Rating Pressure Factors Affecting Logistics Systems during the Pandemic and the Ideal Logistic Decision Selection under the Pythagorean Fuzzy Environment by: Arunodaya Raj Mishra; Mustafa Ergün; Basil Oluoch Okoth; Selçuk Korucuk; Ahmet Aytekin; Çağlar Karamaşa

Purpose

Due to the current pandemic, the importance of logistics functions and decisions is well understood both at the level of companies and users. Logistics systems and related decisions are of vital importance in making supply chains effective, efficient and without disruption. Logistic pressure factors may emerge at different points along the logistics process, and given the role of logistics decisions as one of the important indicators of competitiveness, the determination of the logistics pressures that are likely to increase the costs of business, and their causative factors are a vital aspect of the logistics decision-making process. The study aims to provide assistance in the selection of the most ideal logistics decision by ranking the pressure factors affecting the logistics system, especially during the pandemic period for logistics enterprises operating in Ordu and Giresun provinces and which have a corporate identity.

Design/methodology/approach

In this study, it is aimed to make the most ideal logistics decision selection by ranking the pressure factors affecting the logistics system, especially during the pandemic period for the logistics enterprises operating in Ordu and Giresun provinces and having a corporate identity. For that purpose interval-valued Pythagorean fuzzy (IVPF)–analytic hierarchy process (AHP) based combinative distance-based assessment (CODAS) methodology was used. Additionally sensitivity and comparison analysis were discussed.

Findings

Competitive pressure was found as the most important pressure factor affecting the logistics system during the pandemic period. Change in regulatory rules was the pressure factor found to have the least effect on the logistics system. Using the weights of logistics pressure factors, “Operational Decisions” was found to be the most ideal logistics decision selection.

Research limitations/implications

The findings provide support for the evaluation of logistical pressures and decision options by presenting a decision model capable of processing ambiguous information. During a pandemic or similar period, the study assists decision makers in determining a new route. The findings will also call business managers' attention to logistical pressure factors and lead them toward more realistic and feasible practices in the logistics decision-making process.

Originality/value

This study provided an effective and applicable solution to a decision-making problem in the logistics sector including logistics pressure factors and the selection of logistics decisions. In this context, a methodology was presented that will allow businesses to self-evaluate their own logistics pressure factors and the selection of optimal solutions.

Keywords: Logistics Systems, Pressure factors, Logistics decisions, Interval-valued pythagorean fuzzy sets, AHP, CODAS

Citation: Mishra, A. R., Ergün, M., **Okoth, B. O**., Korucuk, S., Aytekin, A., & Karamaşa, Ç. (2024). Rating pressure factors affecting logistics systems during the pandemic and the ideal logistic decision selection under the Pythagorean fuzzy environment. *Kybernetes*, *53*(7), 2247-2278.https://www.emerald.com/k/article-abstract/53/7/2247/1223013/Rating-pressure-factors-affecting-logistics?redirectedFrom=fulltext

Publisher: Emerald Publishing

Received: July 21 2022

Revision Received: October 12 2022

Revision Received: December 31 2022

Accepted: February 16 2023

Online ISSN: 1758-7883

Print ISSN: 0368-492X