



# The Development Model of Small-Industry in East Java: A Regional Comparative Study

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## ABSTRACT

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**Objective** – This study aims to compare the developmental model of small industry in both regions.

**Methodology/Technique** – The economic growth of the northern region is relatively higher compared to their southern counterpart. It is thought that industrial zone policies, which tend to be northern-region oriented, is the trigger for this. Although the development of small industries in the southern region of East Java is quite significant and able to absorb many workforces, it is still unable to boost the economic growth of the region. This research uses a shift share analysis method and a sample of regencies and cities in both regions.

**Findings** – The result of the shift-share analysis model shows that the processing industry and wholesale and retail industry are basic sectors that can enhance the economic growth of both regions. Each industry is significantly shifted to a basic sector. Local governments have established clusters of small and medium businesses, such as earthenware, ceramics, snack, furniture, rattan craft, and stoneware industrial centres. Several other industrial sectors show significant contributions following the implementation of industrial zone policies. This suggests that the establishment of industrial zones is able to boost the region's economy and reduce disparities. However, small industries are low in capital accessibility, skills, and production technology. Therefore, to maintain the sustainability of industrial development, policies implemented by the government should focus on developing small businesses by improving their capital accessibility, skills, and technological proficiencies.

**Novelty** – East Java's economy has shown a significant growth in recent years. Unfortunately, the growth across the region is still irregular. The disparity at the regional level, particularly between the northern and southern regions of East Java, is still prevalent.

**Type of Paper:** Review.

**Keywords:** Small Industry; Comparative Study; East Java; Development Model; Economics.

**JEL Classification:** R11, R58.

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## 1. Introduction

The contribution of East Java to the national economy is quite considerable. The average Gross Regional

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\* Paper Info: Received: August 11, 2017

Accepted: December 9, 2017

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Domestic Product ('GRDP') contribution of East Java reaches 14% annually, or approximately IDR 1,500 trillion. East Java province consists of 38 regencies and cities, which are geographically grouped into northern and southern regions, which all have different economic potential. Based on data from the Central Bureau of Statistics, the contribution of the northern region to the GRDP of East Java in 2014 was 54.4%, while the contribution from the southern region was 15.86%. This striking difference is caused by different economic structures. Some areas in East Java are rural areas, whose economic activities are based on agriculture, while other areas are urban areas, in which the industrial sector is more dominant.

Data from the BPS in 2017 indicates that the industrial sector contributes more than the agricultural sector to the GRDP of East Java. This is caused by several factors. The first factor is that the income from the agricultural sector is seasonal, while income from the industrial sector depends on the output and the productivity of the resources, and on the efficiency of business units. The second factor is the policy of infrastructure development that is concentrated in the northern region. The third factor is domestic and foreign investments that tend to concentrate on the northern region, particularly Surabaya.

Based on the data from 2015, there are 6,462 small enterprises and 2,212 medium enterprises in East Java, with domestic and foreign investment for micro, small, and medium enterprises amounting to IDR 780 billion. An industrial estate that is also developing in the northern region is Gresik, the city where the first and the largest cement factory in Indonesia, Semen Gresik, was established. This city is one of the main economic buffer cities of Surabaya. However, the southern region of East Java also has the potential for further development, through its small and medium industries. Based on the data regarding the gross regional domestic product of 2014, the industrial sector is ranked second in the formation of the GRDP of regencies and cities in the southern region of East Java. Therefore, to encourage economic growth in the southern region, special industrial areas for small and medium industries need to be developed.

Based on the above information, it is seen that the northern region has faster growth than the southern region. The main cause of this is the dominance of the industrial sector in the northern region, which is relatively high compared to the southern region. On the other hand, the development of small-scale enterprises in the southern region has great potential to stimulate the economy of the southern region, although it is still not used at an optimum level. Therefore, this research aims to analyze in more detail, the causes of the slower development in the southern region of East Java.

The research aims to analyze the economic potential and to study the development of special cluster-based areas of Small and Medium Businesses ('SMBs') in the northern and southern region of East Java. In addition, this study examines the complexity of the obstacles faced by the southern region in developing its economy, and identifies solutions to this.

## 2. Literature Review

Past literature has identified 3 concepts related to industrial localization. These are: the cluster industry, the industrial district, and an agglomeration economy. The first two concepts are often used interchangeably. They are associated with sectoral and geographical groupings of industries. The concept of an agglomeration economy is associated with industries that benefit from urbanization of economies and localization of economies. Cluster industries are often limited in 2 ways. The first limitation is a functional limitation. As stated by Porter (1990), a cluster industry is viewed more as a group of companies that are related to similar activities within a national economy, not just industries located in a particular location. Therefore, the most important factor in a cluster industry is the link between firms in that particular sector or between firms with other sectors that support each other. In this case, the territorial aspect is not rigidly limited. Second, the emphasis of a cluster industry is the similar location of the groups of industries as mentioned by Schmitz and Nadvi, who see the cluster industry as a spatial concentration of firms (Schmitz and Nadvi, 1999).

In its development, cluster contains 2 understandings at a time, namely: functional and geographical. Studies on clusters in both developed and developing countries shows that a cluster is essentially more than a group of companies located in a particular place (spatial). Cluster means vertical and horizontal linkages

among companies. Through these linkages, the companies are not only competing with other companies but also cooperating with them. Such characteristics of clusters are believed to have the potential to develop the economy. Therefore, this is one of the approaches recommended by scientists and used by policy makers in developing industries in an area or country.

Alfred Marshall was the first generation of economists to examine the potential of cluster industries for economic growth, following on from his research on the development of industrial centers in Britain, Germany, and other countries in Europe during the transition from the 19th century to the 20th century. In his opinion, the industry centers, in which SMBs are established, gain a benefit from being in close geographical proximity to each other. The benefits of this include a greater labor force with specific skills needed by companies (labor pool) and knowledge spill-over (Marshall, 1920).

Schmitz (1995) suggests that cluster industries can benefit businesses in the cluster if they are able to create what is called 'collective efficiency', which is a competitive advantage brought by external economies and joint action. The efficiency caused by external economies, in Schmitz's view, is essentially passive. The benefits that are gained are caused more by similarity of location. This similarity makes it easier for companies in the location to obtain the required labor. In addition, it also makes the companies connect with suppliers and buyers easily. Further, the inter-firm relationships within the cluster will be dynamic when the companies conduct joint actions. In the production process, for example, there are companies that process raw materials into semi-finished materials, and other companies conduct the finishing processes. Thus, a mutually beneficial relationship between one company and another company can be created.

## 2.2 Industrial Location Theory

The purpose of location theory is to determine the reasons for, and explain why, a particular factor is important to one industry and not to another. It also involves the principle of substitution, where an industry selects a site from alternative locations, which in terms of the economic theory, is similar to the problem of substituting labor for capital or land and vice versa (Greenhut, 1960).

The primary concern of early location theorists, most notably by the German economist Johann-Heinrich von Thunen (1773-1850), was the optimal location of cities and farms, balancing both land costs, and transportation costs. Thunen's theory of location is based on evaluating trade-offs between product-specific transportation costs and location-specific land costs. He formulated the location theory based on his experience of 40 years as a farm manager in Rostock in the Mecklenburg area. He developed a model to predict the type of agricultural product to be grown on geographically dispersed plots of land.

According to Isard (1956), Thunen was primarily concerned with the aggregative analysis of agricultural location. Thunen's theory was designed to explain the types of crops that would be grown on land at varying distances from a given market. He developed boundaries between different kinds of goods in areas that produced and consumed those goods. He assumed land is more valuable in the city relative to the country; implying land costs decrease the further away from the city a farm is located. This implies agricultural products grown on plots of land closer to the city are charged higher land rent, relative to products grown further away from the city. On the other hand, products grown closer to the city are associated with lower transportation costs relative to products produced at a more distant location. The type of products grown on a particular site is determined by selecting the type of production that yields the lowest cost, given the trade-offs between product-specific transportation costs and land costs.

## 3. Methodology

The sample of this research is the regency in East Java, which is Kota Malang. Considering the vastness of the research area, this study selects its research location based on the actual and factual conditions of the region that have the potential to develop a cluster-based SMB-specific economy. The initial analysis

conducted in this study is a Location Quotients analysis, which is used to identify the contribution of sectors in an area compared to the broader region, so that sectors that have a dominant contribution (basic sector) and sectors that do not have dominant contribution (non-basic sector) in a region can be identified. Areas that do not have dominant sector will experience a decline in their Regional Domestic Growth (Putra, 2011).

$$LQ = \frac{S_i}{S} / \frac{N_i}{N}$$

Where: LQ= Location Quotients value;  $S_i$ = GRDP of sector  $i$  in city/regency  $i$ ;  $S$ = total GRDP in city/regency  $i$ ;  $N_i$ = GRDP of sector  $i$  in broader region;  $N$ = total GRDP in broader region.

The results of the LQ calculation will be: (1)  $LQ < 1$ , the relevant sector is less specialized than the same sector at the provincial level, so the sector is not a leading sector; (2)  $LQ = 1$ , the relevant sector has the same level of specialization as similar sectors at the provincial level, so this sector can only serve the needs of its own region; and (3)  $LQ > 1$ , the relevant sector is more specialized than the same sector at the provincial level, so this sector is a leading sector.

The next analysis is shift share analysis, which is used to identify the economic role and structure of a region by emphasizing the comparability between the sectors and the same sectors in a higher level, i.e. the national level. This analysis consists of 3 components (Tarigan, 2007), namely National Share (N), Proportional Shift (industrial mix) and Differential Shift (regional share).

## 4. Results

### 4.1. The Role of Economic Potentials in Developing SMB Regions

Local economic potential plays an important role in supporting the economy of a region. In order to achieve optimal regional economic growth, the government must aim to conduct regional development as a priority in accordance with the potential of each region. Therefore, an analysis of the economic potential of the leading sector in regencies and cities is needed, by observing the advantages of each economic sector that can contribute to regional development. Sumarsono (2015) argues that the identification and development of leading sector potential must consider development level linkages, inter-sectoral linkages, contributions to economic sectors or economic structures, employment, human resources and technology, and non-economic strategic considerations.

The potential of Malang to improve the economy of its people, according to Sumarsono (2015), covers sectoral-economic and spatial potential. The economic potential of this city includes three major sectors, namely agricultural, processing and trade, and hotels and restaurants. In spatial terms, this city is a tourism gateway that provides significant carrying capacity for growth. One of the economic indicators needed to measure the economic growth performance of a region is Gross Regional Domestic Product ('GRDP'). This is an important indicator that describes the totality of net production of goods and services, which can be used later as the basis for regional development planning and evaluation. It also illustrates the added value of the economic sector that is based on business field. The dominant economic sector in Malang is the processing industry.

Small and medium enterprises make a significant contribution to Indonesia's economic growth because they are close to small people and tend to absorb large numbers of workers (Kuncoro, 2010). Based on data from the BPS, the number of workers absorbed by SMBs, particularly the processing industry, in 2016 was 20,639, which is lower than the absorption in 2015, which was 33,761 (BPS, 2017). To develop a cluster-based SMB, every region must pay attention to the location because business entities tend to minimize costs by choosing a location that is close to the market, in order to maximize their business opportunities. The

industry development model suggests that the best locations are those that provide the lowest raw material and marketing costs.

Table 1: Location Quotient (LQ) of the City of Malang with GRDP Indicator According to Business Field (constant price of 2010 in billion)

| No | Business Field                                                        | 2010 | 2011 | 2012 | 2013 | 2014 | 2015  | Average LQ |
|----|-----------------------------------------------------------------------|------|------|------|------|------|-------|------------|
| 1  | Agriculture, Forestry, and Fishery                                    | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.021 | 0.02       |
| 2  | Mining and Excavation                                                 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01  | 0.02       |
| 3  | Processing Industry                                                   | 0.97 | 0.96 | 0.93 | 0.89 | 0.85 | 0.82  | 0.90       |
| 4  | Electricity and Gas Provision                                         | 0.48 | 0.51 | 0.56 | 0.59 | 0.59 | 0.11  | 0.47       |
| 5  | Water Provision, Waste Management and Recycling                       | 2.00 | 1.94 | 2.02 | 2.10 | 2.16 | 2.12  | 2.05       |
| 6  | Construction                                                          | 1.27 | 1.30 | 1.31 | 1.32 | 1.36 | 1.38  | 1.32       |
| 7  | Wholesale and Retail Trading, Car and Motorcycle Maintenance          | 1.68 | 1.67 | 1.66 | 1.67 | 1.69 | 1.69  | 1.68       |
| 8  | Transportation and Warehousing                                        | 0.87 | 0.85 | 0.85 | 0.84 | 0.85 | 0.85  | 0.85       |
| 9  | Accommodation and Food and Beverages Provision                        | 0.81 | 0.80 | 0.83 | 0.85 | 0.86 | 0.86  | 0.84       |
| 10 | Information and Communication                                         | 0.84 | 0.84 | 0.83 | 0.82 | 0.84 | 0.85  | 0.84       |
| 11 | Financial and Insurance Service                                       | 1.05 | 1.04 | 1.03 | 1.02 | 1.02 | 1.02  | 1.03       |
| 12 | Real Estate                                                           | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.86  | 0.84       |
| 13 | Company Service                                                       | 0.89 | 0.90 | 0.92 | 0.92 | 0.92 | 0.95  | 0.92       |
| 14 | Governmental, Defense, and Compulsory Social Insurance Administration | 0.66 | 0.67 | 0.67 | 0.67 | 0.66 | 0.65  | 0.66       |
| 15 | Education Service                                                     | 2.75 | 2.80 | 2.77 | 2.77 | 2.82 | 2.87  | 2.79       |
| 16 | Health Service and Social Activities                                  | 0.37 | 3.66 | 3.67 | 3.68 | 3.74 | 3.85  | 3.16       |
| 17 | Other services                                                        | 2.20 | 2.22 | 2.23 | 2.2  | 2.19 | 2.16  | 2.20       |

Source: Calculation Result, 2017

The result of the LQ test shows that 7 business fields are included in the basic sector, a sector that has a prominent role nationally (Taringan, 2007). They are (i) water provision, waste management and recycling, (ii) construction, (iii) wholesale and retail trading, car and motorcycle maintenance (iv) financial and insurance services (vi) health services and social activities (vii) other services. The main basic sector of the 7 business fields is health services and social activities, whose trend tends to increase annually. This is because the investment value on this field in 2016 was quite high, i.e. 29 billion, which is higher than the value in 2015, which was 18 billion (BPS, 2017).

Table 2: Shift-Share Analysis for the city of Malang, 2010-2015 (in IDR million)

| No | Sector/Industry                                                       | National Share | Industry | Competitive  | GRDP     |
|----|-----------------------------------------------------------------------|----------------|----------|--------------|----------|
|    |                                                                       | (Nij)          | (Mij)    | (Cij)        | (Dij)    |
| 1  | Agriculture, Forestry, and Fishery                                    | 34.680         | -13.55   | -16.12520973 | 5.00     |
| 2  | Mining and Excavation                                                 | 15.062         | -5.48    | -15.62502794 | -6.04    |
| 3  | Processing Industry                                                   | 3077.646       | 34.23    | -1901.75504  | 1210.12  |
| 4  | Electricity and Gas Provision                                         | 4.318          | -4.67    | 3.525656869  | 3.18     |
| 5  | Water Provision, Waste Management and Recycling                       | 23.222         | -9.07    | 4.928712005  | 19.08    |
| 6  | Construction                                                          | 1234.370       | 20.21    | 378.6415467  | 1633.22  |
| 7  | Wholesale and Retail Trading, Car and Motorcycle Maintenance          | 3180.258       | 499.13   | -10.11681101 | 3669.27  |
| 8  | Transportation and Warehousing                                        | 255.340        | 70.83    | -33.16726977 | 293.00   |
| 9  | Accommodation and Food and Beverages Provision                        | 415.276        | 120.22   | 94.70974588  | 630.21   |
| 10 | Information and Communication                                         | 432.480        | 265.53   | 22.98906368  | 721.00   |
| 11 | Financial and Insurance Service                                       | 249.968        | 171.72   | -39.58593526 | 382.10   |
| 12 | Real Estate                                                           | 148.852        | 33.35    | 8.150426357  | 190.35   |
| 13 | Company Service                                                       | 74.766         | -1.93    | 18.53598701  | 91.37    |
| 14 | Governmental, Defense, and Compulsory Social Insurance Administration | 191.216        | -111.97  | -16.19896479 | 63.04    |
| 15 | Education Service                                                     | 739.942        | 171.62   | 115.580397   | 1027.14  |
| 16 | Health Service and Social Activities                                  | 219.368        | -760.28  | 958.0385297  | 417.13   |
| 17 | Other services                                                        | 371.552        | -110.04  | -34.3423544  | 227.17   |
|    | Total                                                                 | 10668.32       | 369.85   | -461.8165478 | 10576.35 |

Source: BPS Data. Processed, 2017.

Based on Table 2, the sector in Malang city showing the fastest growth than the provincial level (indicated by National Share (N)) is wholesale and retail trading. The growth of this sector is the highest because the GRDP obtained from both sectors is the highest, being IDR 16,890 billion and IDR 14,521 billion respectively. The sectors in the city of Malang that grow more rapidly than the average sector growth (Mij) in East Java, which is marked with positive and greater than 1 value, are (i) the processing industry (ii) construction and (iii) wholesale and retail trading. Their growth is the most dominant because they are supported by the number of business units (667). In addition, 594 industrial centers in this city currently absorb 2,398 workers. Other sectors are negative because their growth is slow.

There are 3 main sectors in the city of Malang that have a comparative advantage compared to the same sector at the provincial level. These are: (i) construction, (ii) education services, and (iii) health services and social activities. The main sectors whose regional or national GRDP growth rates are very fast (Dij) and play an important role in the city's economy are (i) wholesale and retail trading, car and motorcycle maintenance and (ii) the processing industry. Construction, based on Differential Shift (Dij), has an average positive value, which means that the sector is beneficial for the development of GRDP in East Java.

#### 4.2. The Effect of Cluster-Based SMB-Specific Region Development

The acceleration of economic and industrial competitive development, particularly in SMBs, has become a concern of the central and local governments because the potential for SMBs in Indonesia is quite high. This potential needs to be effectively supported, so that it may grow optimally and move the economy forward. Empowerment of SMBs in the era of globalization and high competition requires those in control of SMBs to be properly equipped to tackle the challenges of the global market. One of the efforts of the government to support the development of SMB is to form clusters (clustering). According to Ma'ruf et al (2017), clustering is the process whereby business units and related actors establish businesses in the same location, within certain geographical areas. They work together in certain functional environments by creating linkages and cooperating to enhance collective competition in a business relationship. Clustering is expected to have a positive impact on the development of industrial zones.

Clustering methods to support the development of SMBs has been applied in various areas such as Malang city. According to the Office of Industry of Malang, clusters in this city have formed naturally because the people in the region have the same skills. Clustering in the city of Malang has been in operation for several generations, and continues to develop today. The Office of Industry has recorded that, until August 2017, there were 7 industrial centers in Malang; tempe chips center (in Sanan), earthenware center (in Penanggungan), ceramics craft center (in Dinoyo), furniture center (in Tunjung Sekar), corn chips center (in Pandanwangi), rattan craft center (in Balearjosari), and stoneware center (in Karangbesuki). In addition, as part of the next program, the government will establish 4 additional centers: exhaust pipe center (in Karya Timur, Arjosari), shuttlecock center (in Arjosari), racquet center (in Bandungrejosari), and cake and snack center (in Purwodadi).

Further, the establishment of clusters is strategic because it has a positive impact on the development of SMBs in Malang. Industrial clusters encourage the utilization of unproductive land, so they become productive industrial areas. This means that local people in those areas can obtain employment there, and do not leave to travel to other locations. In addition to reducing the unemployment rate, the rapid development of industrial centers can encourage people to be economically independent. Given that the needs of the community are increasing and diversifying from year to year, SMBs have the potential to help communities, particularly people in the middle to lower economic levels, to fulfill their needs. The results of field studies in Malang show that the average product sales of 7 existing industrial centers and 4 prospective centers are as follows.

#### 5. Contribution of Findings

Even though the study provides useful insights, the results should be interpreted with consideration of the following limitations and suggestion for future research. These limitations and suggestion for future research are discussed as follows. The analysis is conducted on the basis of the secondary data only. Secondary data such as regional gross domestic product (RGDP) is publicly available. However, RGDP data is only available for several regencies during the observation period, and remains unavailable for some regencies. Theoretically, it would be better if all of regencies could be considered. Additionally, data on the manufacturing level is obtained from secondary data sources, specifically the annual survey on manufacturing conducted by the Central Statistical Office. Hence, the validity of such data cannot be controlled by the researcher. Therefore, using primary data to support the analysis would authenticate the results. Further, this study is focuses only on the the supply side of the manufacturing sector. A comparison to other sectors such as trade and services sectors will provide more accurate results in order to view the development model of Small-Industries in East Java.

#### 6. Conclusion

SMBs have established several processing industrial centers, such as food, handicraft, and furniture industries. The owners of SMBs in all industrial centers are expected to compete with nearby businesses, to increase their revenue and increase regional economic income for regional economic development in terms of investment value. In addition to reducing unemployment rates, the rapid development of industrial centers can also encourage people to be economically independent.

Given that the needs of the community are increasing and diversifying from year to year, SMBs have the potential to help communities, particularly people in the middle to lower economic levels, to fulfill their needs. The results of field studies in Malang show that the average product sales continue to increase. In addition to cost efficiency, industrial centers can increase regional economic income for regional economic development in terms of investment value.

The cluster approach also facilitates cost efficiency in the procurement of raw materials. When industry participants require raw materials from outside of their area, they can choose to purchase their materials together with surrounding businesses, to reduce the cost of the raw materials. The existence of industrial centers also encourages the cooperation between businesses to make their production processes quicker and more efficient, and to reduce the cost of production where possible.

To maintain business continuity, the government should support the formation of cluster industries in order to stimulate industrial actors to innovate. Training provided by the government is one form of support to consider; the resulting knowledge spillover effect in turn helps industry players to improve their creativity which in itself may enhance the competition between businesses in the face of globalization.

Clustering also has a positive impact on capital because it introduces new financial options for industrial actors through financial or funding institutions. In addition to the increase in the number of SMBs in Indonesia, more banks are now offering specialist loans for SMBs. Most SMBs are reluctant to borrow money from banks due to high interest levels however, SMBs that decided to obtain credit from banks are typically more likely to have developed, or be developing, their business.

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