
THE THEORY OF PRODUCTION & COSTS

STUDY UNIT 8

STUDY OBJECTIVES

- Define and calculate the various revenue, cost and profit concepts.
- Explain the various cost concepts
- Explain the law of diminishing returns
- Differentiate between the short-run and long-run
- Draw the marginal product and average product curves.
- Draw the average and marginal revenue curves
- Draw the average and marginal cost curves
- Explain the relationship between production and cost

REVENUE, COSTS & PROFIT

■ Revenue

□ Definition

- Value of sales

□ Formula = $TR = P \times Q$

□ Marginal Revenue: $\Delta TR \div \Delta Q$

□ Average Revenue: $TR \div Q$

REVENUE CALCULATIONS

Quantity	Price	TR (P X Q)	MR ($\Delta TR \div \Delta Q$)	AR (TR \div Q)
0	R4,00	0	0	0
100	R4,00	400	$400 \div 100 = 4$	4
200	R4,00	800	4	4
300	R4,00	1200	4	4
400	R4,00	1600	4	4
500	R4,00	2000	4	4
600	R4,00	2400	4	4
700	R4,00	2800	4	4

REVENUE, COSTS & PROFIT

- **Cost**

- Total cost**

- **Fixed cost**
 - **Variable cost**
 - **Marginal cost: ΔTC or ΔVC**
$$\Delta TC \div \Delta Q$$
 - **Average Cost: $TC \div Q$**

- **Profit**

- **Profit = $TR - TC$**

REVENUE, COSTS & PROFIT

■ Profit

- Total (accounting) profit = TR minus Total **explicit** costs
- Normal profit = Best return that a firm's resources could earn elsewhere and is part of the cost of production.
- Economic profit = Total revenue minus **Total cost** (Explicit and implicit cost including normal profit)

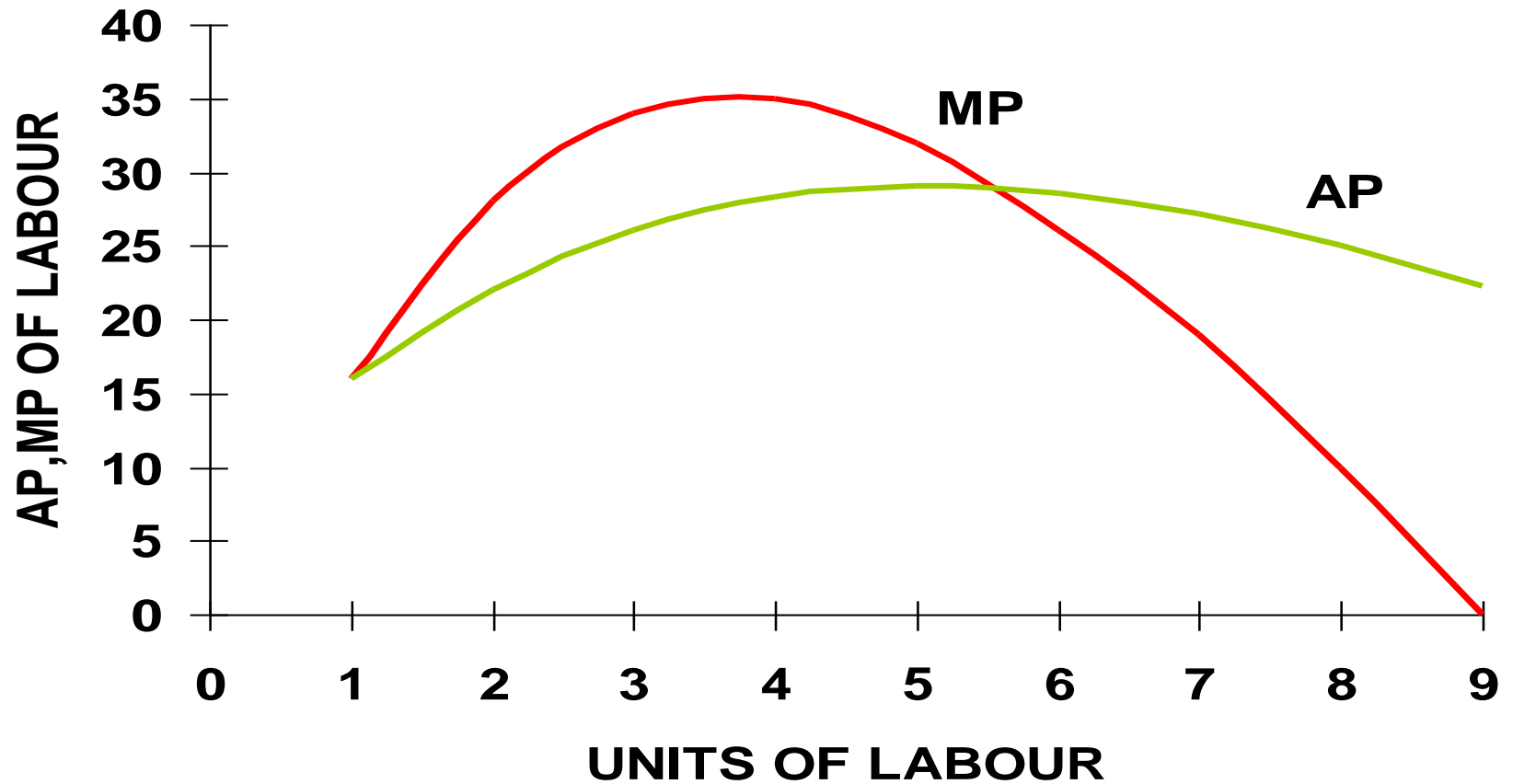
PRODUCTION IN THE SHORT RUN

UNITS OF LAND	UNITS OF LABOUR	TP	MP ($\Delta TP \div \Delta Q_L$)	AP ($TP \div Q_L$)
20	0	0	0	0
20	1	16	16	16
20	2	44	28	22
20	3	78	34	26
20	4	113	35	28,25
20	5	145	32	29
20	6	171	26	28,5
20	7	190	19	27,14
20	8	200	10	25
20	9	200	0	22,22

TOTAL PRODUCT GRAPHICALLY

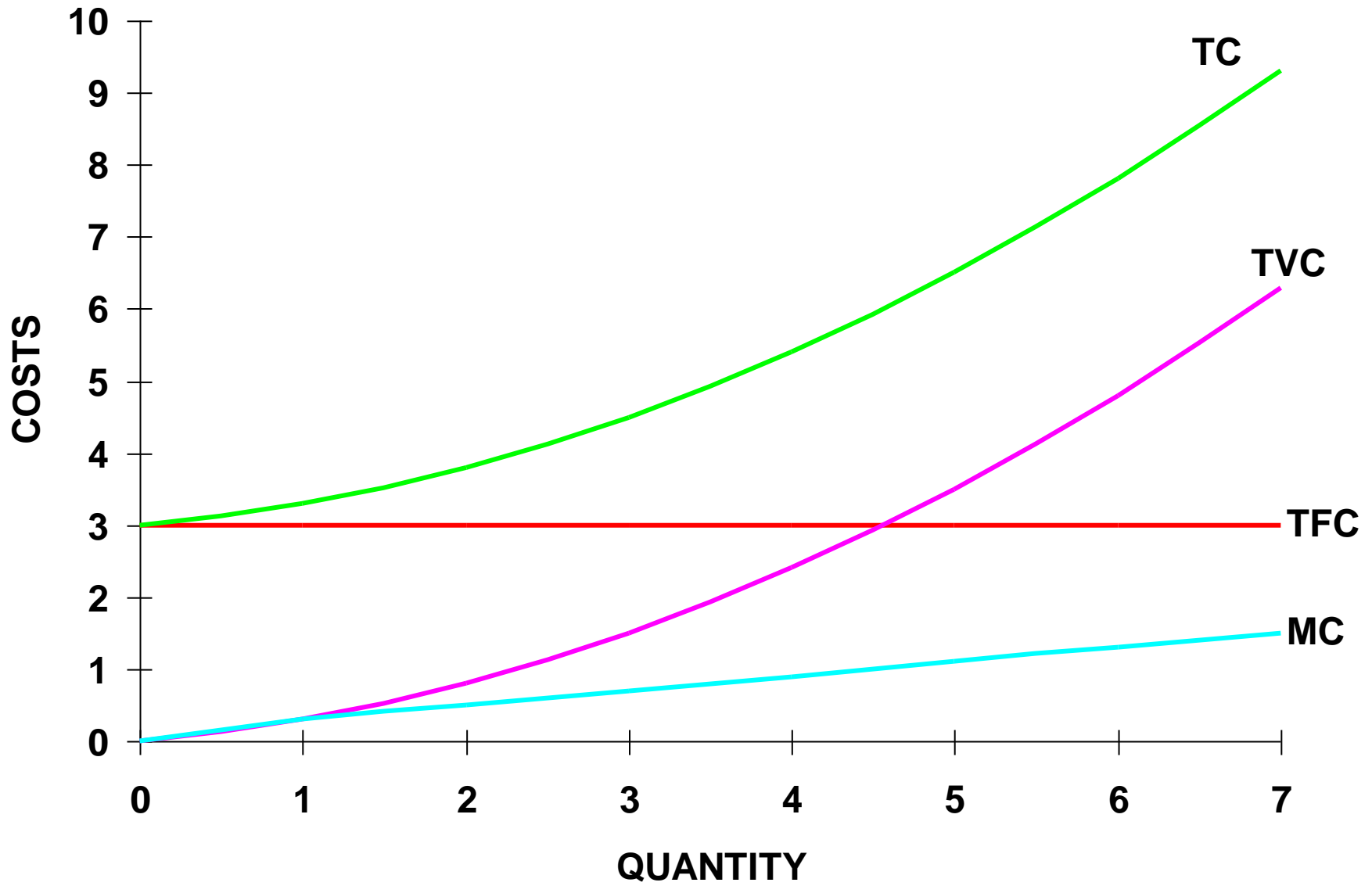


MP AND AP GRAPHICALLY



SHORT RUN COST CALCULATIONS

Quantity	FC	VC	TC	MC
0	3	0	3,00	0
1	3	0,3	3,30	0,30
2	3	0,8	3,80	0,50
3	3	1,5	4,50	0,70
4	3	2,4	5,40	0,90
5	3	3,5	6,50	1,10
6	3	4,8	7,80	1,30
7	3	6,3	9,30	1,50



Complete the table

Quantity	TFC	TVC	TC	AC	MC
0			30		
1					16
2		30			
3			78		
4				25	

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	30		30		
1	30				16
2	30	30			
3	30		78		
4	30			25	

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	30	0	30		
1	30				16
2	30	30	60		
3	30		78		
4	30			25	

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	30	0	30		
1	30		46		16
2	30	30	60		
3	30		78		
4	30			25	

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	30	0	30		
1	30	16	46		16
2	30	30	60		
3	30	48	78		
4	30			25	

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	30	0	30		
1	30	16	46		16
2	30	30	60		
3	30	48	78		
4	30		100	25	

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	30	0	30		
1	30	16	46		16
2	30	30	60		
3	30	48	78		
4	30	70	100	25	

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	30	0	30		0
1	30	16	46		16
2	30	30	60		14
3	30	48	78		18
4	30	70	100	25	22

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	30	0	30	0	0
1	30	16	46	46	16
2	30	30	60	30	14
3	30	48	78	26	18
4	30	70	100	25	22

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0			35		
1					35
2				48	
3			120		
4		113			

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	35		35		
1	35				35
2	35			48	
3	35		120		
4	35	113			

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	35	0	35		
1	35				35
2	35			48	
3	35	85	120		
4	35	113	148		

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	35	0	35		
1	35	35	70		35
2	35			48	
3	35	85	120		
4	35	113	148		

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	35	0	35		
1	35	35	70		35
2	35	61	96	48	
3	35	85	120		
4	35	113	148		

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	35	0	35		
1	35	35	70		35
2	35	61	96	48	
3	35	85	120		
4	35	113	148		

Complete the table

Quantity	TFC	TVC	TC	AC	MC
0	35	0	35	0	0
1	35	35	70	70	35
2	35	61	96	48	26
3	35	85	120	40	24
4	35	113	148	37	28