ABSTRACT

This research generate from the idea about administrative regional boundaries in Central Java which are asymmetrical or irregular areas, resulting in income inequality in several districts and sub-districts. Another impact of this asymmetrical boundary is the gap in accessibility of peripheral areas to service centers in city sub-districts. This gap will result in suburban areas that have low accessibility to public services experiencing a lack of services, thus potentially experiencing high economic costs to access services.

The first research objective is to determine the growth pole areas which are discussed using the Service Function Centrality Index (ISFL) and Service Function Dominance Index (IDFL) which are then collaborated in the Propulsive Region Typology. Meanwhile, the second research objective is to identify spatial interaction patterns which are discussed using the spatial gravity model, the spatial gravity model with velocity modification, and the spatial entropy model, eventually the nodal region boundaries in Central Java were found.

The research results obtained several conclusions, namely (1) Empirical estimates show that by using a combination of ISFL and IDFL, 175 propulsive sub-districts were found and (2) based on empirical estimates, it was found that the *Carrothers Gravity Model*, shows that spatial interactions are concentrated in urban areas of districts/cities which gives rise to large interaction patterns in each district/city involving surrounding sub-districts or other sub-districts that pass through other sub-districts, both propulsive sub-districts and non-propulsive sub-districts, the *Gravity Model with Velocity Modification*, shows that accommodation of the velocity function results in increased spatial interactions, but relatively, interactions are found to be increasing and also decreasing interactions for several sub-districts which are thought to be affected by topographic factors and land thresholds for infrastructure, and the *Entropy Model*, shows that most of the propulsive sub-districts are able to drive a maximum of 49% of the total distance with the surrounding sub-districts, which indicates that sub-districts around the propulsive sub-district have to increase the cost by 1% of the distance to access service functions in the propulsive sub-district.

Keywords : growth pole, propulsive area, spatial gravity model, spatial gravity model with velocity modification, spatial entropy model, nodal regions