Growth Analysis of Regional Service Facility Centers in DKI Jakarta Province in 2020

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Abstract

The DKI Jakarta Province is the capital city of the Republic of Indonesia and is the center of national economic, political and cultural activities. according to World Bank records, this province is classified as one of 20 megalopolitans or mega-urbans. DKI Jakarta Province is located south of the Java Sea; in the east bordering the Regency/City of Bekasi; in the south with Bogor and Depok Regencies/Cities and in the west with Tangerang Regency/Cities. The strategic location of DKI Jakarta Province in the Indonesian Archipelago makes Jakarta the main gateway in inter-island trade and international relations with its main ports of Tanjung Priok and Soekarno Hatta Airport. DKI Jakarta Province recorded the highest inter-regional trade surplus due to being a supplier to the provinces in Indonesia, therefore in writing this scientific paper, we take an area in the DKI Jakarta Province to find out how far the growth of service centers in the city of Jakarta greatly affects the economy in the region. The objectives to be achieved in this research are: 1. Analyzing the growth of service centers for public facilities in DKI Jakarta Province from 2020, analyzing the distribution of public facilities, and Analyzing the strength of regional interaction in DKI Jakarta Province in 2020. To find out regional service centers, using the Marshall Centrality Index method, where the method is carried out to calculate the weight from secondary data by using the number of existing public facilities and using the gravity method to determine the strength of regional interaction from the service center area.

The results of the map of service centers in DKI Jakarta in 2020 occupying the service center area using the Marshall Centrality Index method, which is with the highest value of 197.63 in Jakarta Selatan and the lowest value of 6.89 in Kepulauan Seribu the strength of interaction between regions using the reference of the Regency which is the service center shows that the strength of the interaction between Jakarta The center and North Jakarta are very strong, reaching the highest interaction value of 43,309,888,000. Meanwhile, the interaction strength between the Seibu Islands and Central Jakarta is very low, reaching the lowest interaction value, namely 9,625,015.4

Keywords: Regional Growth, Marshall Centrality Index, gravity analysis method.

1. Introduction

Service centers are growth points that occur in certain places only because of the driving force of development, where these forces can stimulate other activities to grow and develop.

The service center is an area that can be determined through a regional system. In a regional system, the city becomes the main element or element and is the nodes or nodes, then the relationship or interaction between these nodes is a factor forming the system of the region which then forms a network of flows that will form interactions between regions in the region. There are several important factors that are carried out in the interaction or linkage of this regional center system, including firstly realizing spatial interactions that were initially separated by various activities between regions so it is important to connect the various interactions between these regions. Both of these interactions or linkages can later be differentiated and specialized in the zoning system. The third is as a vehicle for organizing activities in a regional space. Fourth is in facilitating and channeling changes from one node to another.

The service center consists of the completeness of an adequate facility for all residents. The completeness of an urban facility will make the area a regional service center. Infrastructure plays an important role in increasing economic growth which contributes to the reduction of economic inequality, poverty and deprivation in a country. Greater access of the poor to education and health services, water and sanitation, road networks and electricity is needed for equitable development and social empowerment.

Service centers or better known as central places according to Walter Christaller (1893-1969) are cities that provide goods and services to people in the surrounding area by forming a hierarchy based on the range and threshold of the population (Muliana et al. ., 2018). An activity center that always serves the various needs of the population must be located in a central location, namely a place or area that allows maximum human participation, both those who are involved in service activities and who are consumers of these goods and services (Utoyo, 2007).The regional center functions as: (1) a place of concentration for the population (settlement); (2) service center for hinterland areas; (3) markets for agricultural and industrial commodities; and (4) the location of the manufacturing industry concentration (Rustiadi, 2009). The assumptions used in this theory include: (a) Because consumers bear the cost of transportation, the distance to the center, expressed in terms of cost and time, is very important; (b) Since it is the consumer who bears the cost of transportation, the range of an item is determined by the distance stated in terms of cost and time (January, Ahyuni, & Purwaningsih, 2018).

Distribution and service facilities, as a function of regional spatial planning, can be used as indicators of economic growth, achievement of socio-economic equity and quality of life. The existence of service facilities which include location, quality, quantity, is closely related to the level of welfare of the population. Padangarang (2008) development cannot run smoothly and work well if service

facilities are not available properly. Service facilities are a potential factor in determining the future and development of an area both in urban and rural areas

The objectives of this study are: to analyze the growth of service centers for public facilities in DKI Jakarta Province from 2020, to analyze the distribution of public facilities, and to analyze the strength of regional interaction in DKI Jakarta Province in 2020.

2. Research Methods

Observations were carried out in Medan. Observations were carried out on Sunday, November 24, 2021. The method used in this study is that there are two methods, the first is the Marshall Centrality Index Method which serves to determine the weight of each existing facility per city in DKI Jakarta Province and the second is the gravity analysis method which functions in the spatial field to determine the strength of the interaction between the area that becomes the service center to the back area. The Weighted Centrality Index (ICT) method or called the Weighted Centrality Index (WCI) is an analytical method to determine the regional hierarchy, or determine the central region and its hinterland. (Imam Buchori and Kristiana Dwi Astuti, 2015). The principle of weighting a facility is done by dividing the combined centrality value (100) by the number of facilities in all service centers, so the greater the number of facilities, the smaller the weight, and vice versa (Rondinelli, 1985). Using the assumption that the total number of each function or service facility in the study area has a total centrality of 100, then the weight or location coefficient of each function or service facility is determined using the formula:

$C=t/T$ .....(1)

Description:

C = Weight of the attributes of a facility

t = Combined centrality value, which is 100

T= Total number of attributes of each facility

Gravity analysis is concerned with the size and distance between the growth center and the surrounding area. According to Blakely (1994: 105) that the use of this technique will be able to calculate the relative strength of the commercial relationship between one growth center and another (Warpani, 1984: 111). And this model is often used to calculate the relative strength of the commercial relationship between one growth center and another (Warpani, 1984: 111). And this model is often used to see the suitability of the placement of facilities with the correct space so that it is good to use for determining the maximum location according to its use.

The analysis of related to scalogram analysis, after knowing the sub-district cities that can be categorized as growth centers, the next step is to calculate the gravity index in each hinterland. This gravity model analysis method is used to: (1) measure the strength of linkages between commodity centers and regional development centers; (2) determine the strength of the domicile of each center of economic activity, production and distribution (commodity centers) in the service, distribution and transportation network system.

In the spatial perspective of cities and regions, Gravity Theory is a model that

can be used in analyzing patterns of interaction or linkages between regions or between parts of the region and other regions. This analysis can be used to make plans to anticipate conditions that occur in the future, including the provision of public facilities, transportation facilities, housing, shopping centers and so on. In addition to the supply aspect, Gravity Theory can be used to see or assess the relationship between regions, which in this case is considered a region as a mass, the relationship between regions is equated with the relationship between masses. The mass of the region has an attraction, so that there is mutual interaction between regions as an embodiment of the strength of attraction between regions

A geographer, W.J. Reilly (1929) conducted a study to measure the strength of the spatial interaction between two or more regions. Based on the results of his research, Reilly argues that the strength of the interaction between two different areas can be measured by taking into account several factors of population and the distance between the two regions. To measure the strength of the interaction between these regions, Reilly uses the following formula:

$$I_{A.B} = k \frac{P_A . P_B}{(d_{AB})^2}$$

Description
IA.B = Strength of interaction between region A (center) and B (hinterland)
k = Number of empirical constants, the value is 1 PA = Total population of area A (center)
PB = Total population of area B (hinterland) dAB = Distance between region A and region B
Source: W.J. Reilly (1929) dalam Anggigeo, 2011.

3. Results and Discussion

From the calculation results above, it can be clearly seen that of the 6 cities in DKI Jakarta Province, the highest weighting index value is South Jakarta with an index value of 731.82 and the lowest with an index value of 87.88, namely the Thousand Islands.

The map of service centers in DKI Jakarta in 2020 shows that the lagging regions/districts are the Thousand Islands, where the facilities are generally inadequate/less available, and the most superior city is still in South Jakarta.

The strength of regional interaction in DKI Jakarta Province in 2020 has the same centrality where South Jakarta City functions as a central city capable of becoming the most advanced region due to the completeness of its general facilities by referring to the Marshall centrality index method. The strongest interaction between DKI Jakarta area occurs in Central Jakarta and North Jakarta, where the closest accessibility is 10 km, which is dominated by the number of inhabitants. While the weak interaction is the Thousand Islands with Central Jakarta. This is caused by the distance factor so that the interaction between regions becomes weak.

4. Conclusion

DKI Jakarta Province is the capital city of the Republic of Indonesia and is the center of national economic, political and cultural activities. according to World Bank records, this province is classified as one of the 20 megalopolitans or mega-urbans. DKI Jakarta Province is located to the south of the Java Sea; in the east bordering the Regency/City of Bekasi; in the south with the Regency/City of Bogor and Depok and in the west with the Regency/City of Tangerang. The strategic

location of DKI Jakarta Province in the Indonesian Archipelago makes Jakarta the main gateway in inter-island trade and international relations with the main port of Tanjung Priok and Soekarno Hatta Airport. DKI Jakarta Province recorded the highest inter-regional trade surplus because with the Marshall Centrality Index method which uses facility weights with a reference value of 100, in 2020 DKI Jakarta will occupy the Center for the Growth of public facilities services in South Jakarta City. The highest weighting index value is South Jakarta with an index value of 731.82 and the lowest with an index value of 87.88, namely the Thousand Islands.

The map of service centers in DKI Jakarta Province in 2020 shows that the cities/regencies that are lagging behind are the Thousand Islands, where completeness of facilities is generally lacking/less available, and the most superior city is still in South Jakarta.

The strength of regional interaction in DKI Jakarta Province in 2020 has the same centrality where the City of South Jakarta functions as a city that becomes a service center capable of becoming the most advanced region because of the completeness of its general facilities by referring to the Marshall Centrality Index method.

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References

Apriana, M., & Rudiarto, I. (2020). Penentuan Pusat Pelayanan Perkotaan di Kota Tanjungpinang. Tunas Geografi, 9(1), 1 12.)

Azanil, F. R., Hamdi, N., & Nori, Y. (2020). Identifikasi Pusat Pelayanan Wilayah di Kabupaten Bengkulu Utara (Doctoral dissertation, Universitas Bung Hatta

Hardati, P. (2016). Hierarki Pusat Pelayanan Di Kecamatan Ungaran Barat Dan Ungaran Timur Kabupaten Semarang. Jurnal Geografi: Media Informasi Pengembangan dan Profesi Kegeografian, 13(2), 204-215.)

Kasikoen, K. M. Analisis Index Centralitas Terbobot Untuk Penentuan Sistem Hirarki Wilayah.)

Maulida Fatmawati, N. (2018). Analisis Pertumbuhan Pusat Fasilitas Pelayanan Wilayah Di Kabupaten Klaten Tahun 2005- 2015 (Doctoral dissertation, Universitas Muhammadiyah Surakarta).)

Muliana, R., Astuti, P., & Fadli, A. (2018). Kajian Pusat-Pusat Pelayanan di Kabupaten Kampar. Jurnal Saintis, 18(1), 59-72.

Utari, M. E. S. (2015). Analisis sistem pusat pelayanan permukiman di Kota Yogyakarta Tahun 2014. JEJAK: Jurnal Ekonomi dan Kebijakan, 8(1).