ABSTRACT

Human Development Index (HDI) is established as one of the key measures in regional development master plans. This study groups the regencies and cities in the provinces of West Java, Central Java, and East Java based on HDI indicators, which consist of four indicators: life expectancy at birth, expected years of schooling, mean years of schooling, and adjusted per capita expenditure. Since the HDI indicator data from these three provinces contain outliers, this research uses the *Partitioning Around Medoids* (PAM) and *Fuzzy K-Medoids* (FKM) methods. These two methods were chosen for their ease of implementation, computational efficiency, ability to handle large datasets, and for producing clusters that are easy to understand and interpret. The suitability of these two methods, particularly in handling the outliers present in the HDI data, makes them an appropriate choice for this clustering analysis. The results show differences in the selected medoids but produce similar clusters with an optimal number of two clusters. The best clustering results were obtained by performing a comparative validation analysis using a *silhouette coefficient* of 0.48 for PAM and 0.31 for FKM. The results of this clustering can serve as information or a basis for consideration in formulating more targeted policies that are tailored to the characteristics of each region.

Keywords: Human Development Index*, Clustering, Fuzzy K-Medoids (FKM), Partitioning Around Medoids (PAM).*