## ABSTRACT

Labor force participation is a crucial indicator that reflects the extent of population involvement in the economic activities of a region. Due to variations in socio-economic characteristics across regions, it is essential to group areas to tailor employment policies to the specific needs of each region. This study clusters all regencies/municipalities in Java Island based on the 2022 Labor Statistics data from Statistics Indonesia (BPS). The dataset used represents the entire population, not a sample, ensuring that the clustering results cover the full study area. Since the data contains outliers, two clustering methods are applied: K-Medoids and DBSCAN. K-Medoids utilizes medoids as cluster centers to reduce the influence of outliers, while DBSCAN forms clusters based on data density and can identify noise points. Cluster validation is conducted using the Silhouette Coefficient. The analysis shows that K-Medoids forms three clusters, while DBSCAN generates two clusters with four regions categorized as noise. The Silhouette Coefficient value of DBSCAN is 0.4299, higher than K-Medoids at 0.2261, indicating better cluster separation in DBSCAN. The resulting clusters reveal associations between labor force participation and other variables such as education level, life expectancy, and Gross Regional Domestic Product (GRDP), offering a more comprehensive basis for designing targeted employment policies across regions.



**Keywords:** K-Medoids, DBSCAN, Labor Force Participation, Clustering, Silhouette Coefficient.