

Purushottam Sir Costing Classes
CA Purushottam Sir Provides Costing Classes for CA Inter,
CMA Inter, CA Final & CMA Final

TRANSFER PRICING

Concept No. 1:- What is transfer price?

- Dept. A Produces product “A” which it sells in open market.
- Dept. B produces product “B” which it sells in open market.
- Dept. B uses product “A” as raw material. If Dept B buys “A” from dept A then the price paid by dept B to dept A is called “Transfer Price”

Concept No. 2:- Features of transfer price?

- Transfer price is not sale price.
- Transfer price is revenue for supply department and cost for receiving department.
- Actual profit does not arise in case of internal transfer until **goods using that component** is ultimately sold to customer.

Concept No. 3:- Will profit of company increase if transfer price is increased and vice-versa

- No, profit of company shall not increase.

Example 1:- A company has 2 departments i.e. department A & B. Department A produces component C at cost of Rs. 10,000 and sell it to department B at transfer price of Rs. 12,000. Department B use that component and make final product “D” by incurring additional cost of Rs. 8000 and sell it to ultimate customer at Rs. 25,000. Calculate Profit of each department and company?

Solution:- Statement of Profit

Particulars	Department A	Department B	Company
Sale /Transfer Price	12,000	25,000	25000
Less:- Own Cost	10,000	8,000	10,000 (Dept. A) 8,000 (Dept. B)
Less:- Transfer Cost	--	12,000	
Profit	2,000	5,000	7,000

Suppose in above example if transfer price is increased from Rs. 12,000 to 15,000. Will company profit change?

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Solution:- Statement of Profit

Particulars	Department A	Department B	Company
Sale /Transfer Price	15,000	25,000	25000
Less:- Own Cost	10,000	8,000	10,000 (Dept. A) 8,000 (Dept. B)
Less:- Transfer Cost	--	15,000	
Profit	5,000	2,000	7,000

Conclusion:- Profit of company does not change due to change in transfer price but profit of individual department changes.

Concept No. 4:- How to decide transfer price

- Transfer price must be mutually agreed by supply and receiving department.
- But conflicts arise since manager of supply department would love higher transfer price to increase profit of his department thereby claiming salary increment or promotion from top management.
- Manager of receiving department would love lowest transfer price to decrease its total cost of production thereby increasing profit of its department and claiming salary increment or promotion from top management.
- To resolve conflict, Top management sometimes decides transfer price on its own or sometimes consult management accountant to decide transfer price.

Concept No. 5:- Transfer price – Fixed by management itself

Case 1:- when market price of component is constant:- Transfer price is fixed on the basis of market price.

Case 2:- When market price of component keeps on changing:- Transfer price is fixed as

- Total cost plus fixed % on cost (Called markup) OR
- Total cost plus fixed % on capital employed (Called return on capital employed)

Total cost = All variable cost + All avoidable fixed cost + All unavoidable fixed cost

Capital employed = Fixed assets + working capital

Concept No. 6:- Transfer price – Fixed by management accountant

- To resolve conflict, Management accountant sometimes give a price range of transfer price to choose from or sometimes fixes exact transfer price.
- Lower price is called minimum transfer price which is equal to relevant cost.
- Higher price is called maximum transfer price which is normally equal to market price of component.
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Statement showing relevant cost

<u>Particulars</u>	<u>Amount</u>
Cost to be incurred due to transfer	XXX
+ Benefit / Contribution to be lost due to transfer	XXX
-Benefit to be achieved due to transfer	XXX
Minimum Transfer Price	XXX

Sunk cost is ignored while calculating relevant cost.

Concept No.7:- Steps followed by management accountant in deciding transfer price

Step 1:- Makes statement of comparative cost (Comparison of relevant cost of manufacturing (making) component or purchase cost of component).

Step 2:- Decide as to manufactured internally or buy from outside market by choosing lower of both cost.

Step 3:- Fix transfer price in such a way that decision taken under step 2 remains valid.

Example 1:- A company has 2 departments i.e. department A & B. Department A produces component C at cost of Rs. 1000 per unit and sell it in market at a price of Rs. 1200 per unit. Department B use that component and make final product "D" by incurring additional cost of Rs. 800 per unit and sell it to ultimate customer at Rs. 2500 per unit. Department A has capacity to produce 6000 units but produce upto outside market demand of 2000 units. Department B needs 4000 units of component to make its own product. Kindly suggest

- Whether it is beneficial for company to purchase that component internally or continue buying from market?
- Fix transfer price

Solution:- Statement of comparative cost (Make or Buy)

Make		Buy	
Cost to be incurred	1000	Purchase Cost	1200
+ Benefit to be lost	NIL		
-Benefit to be achieved	NIL		
Relevant Cost	1000	Purchase Cost	1200

Decision:- It is beneficial for company to use component internally. (Better to make)

Now management accountant would fix such transfer price which will motivate department B to purchase internally for overall benefit of company.

Hence transfer price may range from Rs. 1000 to Rs. 1200 (Relevant cost to market purchase cost).

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Example 2:- Suppose in above example. Department A lease out spare capacity for Rs. 12,00,000. Will your answers change?

Solution:- Statement of comparative cost (Make or Buy)

Make		Buy	
Cost to be incurred	1000	Purchase Cost	1200
+ Benefit to be lost (12,00,000 / 4000 units)	300		
-Benefit to be achieved	NIL		
Relevant Cost	1300	Purchase Cost	1200

Decision:- It is beneficial for company to purchase component from market (Better to buy)

Now management accountant would fix such transfer price which will motivate department B to purchase from outside market overall benefit of company.

Hence minimum transfer price shall be set as Rs. 1300 p.u.

Question:- Company has two manufacturing divisions A and B Division: A has a capacity of 96,000 hours per annum. It manufactures two products X and Y as per the following details:

	X	Y
Direct Materials	Rs. 300	60
Other Variable Costs @ 80 per hour	Rs. 320	80
Selling Price	Rs. 800	160
Maximum Sales units	15,000	Unlimited

Division B produce product Z whose particulars are as under:-

	Rs.
Imported components	800
Direct materials	120
Other Variable Costs @ Rs. 40 per hour	400
Selling Price	1450

The fixed overheads amount to Rs. 30 lacs per annum & Rs. 5 Lakh per annum respectively for Division A and B. With a view to minimizing dependence on imported component, the company explored the possibility of the Division B using the product X as Substitutes for imported component. This is possible provided Division B spends two machine hour entailing an additional expenditure of Rs. 80 per component on modification of the product X to fit into the product Z.

The production of Z of Division B is 5000 units per annum. Division B seeks a discount of Rs. 80. So that the transfer price of product X can be set at Rs. 720 each.

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You are required to present division wise profitability and the profitability of the company as a whole on the basis of the following conditions:

1. Division B imports its requirement of components.
2. Division B stops importing the components and obtain 5,000 units of product X for being used as substitute from Division A at the latter's usual market price of Rs. 800 per unit.
3. Same condition as (ii) above but Division B gets a relief of Rs. 80 per unit of product X in that case the transfer price has been set by Division A at Rs. 720 per unit.

Solution 8:

Statement of ranking

	X	Y
Selling price per unit: (Rs.)	800	160
Less: Variable costs: (Rs.)	620	140
Contribution per unit: (Rs.)	180	20
Hours required per unit	4	1
Contribution per hour: (Rs.)	45	20
Ranking	I	II

Statement of optimum product mix

Product	Units	Hour per unit	Total Hours
X	15000 units	4 hour	60000 hours
Y	36000 units	1 hour	36000 hours
		Total	96,000

- (i) **St. of Division A & Division B's profitability and the profitability of the company as a whole, when division B imports its component requirements:**

	Division A Rs.		Division B Rs.
Contribution		Contribution	6,50,000
X-15,000 units x Rs. 180	27,00,000	[5,000 units x	
Y- 36,000 units x Rs. 20	7,20,000	(Rs. 1450 – Rs.	5,00,000
Total Contribution:	34,20,000	1320)]	
Less: Fixed Costs	30,00,000	Less: Fixed Costs	
Profit	4,20,000	Profit	1,50,000

The profit of the Company as a whole is Rs. 5,70,000

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(ii) When division B buys 5,000 units of product X at Rs. 800 per unit: From "A"

Statement of optimum product mix

Product	Units	Hour per unit	Total Hours
X	20000 units	4 hour	80000 hours
Y	16000 units	1 hour	16000 hours
		Total	96,000

Statement of profit

	Division A Rs.		Division B Rs.
Contribution		Sales revenue	72,50,000
X-20,000 units x Rs.180	36,00,000	(5,000 units x 1450)	
Y- 16,000 units x Rs.20	3,20,000	Less: Variable cost	66,00,000
Total Contribution	39,20,000	(5,000 units x Rs. 1,320)	
Less: Fixed Costs	30,00,000	Less: Additional Cost (5000 units x Rs. 80)	4,00,000
Profit	9,20,000	Contribution	2,50,000
		Less: Fixed Costs	5,00,000
		Loss	(2,50,000)

Profit of the company as a whole in this case would be Rs. 6,70,000.

(iii) Division B gets a discount of Rs. 80 per unit on each unit of X which they purchase from Division A.

Statement of profit

	Division A Rs.		Division B Rs.
Contribution		Sales revenue	72,50,000
X-15,000 units x Rs.180	27,00,000	(5,000 units x 1450)	
X-5,000 units x Rs.100	5,00,000	Less: Variable cost	66,00,000
Y- 16,000 units x Rs.20	3,20,000	(5,000 units x [Rs. 1320])	
Total Contribution	35,20,000		
Less: Fixed Costs	30,00,000	Contribution	6,50,000
Profit	5,20,000	Less: Fixed Costs	5,00,000
		Loss	1,50,000

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Profit of the company as a whole in this case would be Rs. 6,70,000.

Concept No. 8 – Best Strategy

- Best strategy means decision regarding units to be produced for external sales and internal transfer so that Contribution of supply department becomes maximum.

Note:- While deciding about best strategy, we will focus supply division. If question specifically requires maximization of contribution of whole company then in such case we will consider whole company while deciding best strategy.

- Transfer Price will be
 - VC + Avoidable FC in case supply division has spare capacity
 - VC + avoidable FC + Benefit to be lost (Contribution) in case supply division does not has spare capacity.

Note:- we will follow Ranking method to decide optimum product mix

Concept 9 – Application of Mathematical Concepts in Calculating Transfer Price (Use of Differentiation)

Marginal cost = increase in total cost if we increase units of production just by 1 unit.

$$MC = TC \text{ at } x+1 \text{ units} - TC \text{ at } x \text{ units}$$

Mathematically it is differentiation of TC function

$$TC = VC \times X \text{ (units of production)} + FC$$

$$\frac{d(TC)}{dx} = VC + 0$$

Hence **MC = VC**

Marginal Revenue = Increase in Total Revenue if we sell one additional unit. Mathematically

$$MR = TR \text{ at } x + 1 \text{ units} - TR \text{ at } x \text{ units}$$

It is differentiation of TR Function.

$$TR = X \text{ units} \times \text{Price per unit}$$

X denote to number of units sold

Price per unit = a – bx

a = Very high price at which no body is willing to buy

b = Reduction in SP p.u. if one additional unit is purchased by customer

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$x = X$ denote to number of units sold

$$TR = (a - bx) \times X = ax - bx^2$$

$$\frac{d(TR)}{dx} = MR = a - 2bx$$

Differentiation Rules

$$\frac{d}{dx} x^n = nx^{n-1}$$

Profit is maximum when MR equal to MC – Proof ?

- MR means additional revenue if one more unit is sold in market.
- MC means additional cost if one more unit is produced in market.
- Suppose Company gets additional 10 rupees if one more unit is sold and company incurs additional Rs.4 if one more unit is produced Hence profit on additional unit will be Rs.6
- That is, A Company attempts to sell more units, it will be able to sell at a lower price to complete the sale but cost of producing additional unit will not be reduced
- Hence company will not reduce its selling price of additional unit below its cost of production hence it will reduce selling price upto maximum level where MR becomes equal to MC.
- Total profit shall be maximum when MR = MC

Concept 10 – Cost ratio Method & Market Price Method

Cost Ratio Method:- When production of supply is only usable by receiving department. Receiving department sells the final product using component provided by supplying division. Then overall profit of the company shall be divided between ss and receiving dept in ratio of cost.

Steps

1. Calculate Total profit of company = Sales value – Cost of SS Dept – Cost of Rec Dept
= Total Profit
2. Divide profit in ratio of total cost of individual deptt.
$$A \text{ Share} = \frac{\text{Total Profit of company}}{\text{Total Cost of Company}} \times A's \text{ Cost}$$
3. TF Price =
$$\frac{A's \text{ Total Cost} + \text{Share of profit}}{\text{Total Qty}}$$

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Market Price Method – TF Price is external market price

Concept 11 – Transfer Pricing With Activity Based Costing

Using Activity Based Costing, Overhead shall be charged to product based on activity oriented Overheads and Non-activity oriented overhead.

Concept 12 – TF Price with international taxation

It involves calculation of transfer price for internal transfer of goods from one division to another when

- When division are established in different country.
- Tax rate applicable to both division is different because they are governed by different tax law.

We also calculate profitability of group companies also.

Concept 13 – International TF Price