WELCOME

Forest Economics

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Topics to be covered…

- Theory of costs and revenue
  - Marginal cost and marginal revenue
  - Opportunity cost

- Marketing concepts

- Marketing of forest products

Theory of Costs

- **Cost:** The expenditure incurred by the firm on inputs is called as cost
- Cost Function: Derived function
  - Short-run costs

$$C = f(X, T, P_f, \overline{K})$$

  - Long-run costs

$$C = f(X, T, P_f)$$

Where, C is total cost

X is the output

T is technology

P_f is prices of factors of production

$\overline{K}$ is fixed factor (capital)

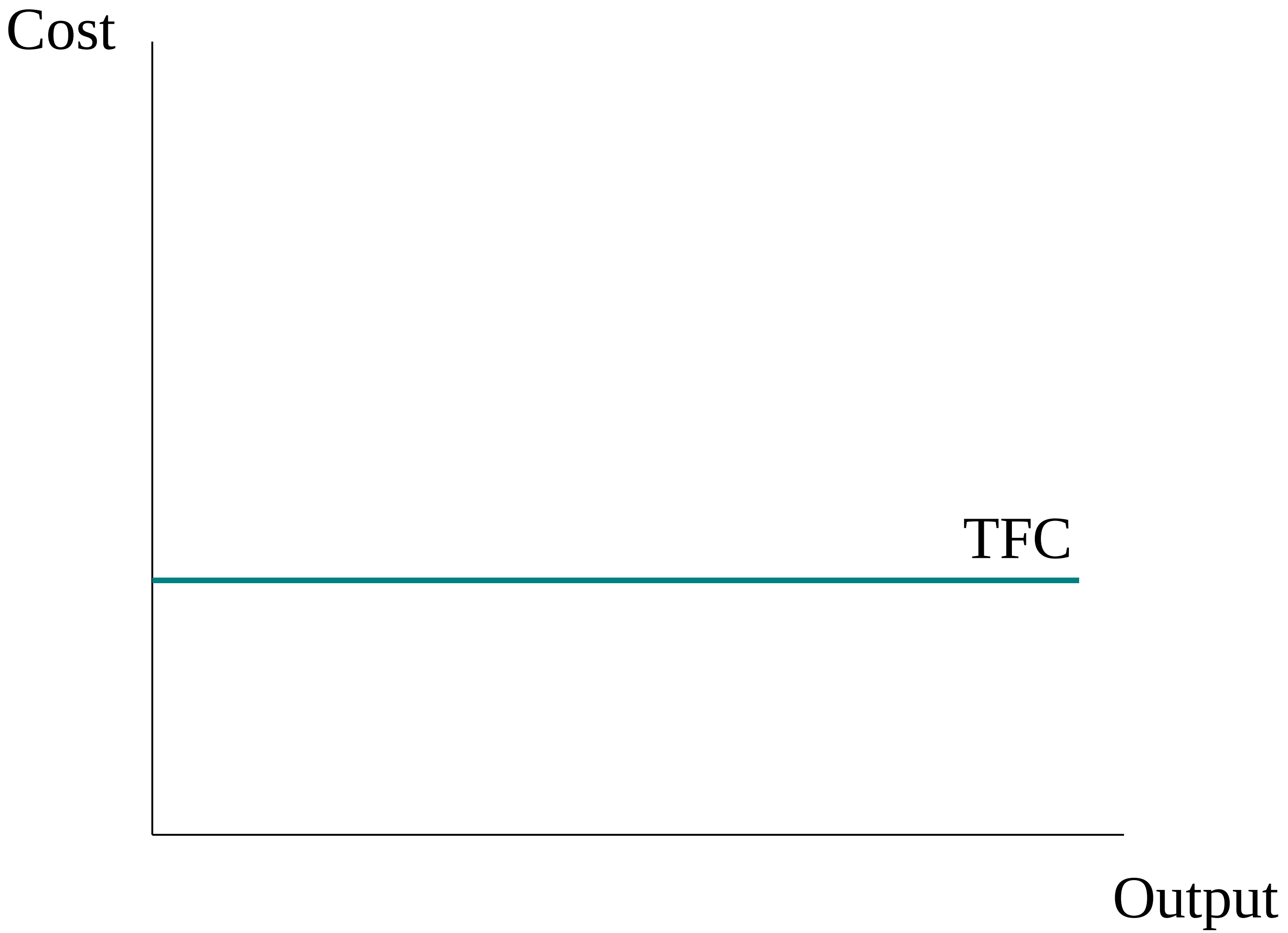
- Graphically, **C=f(X)**, *ceteris paribus*

Short Run Costs

Total Fixed Cost (TFC)

- Costs which do not vary with output; remains same irrespective of level of output
- Must be paid even if output is zero
- Beyond managerial control
- **Examples:** Taxes, insurance, cess, depreciation on machinery, implements, tools, buildings, salaries of personnel working in the firm
- Indirect costs, sunk costs and overhead costs
- Summation of all these costs is called TFC
- TFC is a horizontal straight line parallel to X-axis

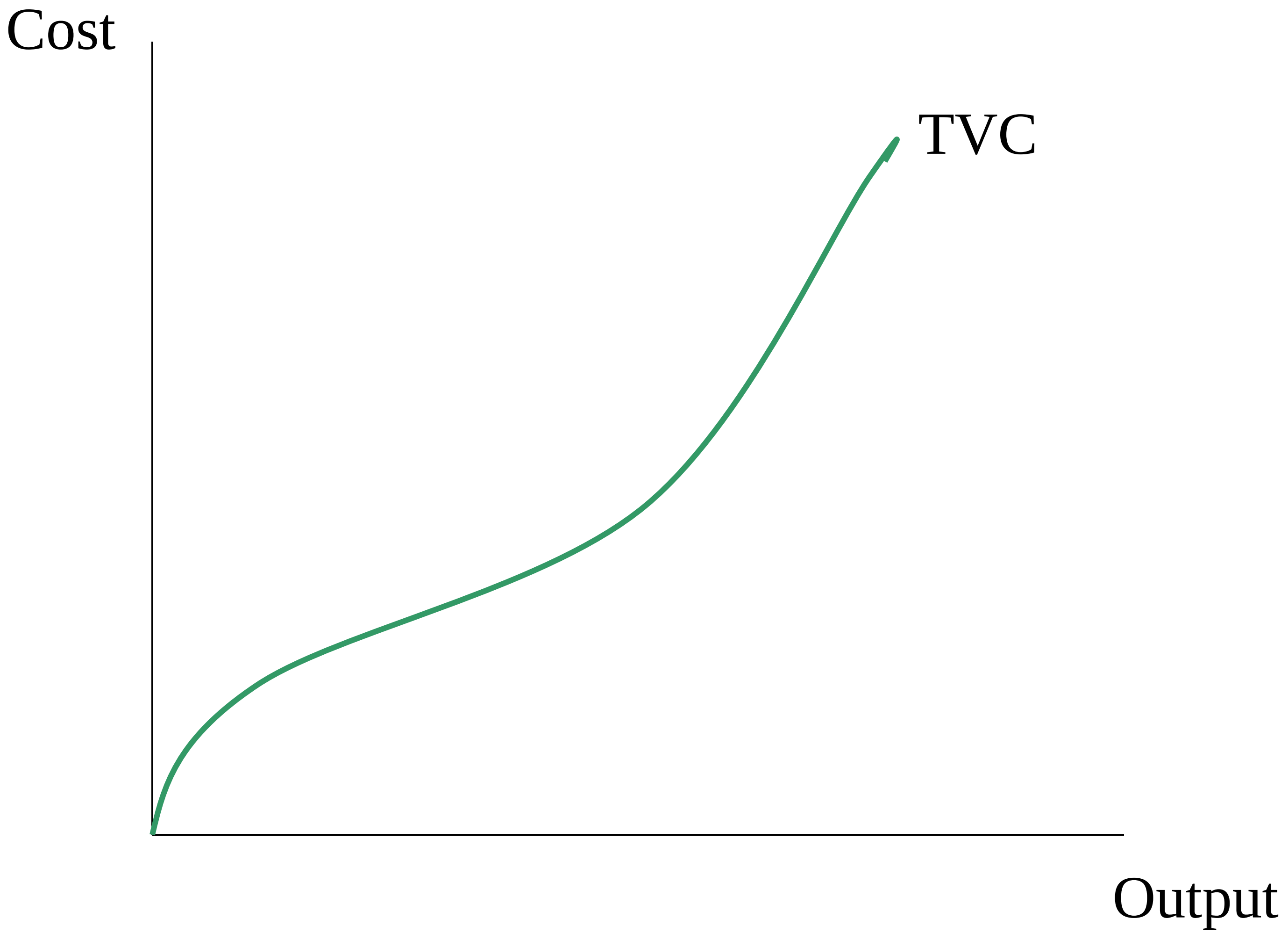
Total Fixed Cost



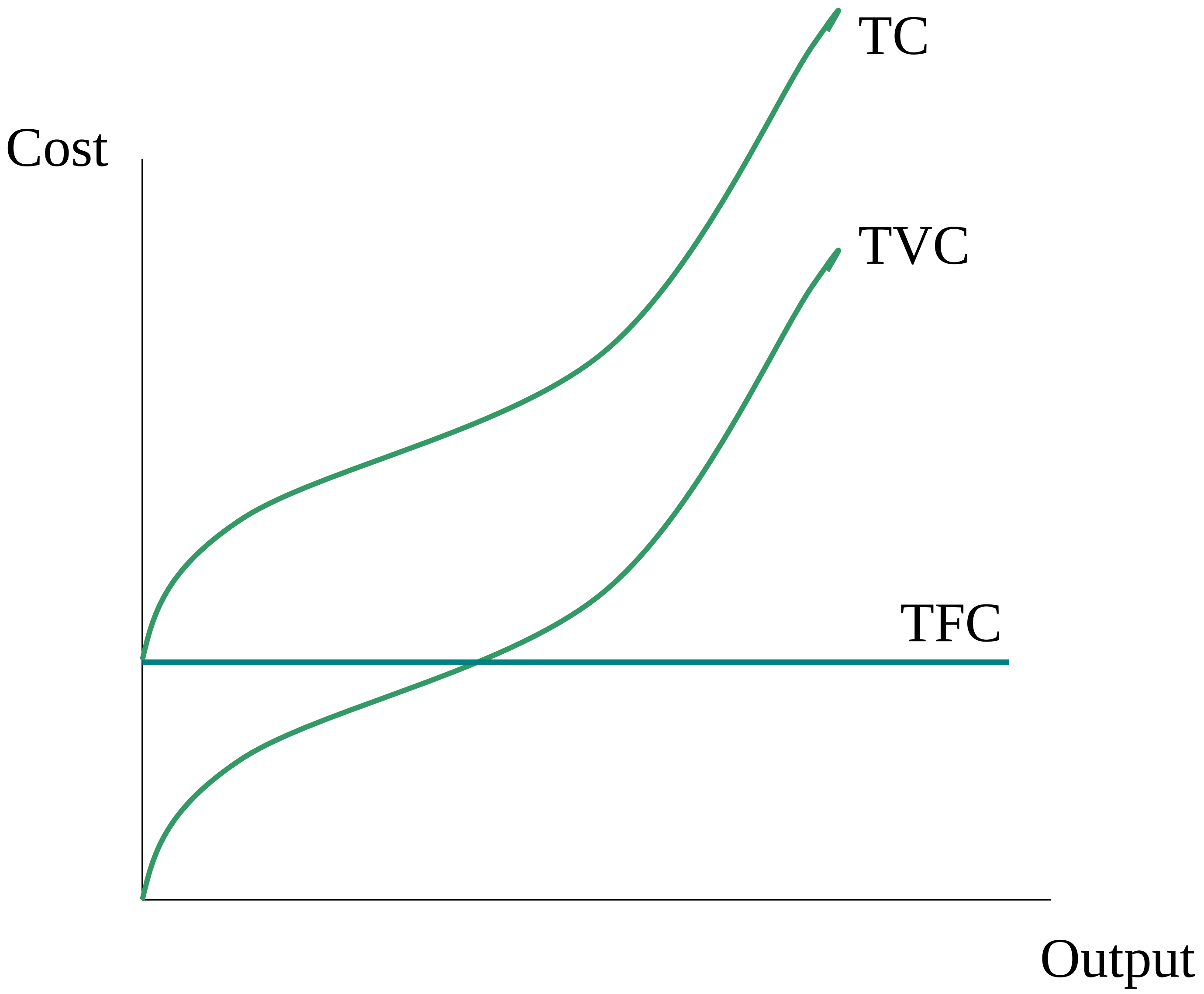
Total Variable Cost (TVC)

- Costs which vary with the level of output
- **Examples:** Costs of raw materials, labour, power, repairs, maintenance charges of machinery, etc.
- Working costs, operating costs, direct costs, prime costs, circulating costs and running costs- Second phase costs
- Summation of all these costs is called TVC
- TVC is an inverse 'S' shaped curve

Total Variable Cost



Total Cost (TC) = TFC + TVC



Example

Q	TFC	TVC	TC
0	10	0	10
10	10	30	40
20	10	50	60
30	10	80	90
40	10	120	130
50	10	190	200
60	10	290	300

Average Fixed Cost = TFC divided by quantity produced.

- AFC = TFC / Q
- as output rises AFC falls continuously (resembles a rectangular hyperbola)

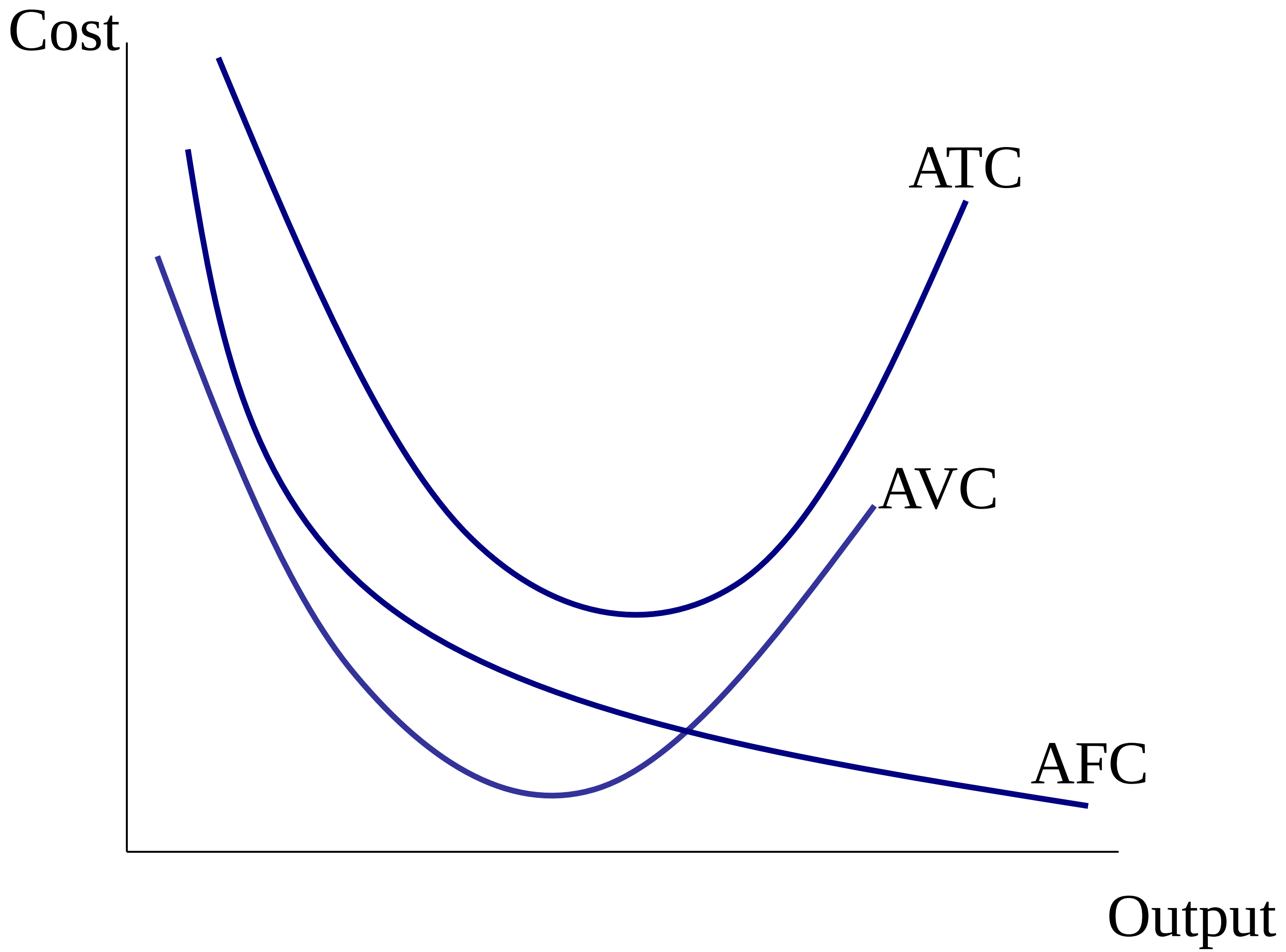
Average Variable Cost = TVC divided by quantity produced

- AVC = TVC / Q
- usually average variable cost is U-shaped, with AVC falling initially and then rising as it becomes more costly to produce additional units of output

Average Total Cost or Average Cost:

- AC = AFC + AVC = TC/Q

Average costs



Average Costs

Q	TFC	TVC	TC	AFC	AVC	ATC
0	10	0	10	-	-	-
10	10	30	40	1.0	3.0	4.0
20	10	50	60	0.5	2.5	3.0
30	10	80	90	0.33	2.67	3.0
40	10	120	130	0.25	3.0	3.25
50	10	190	200	0.2	3.8	4.0
60	10	290	300	0.167	4.83	5.0

Marginal Cost (MC):

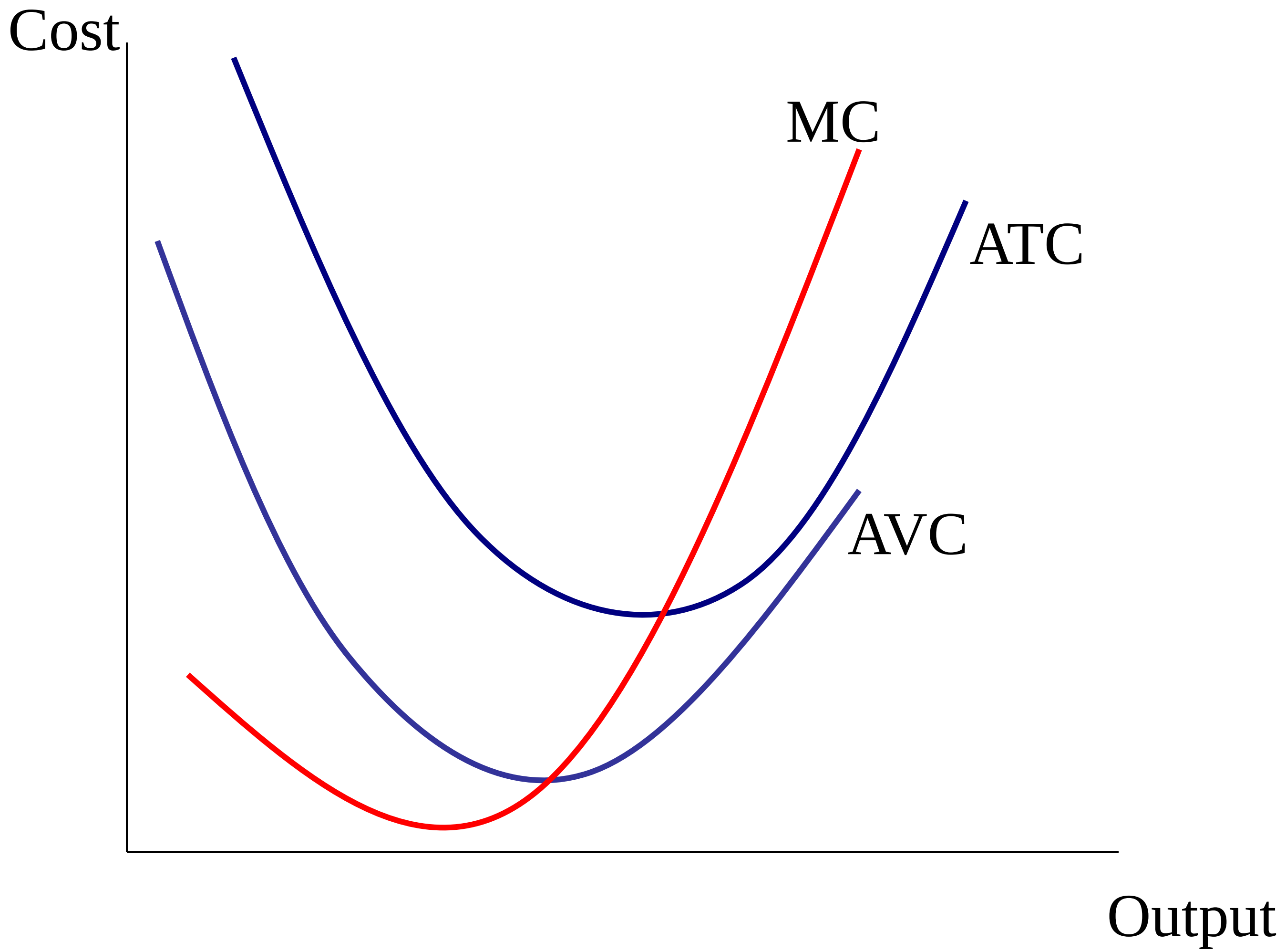
Change in total costs due to a unit change in output

MC is the slope of TC curve. MC curve is U shaped

$$MC = \frac{\Delta TC}{\Delta Q}$$

The specific shape of the MC curve is due to MPP; Inverse relationship between MPP and MC

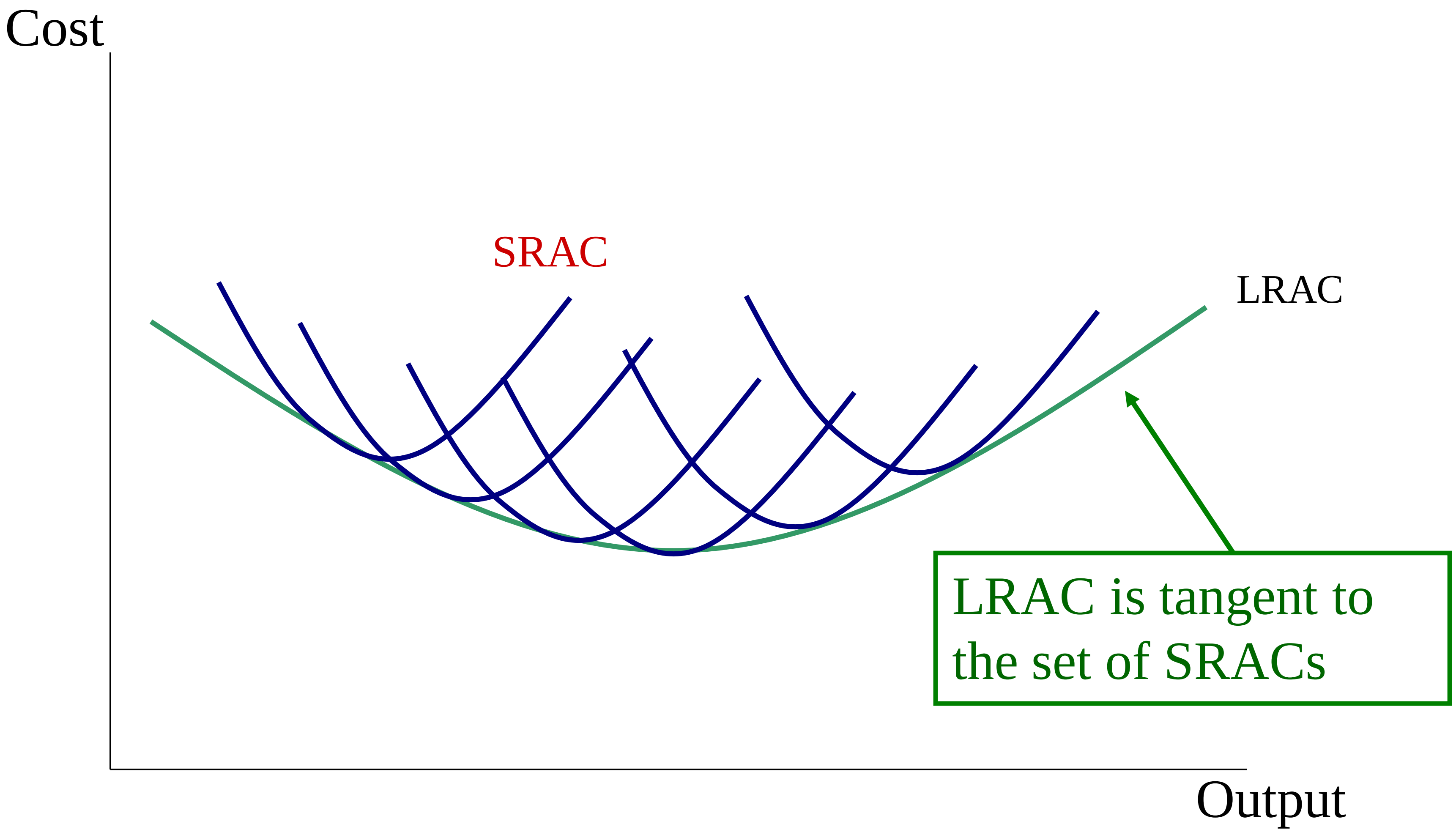
Relationship between MC & AC



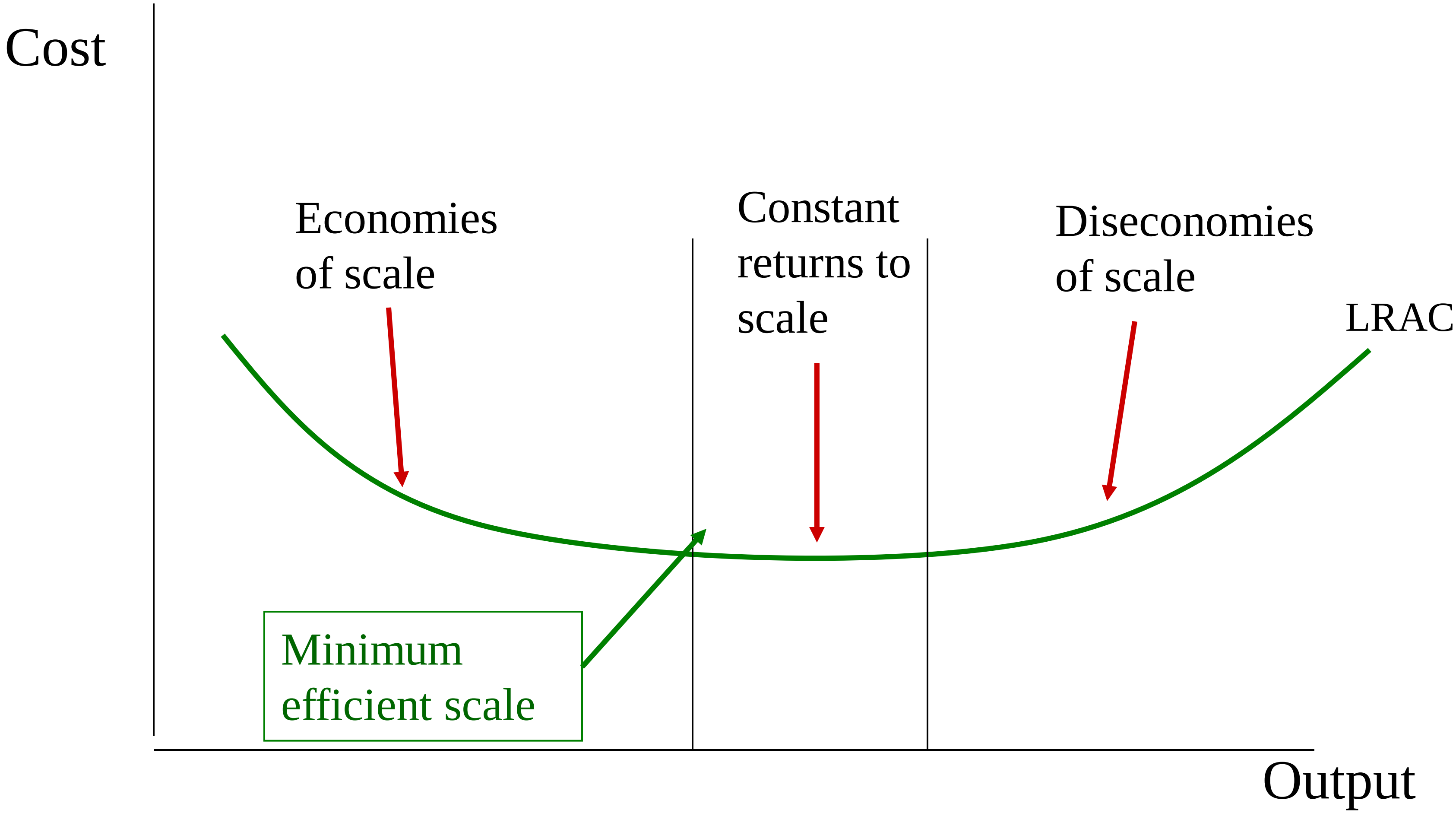
Long run costs/Envelope Curve

- The firm plans in the long run, when all inputs are variable
- The long run average cost (LRAC) is often called the firm's planning curve
- The LRAC is derived from short run cost curves
- Each point of LRAC corresponds to a point on short run cost curve, which is tangent to LRAC

Long Run Average Cost (LRAC)



Scale economies



Other Cost Concepts

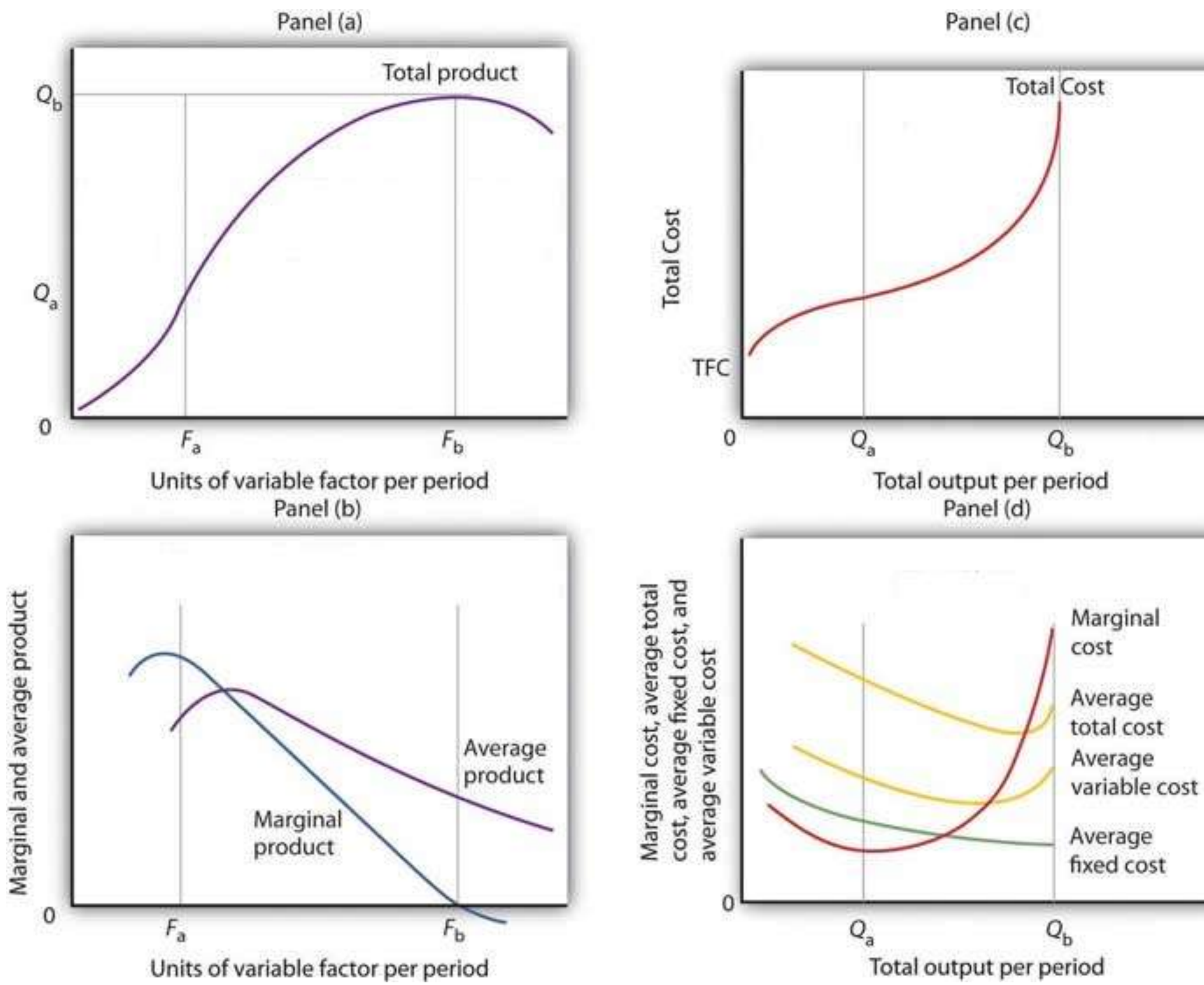
Opportunity Cost

- Value of the return sacrificed or forgone to the next best alternative activity
- Income that could have been received, if the input had been used in its most profitable alternative use

Other Cost Concepts

- Nominal or money costs
- Real costs
- Economic costs: Explicit costs and implicit costs
- Deflated costs
- Social costs
- Separable costs
- Historical & Replacement Costs
- Establishment costs

Production curves and Cost curves



Revenue

Total Revenue:

$$TR = Q \times P$$

Marginal Revenue:

Additional income obtained from producing one more unit of output.

$$MR = \Delta TR / \Delta Q$$

Determination of Optimum level of output:

$$MR = MC$$

Marketing concepts

- The word ‘market’ comes from latin word ‘marcatus’ means merchandise or trade or a place where business is conducted

- **Market:** It is a place where goods and services are exchanged. Market consists of buyers and sellers with facilities to communicate with each other for transactions of good and services

- **Marketing:** It is the economic process by which goods and services are exchanged between the producers and the consumers and their values in terms of money prices

Classification of markets

1. <u>On the basis of location</u>:
   - Village markets, Primary wholesale markets, Secondary wholesale markets, Terminal markets and Sea board markets
2. <u>On the basis of area/coverage</u>:
   - Local or village markets, Regional markets, National markets and World markets
3. <u>On the basis of time span</u>:
   - Short period markets, long period markets and secular markets
4. <u>On the basis of volume of transactions</u>:
   - Wholesale markets and Retail markets
5. <u>On the basis of nature of transactions</u>:
   - Spot or Cash markets and Forward markets

Contd…

6. On the basis of number of commodities in which transaction takes place:
   - General markets and specialized markets
7. On the basis of degree of competition:
   - Perfect markets
   - Imperfect markets- Monopoly, Duopoly, Oligopoly and Monopolistic competition
8. On the basis of nature of commodities:
   - Commodity markets and capital markets
9. On the basis of stage of marketing:
   - Producing markets and consuming markets
10. On the basis of extent of public intervention:
    - Regulated markets and Unregulated markets

Approaches to study of marketing

Four approaches

I. Functional approach
II. Institutional approach
III. Commodity approach
IV. Behavioral system approach or decision making approach

I. Functional approach

a) Exchange functions- (transfer of ownerships or title of goods) buying and selling
b) Physical functions- handling, movement and physical change
c) Facilitating functions- Standardization, financing, risk bearing and marketing intelligence

Contd..

II. Institutional approach

a) Merchant middlemen (Wholesaler and Retailer)- Take the title and own the product they handle
b) Agent middlemen (Commission agents, brokers, etc.)- act as only representatives of their clients
c) Speculative middlemen
d) Processors and manufacturers
e) Facilitative organizations

III. Commodity approach

IV. Behavioral system approach or decision making or management approach

Marketing of forest products

1. **System of Exploitation**

- Three agencies to take care of extraction and disposal of forest products

a) Government agency

b) Working by Government and purchasers combined

c) Working by purchasers

2. **System of sale of forest products**

a) **Lumpsum sale**

- Govt. gets a fixed amount of sale proceeds for a lot of unknown quantity of produce
- Forest depts. auctions the lots (either directly or by tenders)
- This is best when the quantity to be sold is unknown

Contd…

b) <u>**Payment on out turn**</u>

i) <u>Sale of a Whole coupe or area</u>

- A person or a firm is solely authorized to extract timber and other produce from a forest area given on lease for a fixed period of time
- The lessee has to make payment of the sale contract in lumpsum either in one premium or in installment or in royalty basis

ii) <u>Sale of marked standing trees:</u> Trees are selected & marked

iii) <u>Sale by means of licenses and permits</u>

- Forest dept. notifies the forest area where to be extracted
- Intended purchaser applies for a license or permit
- After paying the fee, begins to collect the forest produce

Contd…

3. **Method of sale**

a) By private bargain

b) By fixed tariffs

c) By auction

d) By tender

Marketing channel

1. Marketing channel
   - Routes through which forest products move from producers to consumers
   - The chain of intermediaries through whom the various products pass from producers to consumers

2. Marketing costs
   - Actual cost incurred by each agency involved in the marketing channel
   - Example: Handling charges at local points, assembling charges, transport, handling by wholesalers and retailers

Contd…

3. Marketing margin
   - Profit earned or received by those engaged in marketing
   - From buyer's point of view, marketing costs include marketing margin and known as gross marketing margin or total marketing cost

Importance of marketing costs and margin: Reveal many facets of marketing and price structure as well as efficiency of the system

- To know the services rendered by different market functionaries
- To determine the remuneration, they get for their services
- To identify whether these services are necessary or not
- To find out ways and means to reduce the total marketing cost
- To increase the efficiency of marketing

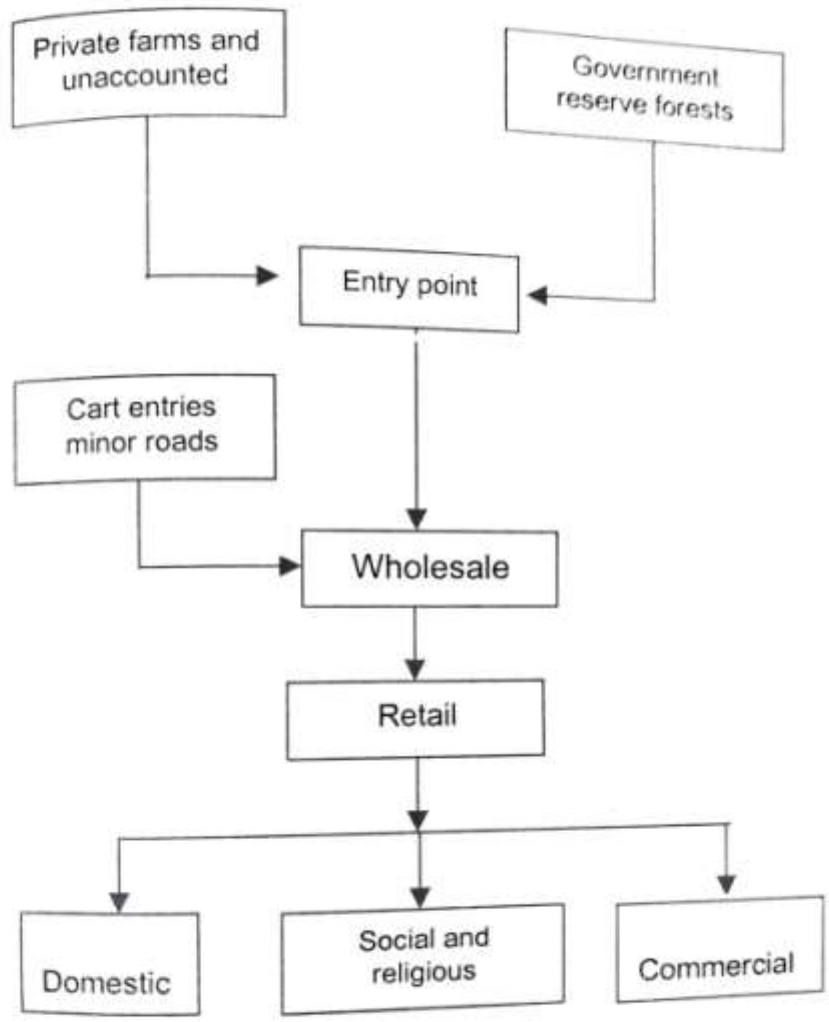
Contd…

Concepts of marketing margins

- Concurrent margin: Difference between the prices prevailing at successive stages of marketing at a given point of time
- Lagged margin: Difference between the price received by a seller at a particular stage of marketing and the price received by him at the preceding stage of marketing during an earlier period

4. Price spread
   - The difference between the price paid by the consumer and the price received by the producer for an equivalent quantity of produce
   - It includes the costs and profits of various market functionaries involved
5. Marketing efficiency: Output/input

Marketing channel for a wood product (firewood) in Hyderabad

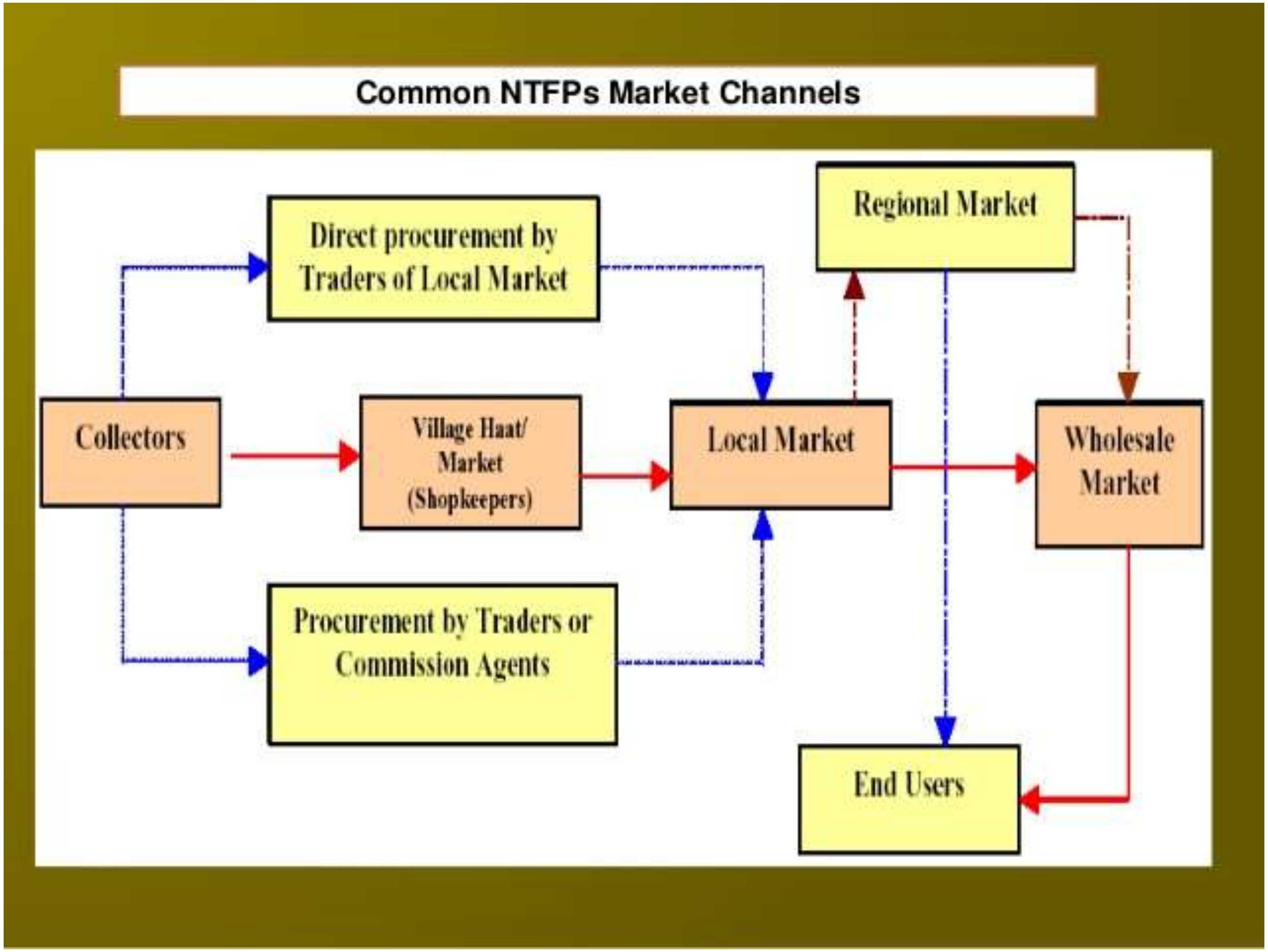


Source: Subramanian and Senthilnathan (2004)

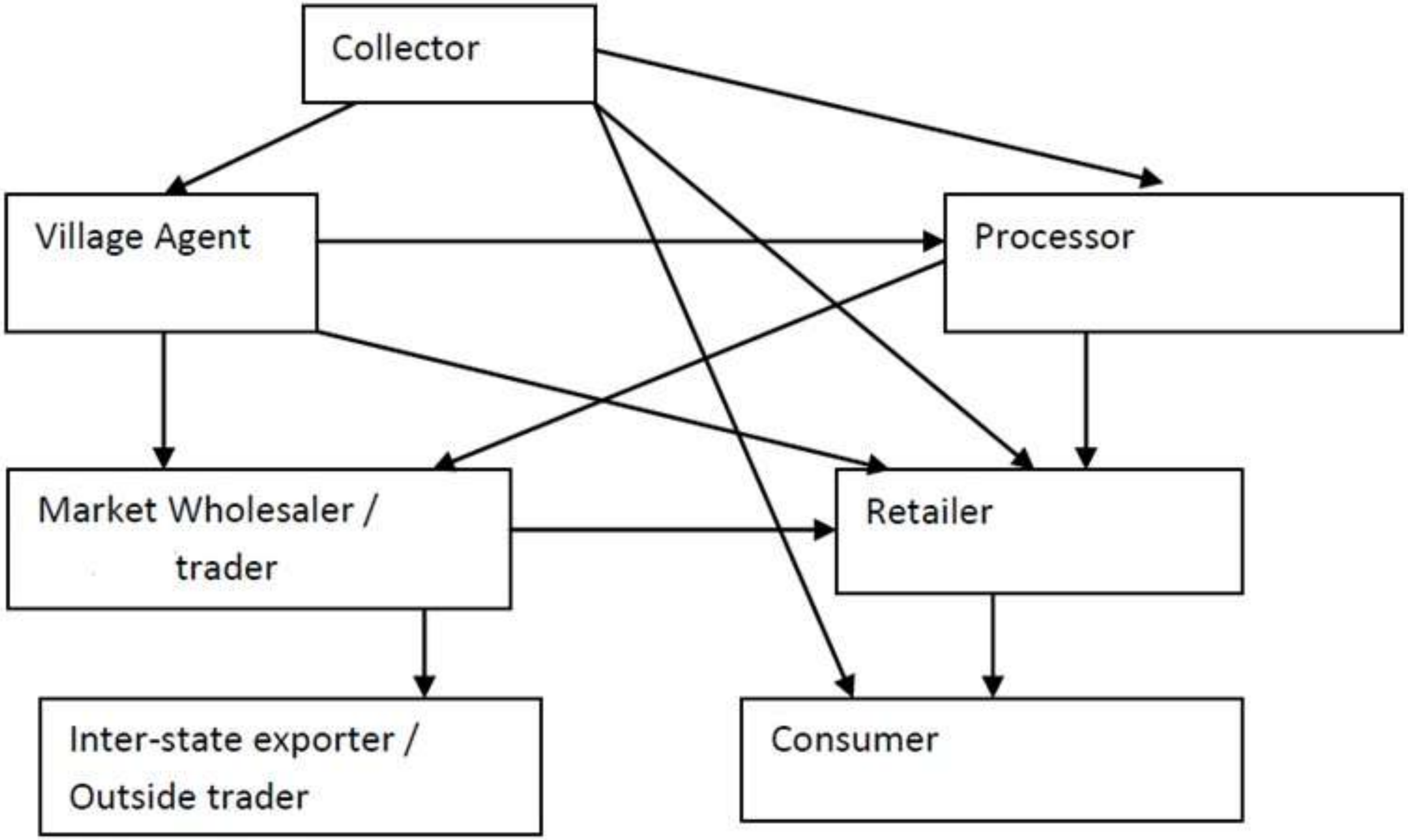
NTFPs

- Leaves
- Bamboos
- Gums, resins and oleoresins
- Oil seeds
- Essential oils including oil yielding grasses
- Fibres and flosses
- Grasses other than oil yielding grasses
- Tans and dyes
- Drugs and spices
- Animal products
- Edible products

Marketing Channels of NTFPs



Marketing Channels of NTFPs



Source: Ahmed *et al* (2016)

Marketing Channels of NTFPs

Edible products

Channel 1: Primary collector → Kurumba society → Consumer

Channel 2: Primary collector → Private shops → Consumer

Channel 3: Primary collector → EDC → Consumer

Industrial products

Channel 1: Primary collector → Kurumba society → Federation → Industries

Channel 2: Primary collector → Private shops → Industries/ Shops

Channel 3: Primary collector → EDC → Consumer

Medicinal plants

Channel 1: Primary collector → Kurumba society → Pharmaceutical companies

Channel 2: Primary collector → Private traders → Medicinal shops

Source: Alex and Vidyasagaran (2016)

References

Ahmed, M.U., Jana, S.K., Roy, S.D. (2016), "Marketing Of Non-timber Forest Products – A Study in Paschim Medinpur District in West Bengal, India", *Intercontinental Journal Of Marketing Research Review*, **4**(3): 330-337.

Alex, A. and Vidyasagaran, K. (2016), "The Marketing of Non-timber Forest Products in The Western Ghats Region of Attappady, Kerala", *Economics Affairs*, **61**(3): 355-363.

Subramanian, P. and Senthilnathan, S. (2004), *Production and Marketing of Forest Produce*, International Book Distributors, Dehradun, Uttaranchal.

Important books

- Production and Marketing of Forest Produce- Dr. P. Subramanian and Dr. S. Senthilnathan
- Forest Economics, Valuation & Projects- Dr. S.S. Negi
- Agricultural Economics- S. Subba Reddy, P. Raghu Ram, T.V. Neelakanta Sastry and I. Bhavani Devi
- Forest Economics: Principles and Applications- J.C. Nautiyal
- Forest Economics & Valuation- Madan Mohan Pant

THANK YOU