Increasing Reciprocal Linkages between Primary City and Secondary Cities in Kedungsepur Metropolitan

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Abstract. One of the goals of metropolitan city formed as implementation of Development Strategic Zoning in Indonesian National Spatial Planning is to decrease disparities between primary city and secondary cities. But the fact shows the disparity between regions in metropolitan city is still happened include in Kedungsepur Metropolitan. This research not only want to find the answers why that the disparities still happened, but also will categorized the level of disparities and after that will find the way out of that problem. Increasing reciprocal inter-linkages between primary city and secondary cities are believed as an alternative way out from that problem. This research start by the first step to analysis based on interpretation to satellite image to describe the land changed of build-up area. The second step is used secondary data to measure inequality within regions use Williamson Index then compared as relatively to inequality rate means as an aggregate. The third step is identification of inter-linkages between regions use input-output analysis and Location Quotient.

Keywords: Inter-region Linkages, Primary City, Secondary Cities, Kedungsepur Metropolitan.

1. Introduction

The physical development of cities in Indonesia is so intensively, so it exceeds the administrative boundaries of the city and that it forms called under bounded city. This phenomenon is affected by the unification of major cities with surrounding cities morphologically (urban coalition) to formed metropolitan. The combined metropolitan of the city has population of more than five million people. The metropolitan has one as primary city and several is secondary cities. In Indonesia has formed several metropolitan, such as: Jabodetabek with the primary city is Jakarta, Kedungsepur with the primary city is Semarang and Gerbangkertasusila with the primary city is Surabaya.

The metropolitan concept of Kedungsepur is functionally related to Kendal Regency, Demak Regency, Semarang Regency (Ungaran City), Semarang City, Salatiga City, and Grobogan Regency (Purwodadi City). Kedungsepur is formed due to the increasing pace of population growth in the city centre caused by urbanization, migration and the increasing of population. Semarang City as the capital city of Central Java is the primary city of Kedungsepur Metropolitan. Based on Statistic Data of Central Java 2015, Semarang City become the region which has the highest population density in Kedungsepur.

The tendency that occurs as a result of urban sprawl in the three Metropolitan is the conversion of productive land on average 11.4% per year (Direktorat Jendral Penataan Ruang, 2010). The increasing need for space in urban areas has led to the development of suburban

areas and the development of urban sprawl which will reduce the productive land. Urban sprawl also causes changes in the morphology of city. This is also happened in the Kedungsepur Metropolitan.

The impact of the tendency belong to several cities still merge is the imbalance in the economic sector of the region between primary city and secondary cities. Meanwhile, it is contrary to the objectives of the metropolitan area itself. For example, the establishment of the Kedungsepur as National Strategic Area is based on Undang - Undang No. 26/2007 tentang Penataan Ruang and Peraturan Pemerintah No. 26/2008 tentang Penetapan Kawasan Strategis is aimed at creating equitable development between regions. However, conditions in the field show otherwise, economic growth is dominated by primary city.

Both of these problems underlie the need for in-depth studies on the physical condition of urban sprawl and the economic growth conditions in the Kedungsepur Metropolitan area. The variable that is thought to be able to overcome is the increase in reciprocal linkages between the primary cities (Semarang City) and the secondary cities around it. But needs further research to ensure that these variables can work well in the Kedungsepur Metropolitan. Thus, the implications for regional development can be assessed, especially in spatial planning. While from the economic side by formulating a policy directive, it will be able to do economic development, evenly reduce the level of inequality or inequality in the Kedungsepur Metropolitan. Based on the problems above, the objectives of this research are (1) describe the spatial condition based on the dynamics of land changed in the built-up land of Kedungsepur Metropolitan (2) classify the level of economic inequality between primary city and secondary cities in the Kedungsepur Metropolitan (3) find the ways to increase reciprocal linkages between primary city and secondary cities in Kedungsepur Metropolitan (4) formulate policy directives to increase reciprocal linkages between primary city and secondary cities in Kedungsepur Metropolitan.

2. Methods

This research is divide in the Metropolitan area of Kedungsepur, which is a combination of several regencies/cities consisting of Kendal, Demak, Ungaran, Semarang, Salatiga, and Purwodadi. This research uses a quantitative approach by analyzing data based on empirical measurements (using formulas). Description analysis also use for this research.

3. Result and Discussion

The spatial transformation process took place from 2010 to 2015 in the Kedungsepur. It is more intensively located along the urban corridors between the primary city (Kota Semarang) and the surrounding areas. The transformation has transformed part of the use of agricultural land along the corridor into built-up land. More intensive changes in the corridors between primary city and secondary cities than other parts of the city are due to the influence of accessibility, especially the ease of transportation facilities. Infrastructure factors in the form of a highway network, causing areas with high connectivity to other regions to be higher in urban level. In addition, supporting facilities have developed along the corridor.
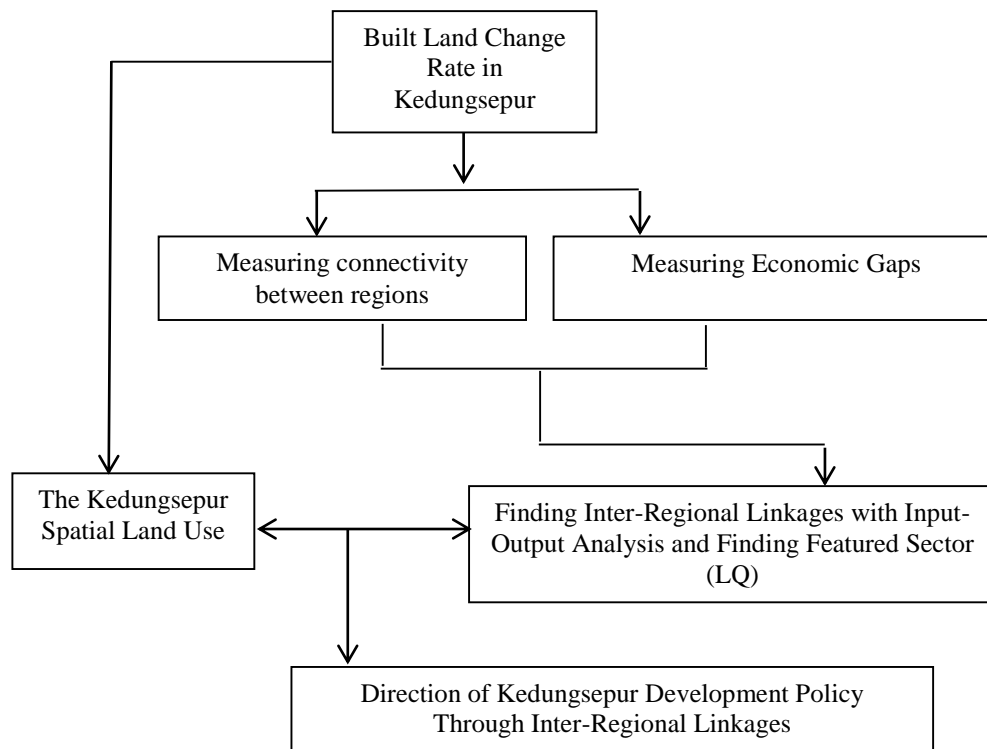
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                    ┌─────────────────────┐
                    │   Built Land Change  │
                    │      Rate in         │
                    │    Kedungsepur       │
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Figure 1. Flow of Thinking Framework (Authors, 2019).

Interpretation of SPOT-5 and Google Earth imagery, which according to Wenbin, Xia, and Yu (2013) is a high spatial resolution image for mapping the use of regional land cover, carried out by the approach of using built-up land, roads and buildings. Interpretation was carried out focusing on the sub-districts that were crossed by the inter-city corridors in the region of Kedungsepur.

In sub-districts along the corridors of Kedungsepur area, specially between Semarang-Demak corrodor is known that the highest percentage of built-up area is Semarang City reaching 99.36% in 2010. The percentage of land built in Semarang City increased to 99.42% in 2015. This indicates that sub-districts in Semarang City have higher urban levels than in other regions. The highest area with the highest percentage of non-built area (green open space) is Karangtengah Sub-district (Demak Regency) reaching 88.45% in 2010. But the percentage of the green area is decreasing every year becomes 87.13% in 2015.

The area with the most large built-up area is Semarang -Ungaran-Salatiga as Urban Corridor. At the otherhand, areas are still vegetated (in the form of rice fields) are most extensive in Semarang-Purwodadi Corridor and Semarang-Demak Corridor. Although the Semarang-Ungaran-Salatiga Corridor has the highest built-up area, in some parts of the road are still find the natural vegetation areas (plantations) in the southern part of the corridor which have higher topographic conditions than other corridors. Most types of land cover are located in the Northern Coastal Areas, namely Semarang-Kendal Corridor and Semarang-Demak Corridor. The type of land cover that show as open land is the smallest area here.

Economic inequality between regions in the Kedungsepur Region is carried out by comparing the Williamson Index (IW). This index is relatively more accurate used to assess inequality between regions. The indicator use aggregate per-capita Gross Regional Domestic Product (GRDP) data in a region (within region) compared to a higher level region.

The results of calculation with Statistic data in 2018 showed that in the Kedungsepur Metropolitan as a whole the area consisting of six regencies / cities included gaps in the moderate category (IW = 0.45). If calculations are made in each regencies / cities, then Kedungsepur Metropolitan there are gaps with all categories. Regions that have high economic inequality are found in Semarang City, with IW of 0.6. The function of Semarang City as a primary city showed the dominance, it can be explained as a result of economic growth in Semarang City compared to the secondary cities around it.

In the other hand, there are regions with moderate inequality categories, which are 0.4 <IW <0.5 in Demak Regency and Grobogan Regency. From the data, both of regencies have good economic growth, with slack income per capita, so that the regional gap is in moderate category. Salatiga City, Semarang Regency, and Kendal Regency are regions which Williamson Index is 0.1 and even close to zero. Therefore, in these two regions there are no gaps between these regions.

With reference to these findings, efforts are needed to reduce the disparity between regions in Kedungsepur. Although the existing gaps generally fall into the moderate category, it is necessary to find out which sectors need to be developed so the gap can be reduce and fall into the low category. The first step does a calculation using the Location Quotient formula (LQ). Calculation carry out on nine development sectors.

The sectors which are the base sector, namely sectors that specialize in sub-regions are the sectors that are superior. The result show that Semarang City, Salatiga City, Kendal Regency and Semarang Regency have excellence in the building sector in Kedungsepur. In this building sector the Kedungsepur is superior compared to the higher level area in Central Java Province.

Efforts to improve the good relationship between regions in Kedungsepur made by four leading regions in the building sector to develop this sector as a downstream sector, which produces building materials ready for use. A more suitable industry is the building industry which has been oriented to creativity, which has artistic value and innovation.

The next step that have to be taken is to encourage the building sector in Demak Regency and Grobogan Regency, especially Purwodadi, to develop the building industry as an upstream sector, namely processing building materials into half-finished, for example processing from stone into natural stone tiles, carved stones, roof tiles. In this case, both of regions can enjoy added value from processing raw materials into semi-finished materials. While the other four regencies focus more on marketing for exports by refining the product by developing trademarked or standardized products by having a patent.

Kendal Regency and Semarang Regency have excellence in the processing industry sector. It means the processing industry sector in Kedungsepur has an important role in the scope of Central Java, especially in the both of regencies. Therefore, to improve the reciprocal relationship between primary city and secondary cities, the growth of industries that have a lot of backward linkages (raw materials) and forward linkages (marketing) must be encouraged in these both of regencies.

Spatial interaction between regions is a reciprocal relationship that can influence between two regions (Yunus, 2010). The power between regions can be use to increase the linkages between primary city and secondary cities. The implication that can be done is to increase displacement, both tangible, human, commodity, services, information and so on. Secondary

cities, such Demak, Salatiga, and Purwodadi can be encouraged to produce intermediate goods needed in the production process in developing industries in Kendal and Ungaran. Industries of vehicle spare parts, industrial machinery, agricultural machinery, electronic devices are examples of industries that produce intermediate goods.

Interaction between primary city and secondary cities can also occur due to dependence and differences in commodities where one experiences a surplus and the other experiences deficit. Spatial interaction can be improved by bringing together the needs of surplus regions to sell commodities, with the need for regions minus commodities to make purchases. The government and the private sector and the public can use momentum such as exhibitions, or other forms of information exchange.

The economic linkages that have occurred in the Kedungsepur have been included in imbalance interactions. Many people of secondary cities around Semarang City come to the primary city (Semarang City) due to the completeness of existing facilities. Therefore it is necessary to identify in more detail which facilities currently do not exist in secondary cities so that these facilities can be procured.

4. Conclusion and Recomendation

Kedungsepur Metropolitan have been changed on physical to the form of built-up areas. The most intensive changes are along the corridor between the primary city and the secondary cities around it.

The economic disparity found in the Multifunctional Metropolitan as a whole is moderate. Eeach region has three categories of inequality were found. High gap categories are found in Semarang City. Moderate gap categories are found in Demak Regency and Grobogan Regency. Low gap categories were found in Salatiga City, Kendal Regency and Semarang Regency.

Linkages and reciprocal relations between primary city and secondary cities are focused on two leading sectors, namely the building sector and the manufacturing sector. Linkages are implemented by encouraging the growth of industries that produce goods between secondary cities. Another effort is to complement the facilities in secondary cities and strengthen spatial interactions that can increase movement, both in the form of goods, people, commodities, services, information and so on.

4.1 Acknowledgment

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