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The Strategic Industry of East Java Economy

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Abstract: East Java is one of the largest industrial areas and agglomerations in Indonesia. This study aims to estimate the role of strategic industries on the economic performance of the East Java region. The method used is the input-output quantitative analysis (IO). The data used is IO 2015. The data was obtained from the Central Bureau of Statistics (BPS). The results of IO estimation and analysis show that the strategic industrial sector in East Java is the vegetable oil industry, rice industry, flour and starch milling industry, bakery and cakes industry, cigarette industry, basic chemical industry, pharmaceutical industry, rubber industry and plastics and basic metal industries. A strategic industry is an industry that can drive performance from the supply and demand side. Strategic industries are grouped into agricultural, food and metals industries. The large number of strategic industries shows that the role of industry in building the regional economy is very strategic. This means that East Java industries have an impact on various economic sectors in East Java. Furthermore, the industry produces large-scale production in meeting intermediate inputs in other economic activities and final demand. As a result these key industries are able to generate and encourage regional economic performance. This proves that East Java is an industrial agglomeration region in Indonesia and has an impact on the economies of other regions in Indonesia.

Keywords: final demand, intermediate inputs, regional economics, strategic industries.

1. Introduction


East Java is one of the largest areas of agglomeration in Indonesia. This reflects in the large contribution of industry in this area to the regional and national economic. Most of agricultural and manufacturing industries are found in the region. Furthermore, specialization and spatial concentration have a great influence on other areas.

1.1 The Role of Industry and the Influence of Concentrations

Industrial clusters generate profits if the company is able to create collective efficiency, an advantage gained as a result of external economies and joint actions. The industrial sector in Indonesia within the cluster tends to gain economic benefits simply because it is in the same location (external economies). Most of the industries have not utilized a cooperation network (joint action). Joint action emphasizes industries with strong linkages from upstream, input and downstream intermediates. Furthermore, the advantages of spatial concentration (cluster) can provide the benefit of specialization of labour. This can have an effect on increasing the productivity of the region. Furthermore, spatial concentrations can reduce the costs of adjacent corporate transactions as well as impact on urbanization savings and localization.

In addition, cluster policy and cluster development in small industries in the processed food sector is considered very strategic. Clustering encourages price efficiency and accelerated regional economic development. In general, a concentration or cluster pattern of the organic food industry can improve the performance of supply, distribution, marketing, and utilities of organic food in East Java.

1.2 Negative Influence of Industrial Concentration

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Spatial concentration has a positive impact on economic development, local revenues increase and regions are able to produce better economies of scale. However, spatial concentration can be bad if there is low innovation power. This is due to the increasingly amount of urbanization while the ability of companies to absorb labour is still low.

Further strengthening the role of the strategic sector can strengthen the regional economy and provide spill over influence on other regions. The influence of spill over generated by a region due to trade interaction can drive the economic performance of the region, in this case the strategic sector. However, urban growth may decline due to low innovation and increased population mobility due to the reactions of economic opportunities in a region. This situation encourages negative regional spill over. Furthermore, the government needs to develop strict regulations in encouraging industry innovation. The development of growth centres causes the spread of the population because the attention of labour is not only focused on one area of industrial concentration.

1.3 The Active Role of Government

The government's active role in encouraging investment across cluster areas can generate great efficiency and external economies. Regional economic growth is heavily influenced by government spending. The role of the government in the early period of autonomy is very influential on the absorption of manpower in the region. However, low development innovations in the region may hinder long-term employment.

Furthermore, the role of the government is to strengthen the advantages of inter-regional proximity to the developing regions due to the concentration of industry. This is seen in what has happened in the activities of the textile industry, leather goods and footwear in East Java. Industrial specialization and spatial concentration can promote alignment with sub-sectors or other activities thereby increasing economic efficiency. This suggests that spatial concentration may encourage the emergence of new economic activities in the immediate vicinity in favour of pre-existing economic activity. There is a need for a policy of agglomeration not only concentrated in a particular region, but scattered in other regions.

1.4 Strengthening the Strategic Sector

Determination of the development policy of a region should pay attention to sector (1) superior / strategic, but not ignore other sectors, (2) monitoring and evaluation of the function of the region as a prime mover, (3) incentive required in the form of investment for a region which has superior sectors but still difficult to develop.

Companies located outside Java are too far away to benefit from industrial agglomeration in Java. This is what causes industry to be reluctant to move to other areas despite being supported by a low wage labour. Industry prefer the special effects of economic efficiency and labour benefits. This is what causes the government to have difficulties in expanding economic areas and building strategic sectors in other regions. What we have in the consensus in the new economic geography theory, which states that the liberalization of trade in the spread of economic activity, does not exist in Indonesia. Trade deregulation further strengthens spatial concentration and fosters regional inequality. One of the government's efforts is establishing strategic sectors in other regions and disseminating the concentration and specialization of economic activities in the region through interregional capital movement policies.

2. Method

This research used the quantitative analysis technique with input output method (IO) analysis. IO is one of the linear analysis that aims to estimate the flow of various commodities in various sectors and to estimate the strategic sector that is capable of driving regional economic performance. Leontief builds IO tables into 3 parts: (1) final demand, (2) primary input and (3) total output. The final demand

consists of household consumption, government spending, investment and exports. Primary input consists of compensated value added wages, value added profit and import.

The basic formula used by Leontief on the flow of goods and transactions is

$$\sum_j x_{ij} + Y_i = X_i \quad (1)$$

$$\sum_i x_{ij} + Z_i = X_j \quad (2)$$

Furthermore, the technological coefficient formula is

$$a_{ij} = x_{ij}/X_j \quad (3)$$

Additionally, the formula to estimate the added value is Leontief matrix namely;

$$[I - A]^{-1}Y = X \quad (4)$$

Analysis to know the value of the strategic sector uses the average forward linkage and average backward linkage hereinafter referred to as index. If the index value of the forward linkage (IBL) and the forward linkage index (IFL) is greater than 1 in an industry sector, the sector is classified as a strategic industry sector.

3. The Data Source

This research uses a non survey technique. The data used are IO data of 2015 obtained from the Central Bureau of Statistics (BPS). The data is the official data of Year 2015 so there is no need to update data IO. The number of sectors on the IO table is as high as 100 sectors, but our attention is only on the industrial sector which amounts to 39 industries. The amount discussed in this text is expected to decrease as the focus of the discussion is only on the strategic industry sector.

4. Discussion

The estimation results show that out of 39 industry sectors in East Java, only 13 sectors are classified as being in the strategic sector. The strategic sector is a sensitive and responsive sector driving economic performance both in terms of demand and supply. The details of the estimation results of the industry sector strategies in table IO East Java Year 2015 are presented in Table 1:

Table 1. The estimation result in the strategic sector in IO Table in East Java.

Industrial sector	IFL	IBL
Industrial Processing and Preservation of Fish and Water Biota	1,150	1,234
Industrial of Cooking Oil and Vegetable and Animal Fats	1,585	1,062
Rice Industry	1,004	1,178
Industrial Rice Milling (Except Rice), Flour And Starch	1,010	1,036
Bread and Cake Industry	1,117	1,246
Cigarette Industry	3,552	1,021
Basic Chemical Industry	2,438	1,206
Other Chemical Goods Industries	1,398	1,245
Pharmaceutical Industry, Chemical Products And Traditional Medicines	1,357	1,303

Industrial sector	IFL	IBL
Rubber Industry And Rubber Goods	2,671	1,298
Manufacture of Plastic Goods	2,367	1,311
Basic Metal Industry	1,847	1,328
Industrial Metal Goods, Not Machinery and Equipment	1,122	1,249

The estimation results show that the strategic industry is grouped into 3 parts: the agricultural industries (including fisheries and livestock), food and manufacturing industries. The industry with the greatest IFL value is the tobacco industry. This shows that the supply of most of the cigarette industry can be absorbed optimally by the final consumption. Furthermore this industry is not only needed by local consumers but scattered territories and others and exports. But the IBL value of the cigarette industry is still low, the smallest compared to other strategic sectors. This shows that the cigarette industry is mostly moving on a large scale (although there is a household scale).

The government needs to strengthen the cigarette industry from the demand side by increasing and strengthening the role of the small scale cigarette industry and the household scale. The home industry is built on the basis of joint action and collective effort. Joint action creates collective efficiency and greater economic benefit as well as reduced transaction cost. It aims to help household-scale industries to not mutually stop their business, but cooperate and benefit from the opportunities of the industrial agglomeration through cooperation. Here the role of government should be more optimal in strengthening joint action between small-scale business and household-scale business. Their excellent supply-side strategic industries are the rubber industry, the plastic goods industry and the basic chemical industry. These industries produce large quantities of production to meet the needs of the region and, supply nationally and international. This is reflected in the IFL value exceeding 2. The high production of this industry is not because of the needs of various industries such as the food and beverage industry, packaging industry and other industries that require goods from rubber and plastic as an intermediate input. This suggests that sectorial linkages in the Javanese economic agglomerations provide benefits in terms of economic efficiency and scale of production.

Another strategic industry group that is not as productive as other industries, is the rice industry and the grinding mill industry. Other strategic industries that are quite good performers from the supply side are the fish processing and preservation industry, the vegetable oil industry, the bakery and cakes industry, the chemical goods industry, the pharmaceutical industry, chemical drug products and traditional medicines, the base metal industry and the metal and non-machinery industry.

An excellent strategic industry from the demand side is the basic metal industry, plastic goods industry, pharmaceutical industry, chemical drug products and traditional medicines, bakery and cake industry, other chemical industries and fish processing and preservation industries. The performance of this industry group is mostly involving other economic activities compared to other strategic industries in East Java. The bakery and cake industries are an example. This industry encourages a variety of other industries when the economic performance of the sector increases. The sectors that have the greatest influence when the bakery and cakes industry are developed are small and medium industries and home industries. Furthermore, this sector has a major impact on employment and encourages related sectors to grow and develop.

Another role of basic industry (based on agriculture or fisheries) is strategic and large in terms of demand is seen in the processing and preservation of fish and water ecology. This shows that the processing and fish preservation industry has a great influence on many other economic activities when the sector grows. In aggregate this industry encourages economic performance in terms of demand if it is able to grow quicker. However, this industry has not been able to generate a large supply because the value of IFL is still smaller than the tobacco industry that is 1,150. The low supply

capability is caused by a low production capacity. This is because technology and innovation in the processing industry and fish preservation is not adequate. This production capability has a big impact if technology and innovation are developed so that the IFL value can reach 2 compared to other industries. Overall the value of IBL is still lower than the IFL. Most of the IBL values are under 2 materials is only slightly bigger 1.

The strategic industries, among others, are the food oil industry, the grinding mill industry, the flour and the core of the cigarette industry. This industry has little to do with other sectors. It is even suspected that this sector is still dependent on other sectors outside the region or other countries in meeting the intermediate inputs. If this happens on a large scale then it has great potential impact on economic decline and capital loss.

5. Conclusion

Based on the results of analysis and estimation shows that from 39 industry sectors in East Java, there are 13 strategic industries in pushing economic performance. The industry can be classified into 3 parts, namely agriculture industry, food industry and manufacturing industry. The 13 industries are the vegetable oil and vegetable oil industry, rice industry, flour and starch industry, bakery and cakes industry, cigarette industry, basic chemical industry, pharmaceutical industry, rubber industry, plastic goods industry and basic metal industry.

The industry that is quite good in terms of supply and production but very small in terms of demand is the cigarette industry. The best industries in terms of demand and supply are the rubber and rubber goods industry, plastic goods industry and basic chemical industry. Fish processing and preservation industries and the bakery and cakes industry can be classified as high performance industries in pushing the economic performance of East Java region.

6. Suggestion

A suggestion from the results of this study is that the government needs to develop joint-based household businesses and aim to strengthen sector linkages. Strengthening the role of the strategic sector is actually done by strengthening innovation and technology in order to strengthen the local economy and sector linkages.

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