests that they go to a local resort area and sell fresh fruit and vegetables to tourists. Their markup on the produce would be one-third, so each $1.00 of revenue would involve a variable cost of $0.75. In addition to purchasing the produce, they would have to rent a location. The cost to rent a small roadside stand for the summer is $2,500.

   (i) How many dollars worth of produce will they have to sell in order to break even in an accounting sense?

   (ii) How many dollars worth of produce will they have to sell in order to break even in an economic sense?