



P09

Shipping Quotation

- Basis for Shipment Rates
- Weight of Shipment
 - Volumetric Weight
 - Revenue Ton
- Types of Freight Rates
 - Air Freight
 - Sea Freight

SCHOOL OF
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E216 Distribution
& Transportation

Basis For Shipping Rates



- Cost of Service
- Value of Service
- Distance
- Volume/ Weight of Shipment



Cost of Service



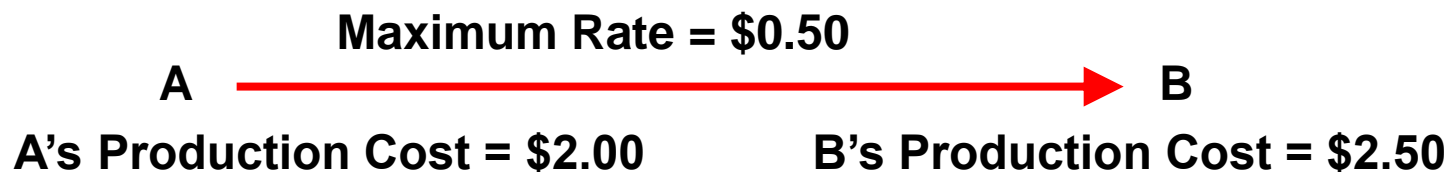
- A “buildup” approach
- Carrier established a rate based on **cost of providing the service plus a profit**
- An approach for low-value goods or in highly competitive situations
- May have difficulty allocating common/joint costs to a production unit
- Basis for cost and rate variations



Value of Service



- Charges a rate based on **perceived shipper value** rather than actual cost of service
- Shipper willing to pay more to transport high-value goods or when limited competition exists
- Considers the **demand side of pricing** – the ability of product to withstand transportation costs



E.g. Production cost at B is \$2.50 and Production cost at A is \$2.

- the highest rate a carrier can charge to move producer A's product to point B is \$0.50 per unit
- The upper limit value of service is \$0.50 in this case

Value of Service



	Coal	Gold
Production value per ton	\$45.00	\$10,000,000.00
Transportation charge per ton	\$5.00	\$2,000.00
Total selling price	\$50.00	\$10,002,000.00
Transportation cost as a percentage of selling price	10%	0.02%



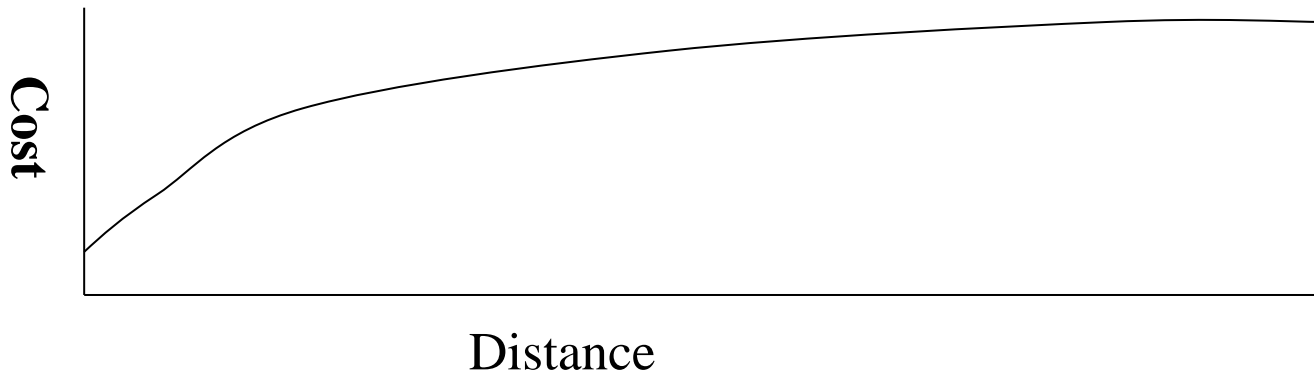
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Distance



- The longer the transportation distance, the higher the cost to carrier and the higher the transportation rate
- The increase in transportation rate is not directly proportional to distance
 - **“Tapering rate principle”**



- As distance increases, the cost per kilometer decreases, causing the rate to taper with distance
- Intercept point on vertical axis corresponds to terminal costs

Blanket Rates



- Blanket rate are rates that do not vary with distance (e.g. postage stamp)
- Rate is the same for all points in the blanket area the carrier designates (city's commercial zone, a given state, region, or a number of states)



Weight of Shipment



- For **air freight**, rates are usually based on **Volumetric Weight**
- For **sea freight**, rates are based on weight or measurement (W/M) basis, also known as **Revenue Ton (RT)**
- Carriers may offer quantity discount for shipping large weight/volumes – rate decreases as weight/volume of shipment increases
- For Railroads, rates are based on **carload (CL)** or **less-than-carload (LCL)** quantity
- For Motor carriers, rates are based on **truckload (TL)** or **less-than-truckload (LTL)** quantity
 - CL and TL rates are lower
 - LCL and LTL rates are relatively higher



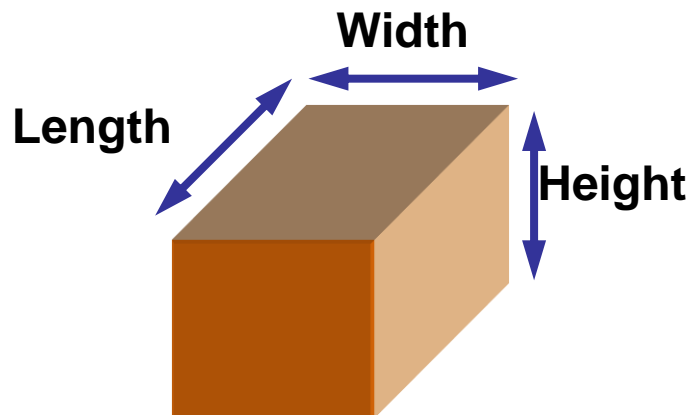
Volumetric Weight



- Large items with light overall weight can be charged according to the space they take up
- Volumetric Weight, or dimensional (Dim) weight, is used to calculate the shipment cost
- Used in airfreight

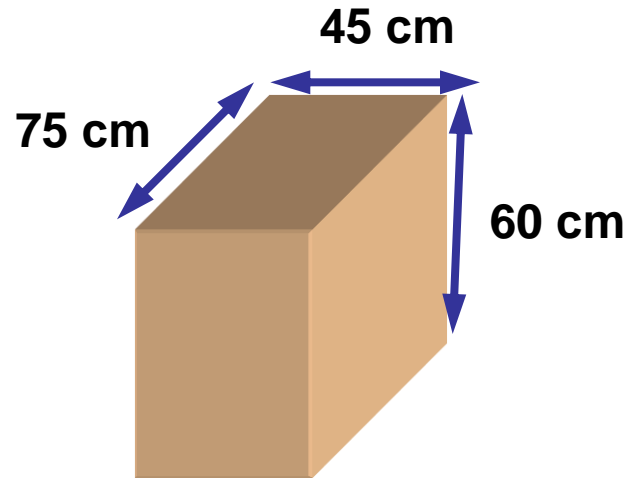
Volumetric Weight (Kg) = $\frac{\text{Length} \times \text{Width} \times \text{Height (in cm)}}{5000}$

5000



Note: The volumetric divisor is taken to be 5000

Volumetric Weight



Volumetric Weight = $\frac{\text{Length} \times \text{Width} \times \text{Height}}{5000}$ (in centimeters)

5000

Note: The volumetric divisor is taken to be 5000

$$= 75 \text{ cm} \times 45 \text{ cm} \times 60 \text{ cm} / 5000$$

$$= 202,500 / 5000 = 40.5 \text{ kg}$$

- The higher of volumetric weight or actual weight is used to calculate air freight charges

Weight or Volume Calculation



- Freight charges may sometimes be quoted in w/m - Weight or Measurement
- W/M rates are usually quoted in 1000 kilograms = 1 Metric Ton (MT) (**weight**) or Cubic Meters (CBM) (**measurement**)
- The higher of weight and measurement is chosen to calculate the freight rate, and will be considered the Revenue Ton (RT)

E.g. If the freight charge is 6.00 per w/m, the freight charge of a 4000 kg shipment in a 3m³ box is \$24



Components of Air Freight Cost



- **Air Freight Rate** – Cost of transporting the freight by air. Measured in volumetric weight ranges
- **Fuel Surcharge** – Fuel charge on goods shipped due to increased fuel prices
- **Security Surcharge** - Insurance covering damage caused by war. Also known as Airline War Risk Charge or War Risk Insurance
- **AWB Fee** – Charge on generating Airway Bill
- **Documentation Fee** – Handling of invoice, insurance, packing list and other shipping documents

Components of Air Freight Cost



- **Export/Import Permit Declaration fee** – Tradenet processing and transmission cost/ fee.
- **Customs Examination** – Cost of Customs examination of goods imported/exported. Also known as government stamp fees
- **Weight Verification Fee** – Cost of verifying the weight of goods, a requirement for export shipments
- **Export/Import Transfer Fees** – Cost of transferring cargo to/from truck to terminal
- **Agency Fees** – for consolidation, tracking of shipments

General Cargo Rates (GCR)



General Cargo Rates (GCR)		
Published Rates	Minimum Weight (kg)	Rate (S\$/kg)
Normal	<40	20.42
Quantity	40	17.54
Quantity	100	15.68
Quantity	200	14.76
Quantity	300	13.92
Quantity	400	13.33
Quantity	500	12.81

Export Air Freight Calculation



Air freight	S\$	For 1 carton of volumetric weight 40.5kg (> actual weight of 36kg)
Sin->Guang Zhou	17.54	\$710.37
Fuel Surcharge	0.7/kg	\$28.35
Security Surcharge	0.15/kg	\$6.08
AWB Fee	8	\$8.00
Documentation	20	\$20.00
Permit Declaration	12	\$12.00
Custom Examination	16	\$16.00
Weight Verification Fee	5	\$5.00
Transfer Fee (min S\$10)	0.09/kg	\$10.00
Agency Fees	50	\$50.00
Total		\$865.80

Note: Volumetric divisor is taken to be 5000

Export Air Freight Calculation for 20 boxes



Air freight	S\$	For 20 cartons with unit volumetric weight 40.5kg (> actual weight of 36kg)
Sin->Guang Zhou	12.81/kg	\$10,376.10
Fuel Surcharge	0.7/kg	\$567.00
Security Surcharge	0.15/kg	\$121.50
AWB Fee	8	\$8.00
Documentation	20	\$20.00
Permit Declaration	12	\$12.00
Custom Examination	16	\$16.00
Weight Verification Fee	5	\$5.00
Transfer Fee (min S\$10)	0.09/kg	\$72.90
Agency Fees	50	\$50.00
Total		\$11,248.50

Note: Volumetric divisor is taken to be 5000

Components of Sea Freight Cost

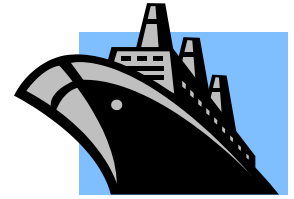


- **Ocean Freight Cost** – Cost of freight transportation by sea. Measured in Revenue Ton
- **B/L Fee** - For processing of Bill of Lading
- **Transport** – Local transport charges
- **Forklift Fees** – Transfer of shipment from truck to wharf for loading
- **Documentation** – Handling of invoice, packing list, B/L and other shipping documents

Components of Sea Freight Cost



- **Customs Examination** – Customs examination of shipment
- **THC** – Terminal Handling Charges
- **Permit/ TradeNet Fee** – For TradeNet permit processing
- **Wharfage** – Charges for loading of shipment from wharf onto ship and using of dock space
- **Express B/L Fees** – Charges for courier service of Bill of Lading to consignee



Export Sea Freight Calculation



Sea freight	S\$	For 1 carton with unit measurement 0.2025 m3 and unit weight 0.036 ton
Ocean Freight	30/RT	\$6.08
B/L Fee	55	\$55.00
Transport fee (minimum S\$70)	11 per cbm	\$70.00
Forklift fee	8 per cbm	\$1.62
Documentation	20	\$20.00
Custom Examination	16	\$16.00
THC	6/RT	\$1.22
Permit/Tradenet Fee	20	\$20.00
Wharfage	1.75/RT	\$0.35
Express B/L fee	35	\$35.00

Total

\$225.26

Export Sea Freight Calculation for 20 boxes



Sea freight	S\$	For 20 cartons with unit measurement 0.2025 m3 and unit weight 0.036 ton
Ocean Freight	30/RT	\$121.50
B/L Fee	55	\$55.00
Transport fee (minimum S\$70)	11 per cbm	\$70.00
Forklift fee	8 per cbm	\$32.40
Documentation	20	\$20.00
Custom Examination	16	\$16.00
THC	6/RT	\$24.30
Permit/Tradenet Fee	20	\$20.00
Wharfage	1.75/RT	\$7.09
Express B/L fee	35	\$35.00

Total

\$401.29

Freight Rates are also affected by:



- **Type of Shipment** (FCL, LCL, palletized, etc)
- **Terms of Sale** (FOB/EXW/DDP)
- **Surcharges** (Fuel and War Risk Surcharge)
- **Insurance** (with/without insurance, additional insurance?)
- **Freight Adjustments**
 - ✓ Currency Adjustment Factor (CAF)
 - ✓ Bunker Adjustment Factor (BAF)
- **Destination** (Distance travelled, and tariffs on goods may be different)
- **Mode of Shipment**
- **Profit Margin**

Today's Problem



Basis of Shipment Rates:

- Cost and value of service
- Distance; and
- Volume or weight of the shipment

Cost of shipment (20 cartons) from SIN to Guangzhou, China

- **Air** – 1 carton: **S\$865.80**, 20 cartons: **S\$11,248.50**
- **Sea** – 1 carton: **\$225.26**, 20 cartons: **S\$ \$401.29**

Learning Outcome



- Basis for Shipment Rates
- Weight of Shipment
 - Volumetric Weight
 - Revenue Ton
- Types of Freight Rates
 - Air Freight
 - Sea Freight

