Evaluating the Development of the North Vietnam’s Metropolises

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Abstract: Over the last two decades, Vietnam’s record on economic growth was remarkable, with a lot of potential to develop. Vietnam’s GDP per capita growth has been among the best in the world. City logistics play a crucial role in Vietnam’s economy; the more effective these services are the more competitive of the industry and trade of each country is. However, the logistics system in Vietnam is spontaneous and lacking professionalism. This paper aims to analyze Vietnam’s economy overview and evaluate the development of logistics in three big cities of Northern Vietnam by using a set of criteria used in the TOPSIS method. As a result of the analysis, the value of CI* for storage and transportation is 0.91, which is the highest value in Hanoi.

Key Words: TOPSIS Method, Decision-Making, Logistics Infrastructure, National Economic Development, Northern Vietnam
2. Topsis method

- **TOPSIS (The Technique for Order of Preference by Similarity to Ideal Solution)** is a multi-criteria decision analysis method.
- Including 7 steps:
  - Step 1: Construct the decision matrix.
  - Step 2: Normalize the decision matrix.
  - Step 3: Calculate the weighted normalized decision matrix.
  - Step 4: According to standardized value "yi" of weight to determine the best ideal solution "A+" and the worst ideal solution "A-".
  - Step 5: Calculating distance scale.
  - Step 6: Calculate the similarity to the best solution C+.

3. Using Topsis on evaluating the logistics systems in Vietnam’s major metropolises

- Based on collected data and equations from (1) to (5), determine the weight "wi" of each index. The weight vector "W" is as follows:
  
  \[ W = (0.282671, 0.277267, 0.557785, 0.185247, 0.058381, 0.0041, 0.152336, 0.212365, 0.005404, 0.280647, 0.134615, 0.006722, 0.002911, 0.048388, 0.075361) \]

- Calculate normalized weight and establish normalized matrix, according to which determine the best ideal solution "A+" and worst ideal solution "A-". "A+" and "A-" are shown as follows:
  
  \[ \bar{A} = (0.247164329, 0.689244161, 0.240534356, 0.55547385, 0.162877722, 0.008138725, 0.000263436, 0.142910719, 0.110004093, 0.207788606, 0.297160753, 0.261426368, 0.147875291, 0.047271245, 0.137154661, 0.1299773501, 0.022301514) \]

4. Implement and suggestion

This study aims to investigate the main factors for evaluating three metropolises of North Vietnam through previous literature review. Therefore, comparing and ranking these metropolises by using Topsis methodology. Base on result giving some suggestions to develop and improve these major metropolises.
5. Conclusion

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