



Assessing customer value for express service providers: An empirical study from shippers' perspective in Taiwan



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ABSTRACT

Customer value is an important factor to evaluate the competitive strength for an international express service provider. It is also a key criterion to choose an express service. Hence, the main purpose of this paper was to develop a fuzzy multiple criteria decision-making (MCDM) model to assess the customer value for three express service providers in Taiwan based on the shippers' perspective. Firstly we employed some concepts of fuzzy set theory to develop a fuzzy MCDM model. Subsequently, a hierarchical structure was constructed with four criteria, twenty sub-criteria and three alternatives (i.e. UPS, FedEx and DHL). Then, this paper conducts an empirical study by means of a survey from the viewpoints of shippers in Taiwan. Finally, the results of this study showed that: (1) the 'time' aspect is the most important criterion affecting the customer service based on the viewpoints of exporters and importers in Taiwan; (2) the top six key factors affecting customer value for express service providers are 'land time between house and airport at both ends,' 'administrative processing time,' 'pick-up and haul time in warehouse,' 'level of accuracy,' 'level of safety,' and 'rapid turnover,' respectively; (3) FedEx offers the best customer value in Taiwan based on the proposed fuzzy MCDM model. Furthermore, some discussions are provided for express service companies. The main contribution of this paper is to provide a practical survey for business application on customer value of express service providers.

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1. Introduction

In the past, it usually took weeks to send a letter or cargo to an overseas destination. If an accident occurred during the delivery process, the letter would fail to reach its designated recipient. Nowadays, however, the development of modern transportation technologies has shortened delivery time and reduced the risk of cargo loss. International trade has also increased due to the use of advanced transportation methods. The recent growth in international trade has also spurred increased globalization on a worldwide basis. In the wake of globalization, better efficiency and faster and less costly worldwide shipment have become the common goals of the international transportation industry.

Express services originated from letter delivery services. When customers pursuing faster speed, lower cost, better service, and higher quality found that traditional postal services failed to their expectations, express service providers – such as UPS, FedEx, and DHL – found a new market niche in international delivery services (Chao et al., 2013; Ding et al., 2005). To provide services beyond cargo transportation and to increase revenue and service volume, express service companies have enhanced their logistics systems and built warehouses near international airports for fast delivery service. These new actions have helped speed up cargo handling and consolidation processes and added value to air cargo transportation services, while also spurring the international express industry to design new solutions involving integrated logistics platforms and cargo distribution services. After third-party logistics providers (3PLs) reached full maturity, integrated fourth party logistics providers (4PLs) began shaping new forms of services.

The fact that the global economy has been swinging

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unpredictably between booms and recessions has caused air cargo transportation to face enormous financial risks and resulted in fierce competition. As a result, how to provide better service quality is perceived as a strategic issue as well as a tactical issue (Grönroos, 2000). Shippers are the main customers in the international express service system. From a marketing perspective, the service quality provided by an international express service company is the main factor in maintaining customers' loyalty (Chang, 2012), and providing the best service and quality, and reducing transportation time and cost, has therefore become the best competitive strategy.

Apart from the core benefits provided by their services, a growing number of express enterprises have also begun putting more emphasis upon the re-purchase intention of their customers. These companies recognize that only by fully understanding customers' needs, they can provide precisely-tailored services offering customers optimal benefit. Better customer service increases value for customers (Johansson et al., 1993), and better services also attract more new customers, and thus increase profit and revenue (Ramsey and Sohi, 1997). Kotler (2013) believed that customer value is the central concept of marketing theory, and the customer value concept has been applied in many service-related fields in order to provide a competitive advantage. One conclusion based on this concept is that companies should discover and provide satisfactory value for their customers.

Customer value is an important factor in maintaining customer satisfaction and customer loyalty in the fiercely competitive air cargo transportation market (Lam et al., 2004). Three international express service providers (UPS, FedEx, and DHL) have already established operations in Taiwan to serve the needs of local enterprises and individuals (Chao et al., 2013). Nevertheless, few studies have focused on customer value issues for international express service providers. Park et al. (2009) suggested that optimal customer value is one of the important assessment factors in evaluating the competitive forces acting on international express service providers, and customers select international express services based on customer value. This paper therefore assesses the customer value provided by the three express service providers in Taiwan.

Due to its characteristics, when multiple criteria decision-making (MCDM) is used to assess customer value and the effect of changes in various criteria upon group decision-making, the importance weights between various criteria tend to be characterized by ambiguity and variability. In addition, relevant decision information is hard to come by and often vague, particularly when the information involves linguistic terms (e.g., low, high, poor, and good, etc.) (Zadeh, 1975; 1976). When decision makers (DMs) are expected to deal with the ambiguity of all criteria weights and to express the inaccuracy of decision information transmission via traditional decision making methods, experience has shown that it is difficult for DMs to evaluate decisions. Fuzzy set theory (Zadeh, 1965) was therefore used in this paper to deal with the uncertainties posed by vague linguistic terms, and we propose the use of a fuzzy MCDM method to assist with improvement of decision-making quality.

In summary, the main purpose of this paper is to develop a fuzzy MCDM model to improve the quality of decision-making in assessing customer value of three express service providers in Taiwan based on a shippers' perspective. This study was conducted employing the following research procedures. The relevant literature is reviewed in Sections 2, including literature concerning express service providers, customer value, and evaluation criteria of customer value. The research methodology, including fuzzy set theory and the defuzzification method, is presented in Section 3. A step-by-step fuzzy MCDM model is constructed and described in Section 4. The results of an empirical survey are examined in Section 5, and the conclusions are drawn in the last section.

2. Literature review

2.1. Express service providers

Air cargo transport services mainly include air mail, air freight, and air express (Chang, 2012). Air mail consists of ordinary letters and documents. Air freight employs all-cargo aircraft to transport general cargo. Air express involves the use of express handling processes to implement the transport of small packages, commercial documents, and samples, etc. In the wake of rapid changes in business activities, today's small, light, and compact products are especially suitable for transport by air freight. Thus, the customers' needs to transport small batches of varied products by air grow gradually. As international trade and various commercial activities gradually increase, international express operators have become important air cargo logistics service providers, and have relied on the provision of fast, economical, all-around logistics service to expand their market share.

In general air cargo transport, air freight forwarders typically handle transport of cargo to an airport, customs declaration, arrangement of insurance, preparation of cargo and notification of hand-over for loading, handling of documentation, arrangement of shipping space with the airline, and transport consulting services (Chang, 2012). Nevertheless, due to forwarders' limited scale of operations, the service quality varied across the industry, and restrictions on aircraft carrying capacity (Chao and Li, 2012); they cannot effectively guarantee transport time, cargo safety, and convenient door-to-door service (Chao et al., 2013). However, in pace with the rapid evolution of the industry environment and commercial activity; demand for transport of items such as small packages, commercial documents, and gifts has increased steadily. As a result, air cargo service providers have relied on innovative, real-time, door-to-door, and convenient methods to serve their customers (Chen et al., 2015; Ku and Chen, 2013), and have also adopted air carriers' operating methods to provide rapid delivery service, which has enabled them develop integrated operating models offering high quality and high efficiency.

The international express industry employs an 'integrated air carrier' business model. This industry has integrated the air transport industry, air freight forwarders, inland transport industry, air freight depots, and customs clearance services. The companies in this industry possess extensive and intensive global transport networks (Chang, 2012), and have established regional transshipment airports (Chao and Li, 2012) in various parts of the world in order to achieve their goal of rapid, on-time global door-to-door transport service. This has enabled them to realize the full benefits of their global transport networks and allows them to help customers quickly obtain cargo (Chen et al., 2015).

The three companies UPS, FedEx, and DHL are the leading members of the international express industry, and all have established business locations in Taiwan. These three firms chiefly transport cargo consisting of business documents and small packages, and their profitability is greater than that of ordinary air cargo carriers. Because competition is extremely intense in the international express service market, these express firms handle all matters involving cargo during the processes of loading, transport, customs clearance, documents handling, and computer tracking, which ensures that all cargo transport processes can be completed within a specified period of time. Furthermore, the fast and reliable transport services provided by the international express industry are able to meet the needs of evolving commercial activities performed by multinational corporations. If the international express industry is able to provide adequate customer value in the future, it would continue to grow and maintain its competitiveness (Wittmer and Rowley, 2014).

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