The relation between historical context and structural change in Central Java and Yogyakarta

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Abstract. The basis argument of this study departures from the spatial differences between north and south region of Central Java. The north-south corridor classification derives from the rapid growth in north coastal region and the prosperous inland principalities in south-central region during Java colonial. The rivalry between The Dutch and inland principalities to attain absolute control over north-east region indicates that the north corridor plays the primary region. This geographical interpretation of north-(interior)-south region has been embedded in mind. This study explores the spatial pattern of socio-economic distribution in Central Java and Yogyakarta based on regional specialization. The result of the simple Location Quotient $(LQ)$ indicator from 1990-2010 shows that structural change from the agriculture to the non-agriculture sectors was mostly found in the north corridor. On the contrary, the primary sector in south corridor remained agriculture.

1. Introduction - Imaginary Corridors
Since colonialism, the north coastal region has developed as strategic regions in Java. The economic activities has consistently been located around large coastal cities in Java. The two leading manufacturing concentration in Java are at two polar ends; Greater Surabaya in East Java and Greater Jakarta [1] creating an invisible axis visible as the ‘Bipolar’ industrial development [2,3]. This imaginary corridor in the north coastal regions has served as the main distribution channel for commodities in Java.

The bipolar axis in north coastal region allegedly leads regional differences between the North and South regions. In this matter, Central Java experiences not only the regional differences between West and East Java but also the unevenness position between the North and South regions.

2. Methods

2.1 Data Collecting
The data used in this study is National Socio-Economic Survey for Central Java and Yogyakarta 1993-2010 (SUWENAS) [4] and Labor Force Situation in Central Java and Yogyakarta 2007-2010 (Statistik Tenaga Kerja Nasional- SAKERNAS) from Central Statistics Agency (BPS) [5].

2.2 Research Area
The growth of port cities in north coastal region since pre-Java colonial created urbanized north corridor. In this argument, principalities in Surakarta and southern-central principality in Yogyakarta located in...
inland region [6,7] was assumed as middle and south corridor. This corridors labeling based on imaginary line classifying Central Java into 3 parts; north - (interior) – south corridors. In this study, interior and middle regions are used interchangeably

2.3 Data Analysis
The Location Quotient (LQ) is used for initial observation of the specialization in certain economic region. It is an index of comparison in a selected variable between low-level region and high-level region as the reference area at certain time [8,9]. In this study LQ indicator is used to evaluate the changes in labor structure in city/ regency in Central Java and Yogyakarta to show the concentration of certain industry. The index is explained as follows

\[ LQ = \frac{e_i^l}{\Sigma e_i^l} \text{ or } LQ = \frac{e_i^l}{\Sigma e_i^{h, j}} \]  

(1)

Where \( e_i^l \) is the labor in sector \( i \) in low-level region \( J \); \( \Sigma e_i^l \) is the total labor in sector \( i \) in the high-level region; \( E_j^l \) is the total labor in low-level region \( J \) and \( \Sigma E_j \) is the total labor of high-level region. The result if \( LQ > 1 \), means that the low-level region is indicated specialized in a certain econo.i sector. If \( LQ < 1 \), it means that the low-level region is unspecialized in the certain economic sector.

3. Result and Discussion
Most primal cities today developed around ports [10]. As Port cities established as the main chanel distribution of goods to the world market and from the world supply, the primal cities are more developed than inland non-port cities [11]. Most non-port cities subsequently functioned as the port hinterlands. However it provides no exact formula that the non-port cities might not evolve as large cities in the future. If non-port cities were supported effectively with adequate infrastructure, they might developed as new growth center. By developing strong functional links transportaion with hinterland eventough in distant inland cities, a non-port cities might gain comparative advantage.

3.1 Java North Coastal Region as the Primary Regions
In the initial process of urbanization, Java was characterized by two recognizably part: the prosperous principalities regions and the rapid growth of port cities in north coastal regions [12]. The competition between coastal rulers and inland kingdom were visible in order to expand their territory and to gain control over entire Java.

Several coastal vassal kingdoms began to rise after they ceased their political obligation toward Majapahit after Majapahit loss its power in 1478 [7]. The Demak kingdom on the north coast gain its sovereignty along coastal regions and expand its territory to inland regions until its downfall in 1568. After Demak Kingdom downfall, Mataram principality in southern-central Java arose and grew into greater Kingdom. Mataram subsequently gained absolute control over the northeast coast region.

The conflict between the coastal regions and inland regions was provoked further by the Dutch arrival on the Java north-east coast in the late 1500s and the dispute between Chinese merchants with the local people. The VOC expanded its domination over Java north-east coast to gain more advantage trade in late 17th century [13]. However, the VOC was prevented exploiting the inland agriculture commodities in the realm of Mataram. The VOC brought into conflict among the inland principalities and established ally with the Chinese merchants in 1741 to set strong position in Java north-east [7]. In 1749 Mataram gave up the authority of the north-east coastal regions to the VOC due to internal conflicts. Mataram lost its sovereignty over Java north-east coast ever since. The VOC subsequently prohibited Mataram to trade on Java north-east coast.

From 1749-the 1800s, the VOC ruled coastal regions and promoted Semarang as the capital of Java north-east coast [14]. Java’s northeast coastal plain region (Pasisir) was the largest province compared to other province that time (Figure 1). During Java colonial, Pasisir had a strategic position politically and economically because of its position as port cities [15].
In late 18th century, the Dutch state take over the authority of Java due to VOC bankruptcy [7,19].

### 3.2 Coastal and Inland Region in Central Java Colonial

In 1808, the construction of the Great Mail Road in north region of Java was begin (Figure 2). The road connected western Java in Anyer to Panarukan in eastern Java via Jakarta, Bogor, Bandung, Cirebon, Semarang, Rembang, Lasem and Surabaya [20]. The road eventually was not only for connecting important military settlements but also changing local economic and social structure [21].

The *Pasisir* was developed as a profitable region for agriculture commodities to the world market [13]. In the 19th century, the *Pasisir* was divided into *Pasisir* and *East hook* provinces (Figure 3).
During the Culture System in colonial Java, the rail system (1867-1925) was established to transport and support export crops commodities especially sugar inter-regions. Sugar was greatly developed as an industrially manufactured commodity in the 1810s-1940s. Java became the leader of international sugar with a distinguished technological process industry [20]. The region in north-east coast benefited earnings from the sugar and rice crops [22,23] especially Semarang as the largest Java sugar producer [24]. The significant railway built by private enterprise was Semarang-Cheribon Stoomtram Maatschappij (built in 1895) [22,24]. On the other hand, the state railway provided rail line particularly for strategic and political reason to strengthened control over Java as a whole. In the 1920s, most cities in Java were connected and integrated by the rail.

The different growth process in north region and south region of Central part of Java from pre-colonialism to colonialism leads Java coastal region to be the key of interregional linkages [25].

3.3 Structural Change

The structural change from agriculture to industry is unavoidable. It can occur parallel between the growth of agriculture and manufacture sectors in certain region.

Based on the result of LQ from 1990-2010, the south corridor specialized on agriculture (Figure 4a). The non-oil gas manufacture have concentrated in the north corridor (LQ > 1, see Figure 4b). The middle corridor shares the same portion of agriculture and manufacture.
Trade, retail, hotel and restaurant have progressed in north and middle corridor (Figure 5a). The service sector was the lowest value in all corridors (Figure 5b).

Figure 5. LQ Trade and Service

This analysis calculated region as unity in three corridor which each corridor consisted varied region specialization. To indicate actual regional pattern, LQ was implemented to asses each city/ regency’s specialization.

3.3.1 North Corridor

In north corridor, the change of labor structure from agriculture to manufacture industry varied greatly. Several major cities/ regencies was specialized in manufacture namely Kudus, Jepara, Pekalongan and Pekalongan City which have considerably high value of LQ (Figure 6b). In contrast, Rembang and Brebes grew strongly as agrarian (Figure 6a). The agriculture and manufacture were equally concentrated in Pati, Demak, Tegal and Tegal city. Semarang city and Tegal city concentrated on trade, retail, hotel and restaurants (Figure 7).

Figure 6. LQ Agriculture and Manufacturing Sectors in North Regions of Central Java and Yogyakarta
3.3.2 Middle Corridor
The manufacture and agriculture in middle corridor grew equally in most cities/ regencies (Figure 8) (Figure 9). Yogyakarta city, Surakarta city and Magelang city have considerably high value in trade, retail, hotels and restaurant (Figure 9)

![Figure 7. LQ Trade Sector in North Regions of Central Java and Yogyakarta](image)

![Figure 8. LQ Agriculture and Manufacturing Sectors in the Middle Regions of Central Java and Yogyakarta](image)
3.3.3 South Corridor
Economic activity in the south region was mostly dominated by agriculture (Figure 10a).

Changes in labor structure have strongly progressed in Bantul due to rapid growth of Greater Yogyakarta (Figure 10b). Cilacap known for its natural resources industry was unsuccessful in developing non-oil gas manufacture as agriculture decrease (Figure 10a). Trade, retail, hotel and restaurant were not specialized in most regencies (Figure 11)
4. Conclusion
Although the Informal sector and small medium enterprises (SMEs) contributes greatly help reducing unemployment and might change labor structure in certain region, they are not included in this study due to inadequate data in regional level.

The change in labor structure in North Corridor experienced differently, inducing a divergence among regions. The middle corridor occurred proportionate between agriculture and manufacture sectors in each city/ regency. The south corridor remained as agrarian. However, this period of data is necessarily actualized to overview the up-to-date transformation.

The initial argument expresses that north corridor is urbanized regions and south corridor is mostly rural agrarian. This premise could be further questioned, as leading cities/ regency of each corridor might overshadow the other region in each corridor. So that further studies are needed on the pattern of spatial development and to what extent the regional differences might increases disparity.

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