A Secondary Study of Air/Ocean Transportation and Insurance Policies: Insights from a Comparative Business Management and Analysis Perspective

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***Abstract*---** Air freight and ocean freight constitute the most commonly utilized transportation means, especially during cross-border delivery. Whether for personal or business reasons, these options exhibit several similarities and differences that stretch beyond the vessels used to transport the cargo.

***Keywords*---** Comparative Business Management, Analysis Perspective, Environmental Impact, Safety and Time.

I. Background

ACCORDING to Davarzani, Fahimnia, Bell and Sarkis (2015), both air and ocean transportation exhibit mixed results relative to their associated merits and demerits. Whether air transportation outperforms ocean transportation whereby its merits outweigh the demerits or ocean transportation outperforms air transportation forms one of the areas in logistics that have gained growing scholarly interest. As avowed by Havel and Sanchez (2014), some of the parameters through which benefits of these two forms of transportation and their associated insurance policies include the speed at which the cargo is delivered to the destination, capacity, reliability, and cost or charges. As avowed by Lee and Song (2017), additional factors that are worth considering include logistics, environmental impact, destination coverage, safety, and time. This secondary research compares the benefits of ocean versus air transportation, as well as insurance policies with which each form is associated.

II. Insights from Air Transportation

Perceived to be a deviation from land transport, air transportation has received growing interest. According to Shi and Li (2017), one of the benefits with which air transportation is associated involves speed. As contended by Talley (2013), there is a positive correlation between the use of air freight and speed. Particularly, these studies established that air freight forms one of the most ideal means of utilization, should the sender or owner of the cargo strive to move it quickly. A real-world example is the case of FedEx air freight, which requires about one or two days to ship an item from Hong Kong to Delaware (Tompkins, 2010). Woo, Pettit, Kwak and Beresford (2011) observed that if the same delivery utilizes ocean transportation, it is likely to demand about 30 to 60 days, with some deliveries, based on the prevailing conditions, stretching beyond two months. Despite this promising trend, Davarzani, Fahimnia, Bell and Sarkis (2015) cautioned that this merit of speed, which is associated with air transportation, tends to be countered by the aspect of cost. As contended by Havel and Sanchez (2014), one of the biggest downsides of air transportation involves cost. Particularly, shipping items using air transportation takes a very short period but the air freight costs surpass those incurred when one opts for ocean transportation.

Lee and Song (2017) illustrated the latter dilemma regarding the benefit of speed versus the drawback of air freight (in terms of cost). A specific example was similar to the one involving FedEx's delivery of goods between Delaware and Hong Kong. The study documented that air freight is likely to cost about 13,000 dollars, compared to the case of ocean transportation in which goods of the same eight could demand 3,000 dollars. However, Shi and Li (2017) documented that if the weight of the goods decreases from 500 kilograms to 100 kilograms, the price for ocean freight is unlikely to change while that for air freight ends up reducing to about 3,000 dollars. Thus, air transportation becomes advantages when transporting items of smaller weights compared to the case of ocean transportation, but the high cost with which it (air transportation) is associated when greater distances and goods of larger weights are involved

tends to be countered by the beneficial effect of speed (Talley, 2013).

According to Tompkins (2010), the above scenario holds because the calculation of cots for ocean transportation is informed by the parameter of volume while the cost of air freight is based on the weight of the cargo. The implication is that if an individual strives to incur less but transport goods of much weight, with the time factor being of less priority, ocean transportation reflects an optimum means. On the other hand, for an individual, group, or organization wishing to transport goods of much weight in a short period, regardless of the cost factor, air transportation becomes an ideal option (Woo, Pettit, Kwak and Beresford, 2011). In a similar observation, Davarzani, Fahimnia, Bell and Sarkis (2015) documented that the decision by airlines to charge for the goods being transported is often dependent on the factor of chargeable weight. As contended by Havel and Sanchez (2014), the chargeable weight entails the difference between a shipment's volume weight and its actual weight. As noted by Lee and Song (2017), a cargo's actual weight is obtained upon weighting on a scale while its dimensional weight reflects the volume weight. As such, the process of packaging the freight determines the dimensional weight, implying that compact packages remain preferable.

Another parameter from which a comparative analysis could be done regarding air freight versus ocean transportation involves the global reach. According to Shi and Li (2017), the uniqueness with which air transportation is associated involves its ability to deliver packages virtually everywhere around the world. As indicated by Talley (2013), dozens of airlines have continually attended to over 200 destinations. It is also worth indicating that the top five airlines have been avowed to serve over 300 detsinations. According to Tompkins (2010), these airlines include Turkish Airlines, Delta, United, Air Canada, and American Airlines. The eventuality is that air transportation outperforms ocean transportation whereby it drives over sea or ocean bodies and also over the land, implying that its destination reach is not as restricted as the case of ocean vessels. Despite this promising outcome, Woo, Pettit, Kwak and Beresford (2011) cautioned that the advantage of the global reach with which air transportation is associated continues to be compromised by weight and size limitation. Particularly, the study established that most of the ships are huge compared to the majority of planes, which are relatively small. Therefore, air transportation faces the limitation of the wight and size of the air freight that could be handled. Davarzani, Fahimnia, Bell and Sarkis (2015) contended that built-AN-225, one of the world's biggest planes, can transport 250 tons only. On the other hand, Havel and Sanchez (2014) asserted that ocean transportation proves more convenient relative to the aspects of cargo size and weight whereby OOCL Hong Kong, one of the world's largest ships, can transport over 190,000 tons. For air transportation, the situation proves more problematic when the delivery of goods involves passenger planes, rather than cargo planes. In the study by Lee and Song (2017), it was established that goods tend to have the least boarding priority in passenger planes, coming after passengers themselves and their luggage. Thus, air transportation proves convenient due to its strength of global reach in which it can deliver goods virtually anywhere but it is limited by parameters of weight and size, which tend to be countered by ocean transportation in which large ships, whereas they do not dleiver goods on land, can be used to deliver goods exceeding 190,000 tons.

It is also worth indicating that air transportation has been compared with ocean transportation relative to a parameter of the accuracy of shipping dates. As documented by Shi and Li (2017), air freight is associated with high reliability. For example, recent statistics suggest that in the last three years, the top five airlines have had their average rate of cancellation stand at two percent while the rate of late arrival has averaged 15 percent. Due to this promising state of reliability, Talley (2013) observed that most of the postal service firms have guaranteed overnight air freight deliveries. For ocean transportation, the delivery dates are in huge ranges. As avowed by Tompkins (2010), the variability arises from the time taken to load and unload the cargo in ports. In situations experiencing a shortage of the workforce, machinery, equipment, and pace for loading and unloading, the delivery date variability is common.

Based on the parameter of delivery data accuracy, air transportation is seen to outweigh ocean transportation, but the factor is be compromised by weather dependence. As observed by Woo, Pettit, Kwak and Beresford (2011), weather causes problems both to the sea and ground shipping operations, but air freight remains the worst hit. In a similar observation, Davarzani, Fahimnia, Bell and Sarkis (2015) stated that when inclement weather conditions set in, airports tend to ground flights. Some of these inclement weather conditions include blizzards and hurricanes. Whereas these adverse weather conditions occur less frequently, their influence on air freight is pronounced, especially in situations requiring or exhibiting defined delivery times.

However, it is worth acknowledging that the short transit times with which air transportation is associated lead to lower costs and risks. According to Havel and Sanchez (2014), the lead times experienced in air freight are short. Lee and Song (2017) contended that due to the short lead times, chances of losing or spoiling the goods are very low.

Also, short shipping times have made it more beneficial and convenient to embrace air transportation in delivering valuable goods and perishable goods, including banknotes, jewelry, and precious metals, a trend attributed to lower risks of theft in air freight. The eventuality is that a combination of high-security levels and lowered risk in airports accounts for lower insurance costs for air freight compared to the case of ocean freight. Specifically, Shi and Li (2017) observed that insurance costs tend to be about 10 percent to 30 percent lower.

Insights from Ocean Transportation

Whereas some studies have examined the phenomena of air freight versus ocean freight from the perspective of air

transportation, others have examined the debate from the perspective of ocean transportation. For such studies, one of the parameters that have proved crucial towards comparative analysis involves cost-effectiveness. Similar to the observations by Talley (2013), a study by Tompkins (2010) revealed that ocean freight services are more cost-effective than air freight services. Hence, it can be inferred that companies that prefer ocean transportation experience a cost-effective option through which their products are shipped. Given that most of the businesses have their central objective lying in the minimization of the cost of production by ensuring that less is spent in shipping exported or manufactured goods (Woo, Pettit, Kwak and Beresford, 2011), it is also worth contending that ocean freight yields a significant reduction in the cost of operation. The eventuality is that the operational cost of air freight exceeds ocean transportation and that companies that seek ocean transportation are likely to have the edge over their intra-industry and inter-industry competitors.

The weight of goods, similar to studies that examined the debate from the perspective of air freight, forms another factor that studies seeking to unearth the merits and demerits of ocean transportation have been investigated. For companies dealing in the importation of heavy goods, Davarzani, Fahimnia, Bell and Sarkis (2015) asserted that ocean transportation proves more convenient than air transportation. The benefit has been documented further to outweigh air freight relative to environmental friendliness. Particularly, Woo, Pettit, Kwak and Beresford (2011) observed that airplanes' fuel consumption is high and, in turn, increases the carbon footprint, hence environmental harm. The carbon emissions accruing from the airplanes' high fuel consumption have also been avowed to cause an ecological imbalance (Havel and Sanchez, 2014). Regarding the use of ocean vessels such as ships, Lee and Song (2017) asserted that their carbon print is small due to lower fuel consumption. Hence, ocean freight can be deemed environmentally free, especially for companies that are keen to realize a green environment. The trickle-down effect of this minimization of environmental harm, as indicated by Shi and Li (2017), is that ocean freight promotes sustainability or environmental friendliness and translates further into a significant improvement in the brand image of businesses.

However, Talley (2013) cautioned that ocean freight is associated with logistical merits in terms of environmental friendliness, the ability to transport heavy goods, and cost-effectiveness but these attributes tend to be compromised by the duration required to deliver the cargo. Whereas many businesses strive to deliver products fast, ocean freight proves slower than air freight. With the significant delay, apart from the factors of timeframe, cost, and speed, it also becomes imperative to examine the benefits of ocean freight versus air freight based on policies surrounding duty and VAT. According to Tompkins (2010), the mode of transportation determines the duty and VAT bill that a company or an individual shipping the products incurs. Similar to the observations by Woo, Pettit, Kwak and Beresford (2011), the study suggested that duty is calculated relative to a combination of the shipping cost and the cost of goods under transportation. To gain insights from the factors of duty and VAT in relation to the use of ocean transportation and air transportation, Davarzani, Fahimnia, Bell and Sarkis (2015) focused on an example involving plastic phone cases. In the study, it was noted that if the value of the cases is 5,000 pounds and that the bill involving sea freight is 310 pounds, the owner is expected to incur a relevant percentage (such as 6.5 percent) of the total amount involving the ocean freight bill and the value of the cases, amounting to 5,310 pounds, which becomes the duty expressed as an allocated percentage of the combined shipping cost and the cost of goods.

The study highlighted further that if a similar scenario involves air transportation, there is likely to be a significant increase in the amount of duty incurred because the air freight bill could be about 1,200 pounds, exceeding the ocean freight bill significantly. The implication is that ocean transportation is deemed more cost-effective than ocean transportation, should factors of duty and VAT be considered. Havel and Sanchez (2014) observed that customers ought to consider potential fluctuations in the amount of VAT and duty before selecting ideal modes of transport. Should the interest of the customer or organization shipping the product be about the need to minimize the costs of transportation, the ocean freight option has its benefits outweigh those of air freight, with factors such as time, safety, and speed kept constant.

III. Overall Insights and Conclusions

Based on the mixed outcomes accruing from the comparative analysis between ocean freight and air freight, a factor that plays a moderating role in relation to the determination of whether one mode outperforms another entails convenience, preferences, or the needs on the part of the individual or organization shipping the products. Regarding air transportation, it is evident that it is more reliable, safer, and faster than ocean transportation but remains more expensive. For instance, air transport costing 1,000 dollars could have similar goods transported via ocean shipment at 195 dollars. Regarding ocean freight, it outperforms air transportation via the provision of more value and capacity. However, delays tend to arise from possible port holdups and customs issues. From the environmental perspective, air freight exhibits poor carbon footprint compared to ocean transportation.

In conclusion, air fright billing emphasizes the chargeable weight while ocean transportation emphasizes the size of a shipment. Hence, ocean transportation proves cost-effective if the shipment is heavier and larger. However, air transportation is cost-effective if the shipment is smaller, as the margin between the prices reduces significantly. Furthermore, shipments that require less time imply that air transportation tends to be more beneficial but with a higher cost, a reverse trend compared to a situation in which ocean transportation is embraced, as it assures cost-effectiveness but takes longer, proving beneficial to goods that are required

after around one or two months. Overall, both air freight and ocean freight are beneficial, but most of the demerits that are experienced in one mode are countered by associated merits linked to the other mode. For individuals, organizations, or institutions seeking to transport goods, benefits are likely to be achieved based on the urgency of delivery, the size, and weight of the goods, as well as aspects of duty and VAT.

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