



Chapter 5 Transportation Planning - Freight

Book: International Logistics: Global Supply
Chain Management by Douglas Long

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Outline

- Traffic management
- Trade and equipment balance
- Mode selection and carrier management
- Transportation regulation
- Transportation economics
- Packaging



1. Traffic Management

- Transportation provides two things
 - Physical movement
 - Storage
 - Storage is provided since the cargo is being held during transit, which could be days, weeks or even months.
- Transportation not just effects in terms of logistics
 - Transportation replaced absolute location (site) with relative location (situation). This means that economic development has less to do with one's relationship to nature and more to one's relationship across space.



1. Traffic Management

- Transportation allows for
 - Geographic specialization
 - Large scale production
 - Increased land values
- Transportation can be looked at as the means to an end, the way logistics is done, but it is also a major industry in itself.



1. Traffic Management

- Three key principles for transportation planning
 - Speed: the ability to go from origin to destination as fast as possible
 - Consistency: the ability for shipments to arrive at the same time, every time. The more consistent the transport, the less inventory needed.
 - Control: the ability to make changes before and during transport.



1. Traffic Management

- Tradeoffs in cost versus service
 - The total cost of transportation is more than just the freight bill.
 - One must consider how much is gained from transporting something. Sometimes it is cost effective to ship something around the world. Other times something must be acquired locally or not at all.

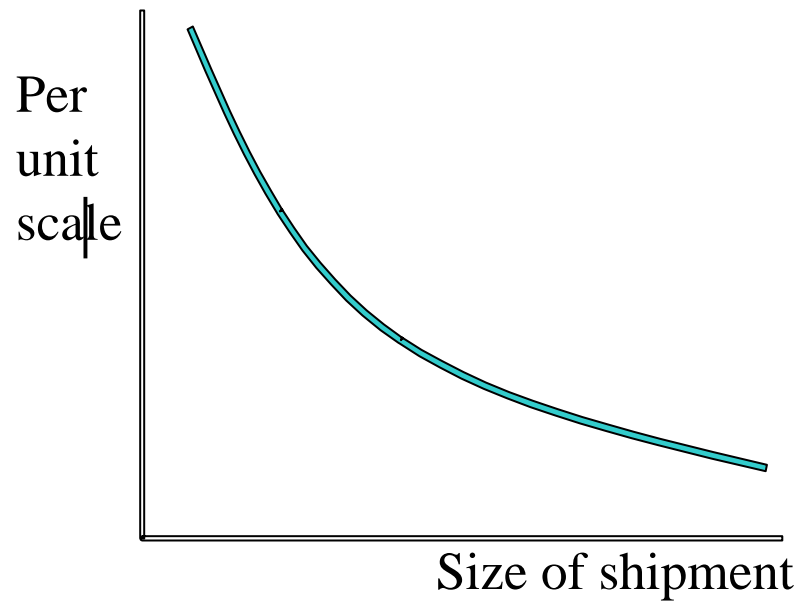


1. Traffic Management

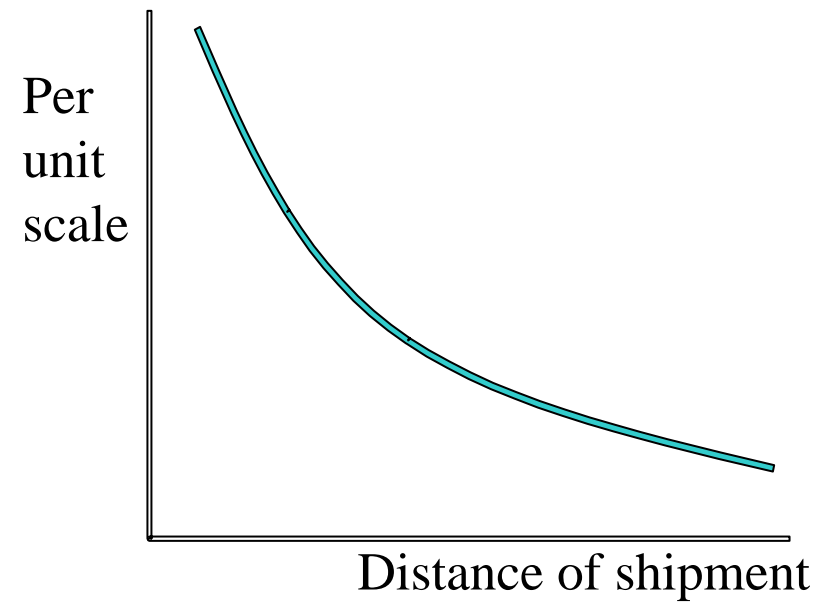
- Economies of scale
 - Per unit costs go down as the size of the shipment increases.
- Economies of distance
 - As the distance of a shipment increases, the cost per unit distance go down.

1. Traffic Management

Economies of scale

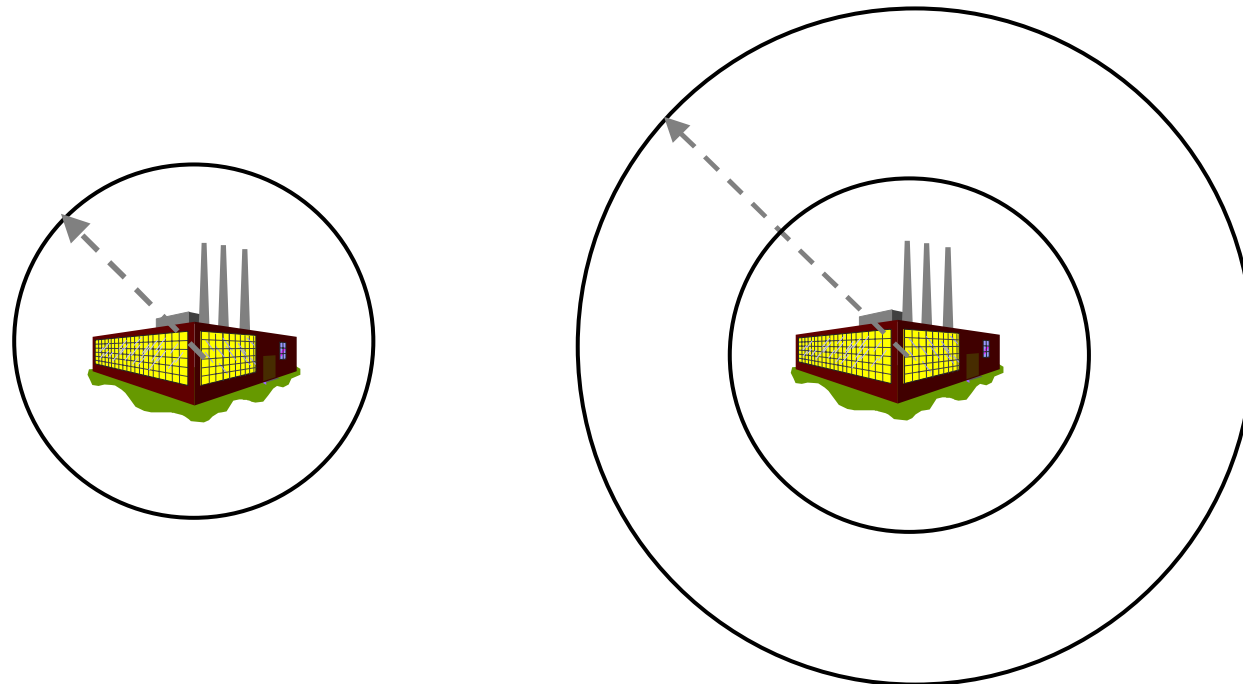


Economies of distance



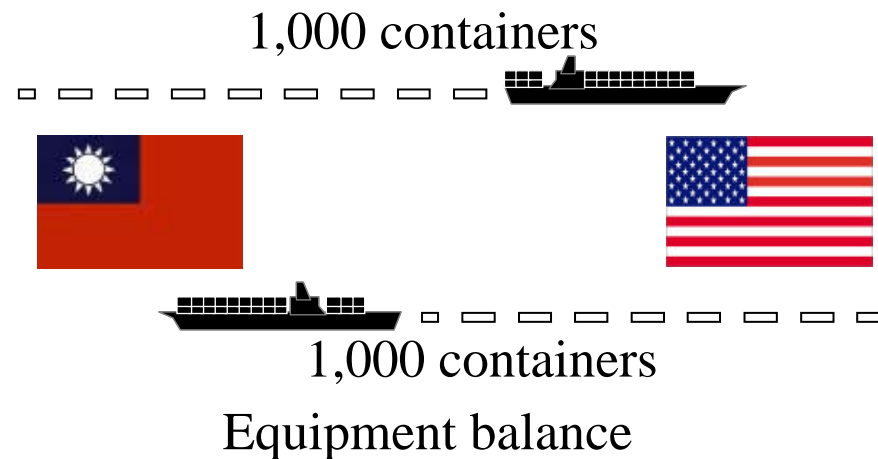
1. Traffic Management

- Lardner's law
 - Also known as the law of squares in transportation and trade



2. Trade and Equipment Balance

- Equipment balance
 - When there is the same amount of cargo or equipment going in both directions of a trade lane.



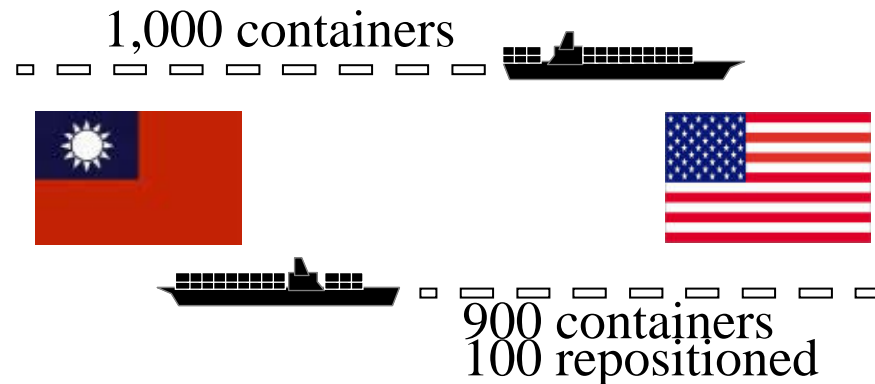


2. Trade and Equipment Balance

- Why is balanced trade so important?
 - Balanced trade makes for the most efficient use of transportation assets.
 - When there is more cargo going in one direction than the reverse, either cargo is being left behind (excess demand), or the vehicle is moving at less than capacity. In either case, this inefficiency costs money.

2. Trade and Equipment Balance

- Imbalanced trade in containerized cargo
 - There is a surplus of containers on one side, and a deficit of containers on the other side.
 - In order to fulfill demand on the deficit side, empty containers need to be moved from the surplus side, known as empty repositioning. This can be very expensive.





2. Trade and Equipment Balance

- In reality, the situation is much more complex. Instead of a two-port example, ports trade with many other ports.
- From a logistics perspective, what is more important is whether a given port or region is balanced overall.
- Resolve imbalance
 - Price adjustment
 - Transport capacity adjustment



2. Trade and Equipment Balance

- Trade balance also has seasonal variations. The summer season is generally slower, which means that carriers will move less than full.
- Container pools or chassis pools
 - Common method of managing equipment imbalance
 - The participating companies agree to share their equipment. At the end of a period, such as a month or a quarter, the companies look at eh balance and pay for any difference.



3. Mode Selection and Carrier Management

- Four factors in transportation decisions
 - Shipper
 - Cargo
 - Carrier
 - Consignee
- Cargo characteristics determine the best way to ship it.
- The shipper can only choose from the carriers that are offering their services, and often the choices are quite limited.
- Finally, the consignee often influences the method of delivery when the purchase was made.



3. Mode Selection and Carrier Management

- Transportation ownership
 - Private
 - Contract
 - Common carriage
- The choice depends on a variety of factors, but the most important is the level of commitment and risk the shipper is willing to accept.



3. Mode Selection and Carrier Management

- Cargo transport characteristics
 - Size
 - Weight
 - Density
 - Stowability
 - Handling
 - Liability
 - Dangerous goods
 - Special service requirements

3. Mode Selection and Carrier Management

- Choice of transport mode (spectrum)

Low value/weight ratio
(grain, oil)

High value/weight ratio
(documents, jewelry)



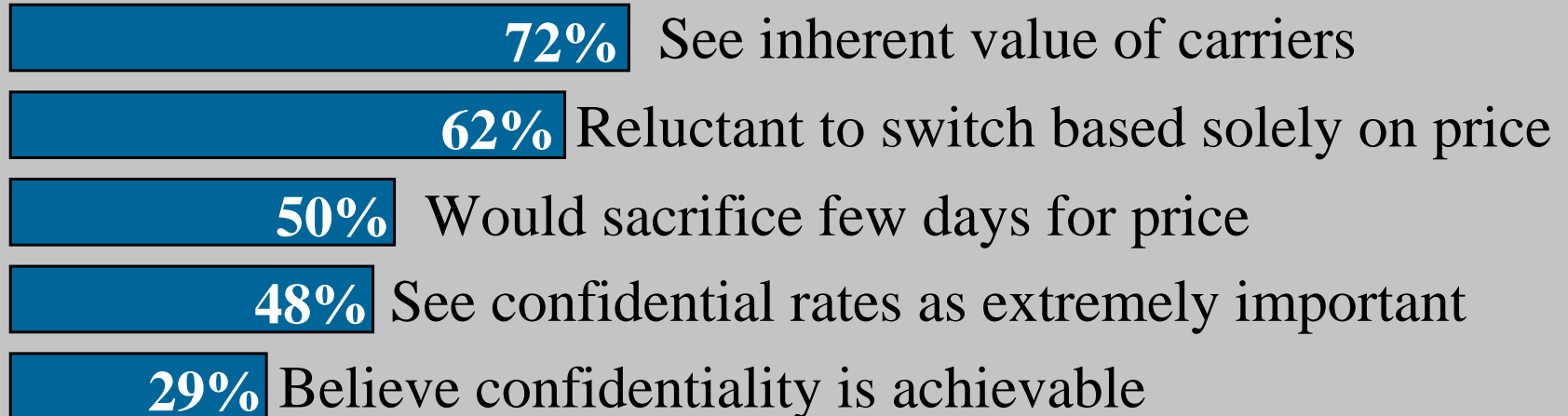
Bulk ocean
Rail

Intermodal

Air cargo

3. Mode Selection and Carrier Management

- Shippers' opinions on key issues





3. Mode Selection and Carrier Management

- Criteria for selecting transportation provider
 - Pricing 31%
 - On-time performance 22%
 - Customer service 13%
 - Document quality and accuracy 13%
 - Shipment tracking 11%
 - Global coverage 5%



4. Transportation Regulation

- Government regulation
 - Government regulation is becoming less of an influence in some ways, and more of an influence in other ways.
 - Regulation of business regulations is being reduced
 - Safety, environmental protection, labor conditions and other social issues are becoming more regulated.
 - Government regulation comes mostly from national governments.
 - International law has been written for many areas such as aviation safety, shipping safety or documentation standards. There are areas where it is important to have worldwide agreement on the standards.



4. Transportation Regulation

- Government regulation
 - Monist system v.s. dualist system
 - There is also competition among countries based on their business laws. A shipper has a choice of which country to ship through or do business with.



4. Transportation Regulation

- Why do we have regulations in the first place?
 - They would not exist if there were not the demand
 - The demand from the public for certain social outcomes, such as a healthy economy, clean air, and so on.
 - Shippers and carriers have interests and they use regulations to achieve those goals.
 - Shippers want as strong a competitive environment as possible to keep transportation costs low
 - Carriers want less competition
 - There is thus an inherent tension between these two communities



4. Transportation Regulation

- Why do we have regulations in the first place?
 - Recently there has been a trend in the logistics world where cooperation and partnership between shippers and carriers that has made this traditional antagonism less practical.
 - There is also less distinction between what is a shipper and what is a carrier.



4. Transportation Regulation

- Competition regulation
 - One of the most contentious areas in the regulation of international logistics and transportation.
 - Lack of government regulation leads to one of two extremes, monopoly or destructive competition.
 - Ongoing debate over the ideal level of competition.
 - On maritime shipping and air transport, there is no such thing as a completely free market.



4. Transportation Regulation

- Non-discrimination
 - A legal concept designed to protect competition and unfair business practices.
 - It means two things:
 - A carrier cannot charge different prices for similarly situated shippers
 - Carriers cannot refuse service to any shipper
 - If the law did not include non-discrimination rules, this would be a highly effective method of hurting the competition.



4. Transportation Regulation

- Common carriage
 - The transportation service is provided to the entire shipping community on a non-discriminatory basis.
 - Generally speaking, a common carrier is a carrier that operates on a regular route, publishes its schedule and its rates. If it does this, it is legally considered a common carrier, whether it wants to be so or not.



4. Transportation Regulation

- Common carriage
 - Common carriage also applies to other industries, such as telecommunications.
 - Non-discrimination by common carriers does two limits
 - They only need to provide their service up to the physical ability of carrier.
 - A similarly situated shipper must be part of the same market.



4. Transportation Regulation

○ Cabotage

- Shipping cargo between two points in the same country is known as cabotage.
- It is extremely rare that any countries allow foreign carriers to do this.
- Restrictions on cabotage reduce competition and increase prices, but almost every country feels that it is more important to have a healthy domestic transportation industry.
- A major part is for national defense and military reasons. Part of this is to promote local jobs.



4. Transportation Regulation

○ Deregulation

- Of all the areas of an economy that experience anti-competitive protection from governments, transportation and logistics tends to be among the last to get deregulated.
- International transportation has tended to be the first to get deregulated, but national transportation tends to be the last to get deregulated.



4. Transportation Regulation

○ Deregulation

- What exactly is meant by deregulation?
 - Price restrictions intended to guarantee a higher-than-market price were eliminated.
 - Eliminated the restriction that the services provided were limited in order to prevent carriers from offering new routes or new value-added service.
 - Deregulation entails turmoil and uncertainty in the logistics industry.



5. Transportation Economics

- Transportation economics
 - Look at the demand for logistics and transportation in economic terms
 - How logistics companies fulfill these demands in terms of pricing



5. Transportation Economics

○ Pricing

- A powerful tool used to achieve a variety of business and regulatory goals
- Entail two parts
 - The process, how prices are developed
 - The result, a price
- The prices are also called freight rates or freight charges
- International transportation is unique in that rates are based on the commodity, even when it makes no difference in the costs.
- The pricing process has become increasingly complicated because of the trend toward alliances and partnerships.



5. Transportation Economics

○ Pricing

- Some main variables for the pricing process
 - Cost of providing service
 - Value of service to customer
 - Ability of the merchandise to support transport expense
 - Economic conditions in general
 - Supply and demand



5. Transportation Economics

- Rate types
 - Class rates
 - Class rates are used when it is impossible for a special rate to be established for every possible commodity, from every destination, to every possible destination
 - Commodity rates
 - As discussed earlier, based on the commodity. Shippers of high value cargo are willing and able to pay more



5. Transportation Economics

- Special charges
 - Special charges may be assessed for many reasons, including the following
 - Transit service
 - Diversion
 - Reconsignment
 - Split delivery
 - Demurrage/detention
 - Accessorial charges



6. Packaging

- Packaging is one of those areas that most people do not think too much about. Yet it plays an important role in business for marketing, safety, transportation and other reasons.
- Three levels of packaging
 - Retail
 - Group
 - transport



6. Packaging

- Some of the markings on packaging are required by law, for things such as customs, security, etc.
- Language requirements on packaging vary, but it would be prudent to include the native languages of the origin and destination, and in all cases, English.
- The marketing means that it should let everyone know what was in the box. This raises an obvious security problem.
- Carriers are generally not responsible for damage resulting from inadequate packaging.
- One of the new trends in logistics is environmentally friendly packaging, and cheaper packaging. Both have led to the increased use of returnable containers or packaging.



6. Packaging

- Pallets
 - Pallets are metal, wood or plastic platforms used for handling small batches of cargo.
- Packing
 - Refers to the process whereas packaging usually refers to the material itself.
 - Of large industrial goods, packing is a special skill and there are companies that just offer this service.
- Dangerous goods have special requirements, including their packaging and marking.