ABSTRACT

This study aims to classify regencies/cities in Java Island based on their level of underdevelopment using the *Fuzzy K-Medoids* (FKM) and *Partitioning Around Medoids* (PAM) methods. Java Island, despite being Indonesia's economic center, exhibits significant regional disparities, including inequalities in the economy, infrastructure, human resources, and accessibility. The FKM method was chosen for its superior ability to handle data with overlapping characteristics and *outliers*, which are common challenges in regional development data. The variables used are indicators for determining underdeveloped areas based on Permendes No. 11 of 2020. The analysis results indicate that, although there are some differences in the selected medoids, both FKM and PAM provide similar cluster structures, with the optimal number of clusters being two. FKM produces clusters with clearer separation, evidenced by a higher *Silhouette Index* compared to PAM. However, the clusters formed by both methods are very similar, with only six regions differing in cluster placement for 119 Regions. Cluster profiles show that Group one excels in almost all economic, infrastructure, and accessibility indicators compared to Group two.

Keywords: Regional Disparities, Underdeveloped Areas, Clustering, *Fuzzy* K-Medoids, Partitioning Around Medoids