Impacts of Industrial Estate Development Policy on Household Poverty in West Java Province

Winardi[a]*, DS Priyarsono[b], Hermanto Siregar[b], Heru Kustanto[d]

[a]*Regional and Rural Development Planning Program, Bogor Agricultural University. Campus of IPB Dramaga, Bogor 16680, Indonesia.*

[b,c]*Faculty of Economics and Management, Department of Economics, Bogor Agricultural University. Campus of IPB Dramaga, Bogor 16680, Indonesia.*

[d]*Direktorate General of Industrial Regional Develompent, Ministry of Industry Republic of Indonesia. Gatot Subroto Street Kav. 52-53 Jakarta 12950, Indonesia.*

[a]*Email: winzain82@gmail.com*

Abstract

This study aims to analyze the impacts of industrial estate development on the level of poverty of household in West Java Province. The industrial estate discussed in this study is the industrial estate as a location where manufacturing sector is operated, therefore, in order to see the impacts of industrial estate development, it is approached by looking at the impacts of the manufacturing sector located in the industrial estate. The model analysis used Social Accounting Matrix (SAM). The analysis results show that the policy of industrial estate development through increased public and private investment in the industrial sector located in the industrial estate provides impacts on the decreased poverty level of households in West Java Province.

Keywords: Industrial Estate; Household Poverty; Social Accounting Matrix (SAM).

----

* Corresponding author.

1. Introduction

The development of industrial sector is an important part of national economic development, so that the development of industrial sector should be able to make a major contribution to national development from economic, social, cultural and political aspects. On the contrary, the development of economic, social, cultural and political aspects will affect the industrial development. National economic development is a system. Therefore, the industrial development policy in the long term is not only intended to solve the problems on the industrial sector, but also at the same time, should be able to overcome the problems of the national economy. The problems here include slow economic growth, lack of infrastructure, income inequality and high rates of unemployment and poverty.

The problems and challenges faced in the economic development are the starting point to accelerate the process of industrialization. In this context, the development of industrial sector requires a clear direction and policies, in which the policy should be able to accelerate the distribution and spread of the industry in the entire territory of the Republic of Indonesia. The direction of national industrial development policy consists of three (3) main policy directions; the first is to attract industry investment by providing locations in the form of industrial estates; second, increased growth of industry population by increasing the number of large and medium scale industrial enterprises and small industries; and the third is to improve competitiveness and productivity [1].

This study focuses on the first industrial development policy, namely the development of industrial estate. An industrial estate is the area equipped with various facilities and infrastructure in the forms of basic infrastructure and supporting infrastructure that will be used by industrial companies jointly and managed by a company that has the business permit of industrial estate. For example, the best industrial estate in Indonesia is Jababeka Industrial estate located in in Bekasi, West Java Province with an area of 2390 Ha. Jababeka Industrial estate has the complete infrastructure and facilities and supporting facilities infrastructure with international standards, such as water treatment plant, power plants, dry port, firefighters, environmental laboratories, educational facilities, places of worship, commercial area, residential and hospitality, all of which support company activities of the industry located in Jababeka Industrial estate.

The existence of an industrial estate in a region greatly affect the economic structure which in turn have the impacts on Regional GDP in the region. Based on data from Central Bureau of Statistics and the Ministry of Industry, the area having an industrial estate provided more contribution to the Regional GDP and GDP. Java which has 55 Industrial estates is able to drive the national economy by contributing 57.99 percent on the national GDP. In addition, the industrial sector on Java island is able to become the leading sector with a contribution of 29.87 percent to the Regional GDP. While the for regions outside Java, even though the area is vast and the natural potential is quite large, but their contribution to the national economy is still relatively small. It is because, one of the reasons, limited industrial activity center in the form of industrial estate.

Some studies related to the role of industrial estate on region economy, are as conducted by [2,3,4,5,6,7,8]. These studies in conducting the analysis are still partial, in which the models built are not based on integrated and comprehensive data framework. Meanwhile, research on the role of industrial estates in Indonesia, focuses

more to the impacts of industrial estate development on physical life environmental quality and social conditions of society. Therefore, this study is conducted in a comprehensive manner by taking into account four (4) major factors in the industrial development in a region, namely: (1) Types of industry (labor-intensive, capital-intensive, resource-based), (2) Location of industrial companies (inside the industrial estate or outside the industrial estate), (3) Special characteristic of an area, and (4) achievement of the regional economic indicators (growth, equity, and poverty).

In order to formulate the policy of industrial estate development oriented on the reduction in household poverty in West Java province, it is necessary to conduct research studying the impacts of industrial estate development policy on the reduction in household poverty in West Java province. Based on this problem, the study aims to analyze the impacts of industrial estate development policy on household poverty in West Java province.

2. Methodology

2.1 Location

The object of this research was the province of West Java. The consideration to choose this location because so far the industry sector of non-oil processing in West Java province has become a base with excellent growth rate, the value of Location Quotient of the processing is always above 1 (LQ> 1). This condition is supported by 25 industrial estates in the province of West Java.
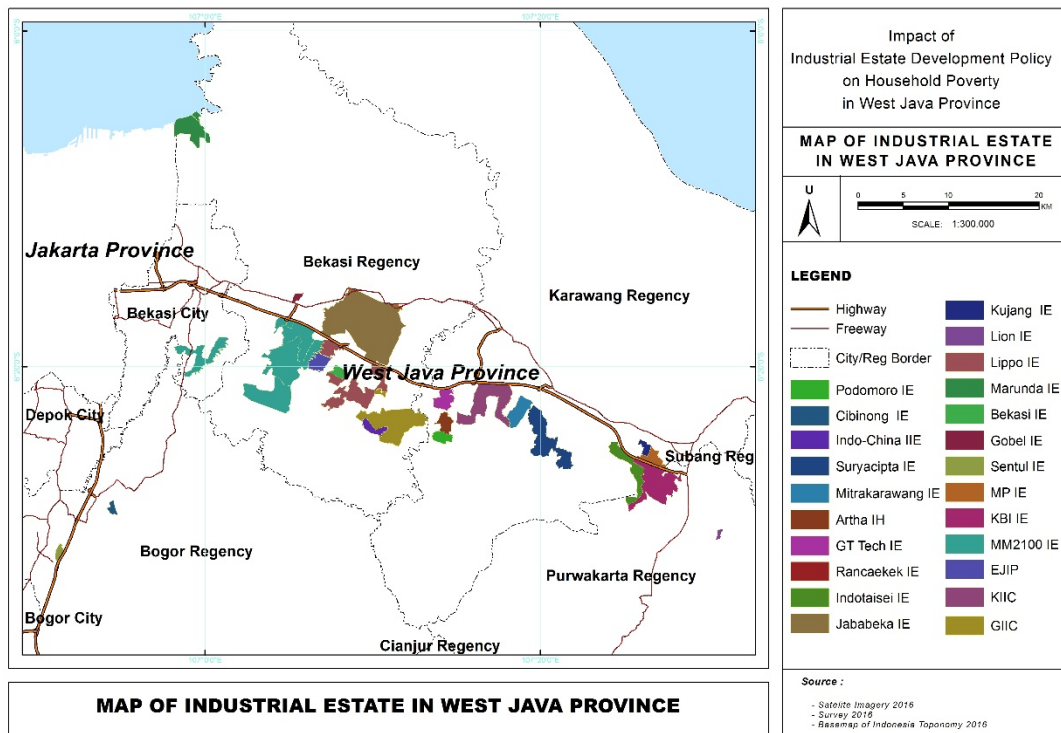

Figure 1: Map of Research Location

2.2 Type and Source of Data

The data used in this research was secondary data used to build the SAM model of West Java Province. The main data sourced from Input-Output Table of West Java province, 2010. Other data used was the data of National Socioeconomic Survey (SUSENAS) 2013, West Java in Figures, Large and Medium Industry Statistics, Finance Statistics of Local Government and Indicators of People Welfare, as well as various survey data were also used to supplement the existing information.

2.3 The Method of Analysis Data

The model used in this study was Social Accounting Matrix (SAM), which was a data system that included social and economic data in an economy [9]. The data framework in SAM was common balance to describe the economy as a whole and could connect various social and economic aspects. The software used in the data processing was SimSIP SAM 1.1.2.

Policy simulation in this study was conducted to see the impacts of processing industry investment located inside and outside the industrial estates on household poverty in West Java Province in 2013. The simulation method that used was to multiply multiplier matrix (Ma) with the exogenous vector which was the value of costs allocated in the processing industry sector investment located inside and outside the industrial estate.

The scenario of industrial estate development policy in this study is the increase in investment in the processing industry sector located inside and outside the industrial estate. Such scenarios are presented in Table 1.

The consideration to determine the simulation scenarios was based on the plan of the government and private sector to build industrial estate in West Java province with a focus on four (4) major industrial sectors, namely food and beverage industry, textile industry, apparel, leather and footwear, and basic metal industry and finished goods from metal, as well as chemical industry, goods from chemical, rubber and plastics and oil milling industry.

The policy of increasing investment by 18 percent was based on the policy of the Government of West Java province, on Medium Term Development Plan (RPJMD) of West Java province Years 2013-2018, determined an average target of investment growth per year from 2012 to 2018 by 18 percent per year.

In order to analyze the impacts of industrial estate policy on poverty levels of households, it was used poverty index of Foster-Greer-Thorbecke (FGT) with the following formula:

$$P_\alpha(y;z) = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^\alpha, \qquad \alpha \geq 0 \qquad\qquad (1)$$

Where, y_i: average expenditure per capita of individual i in total household income, z: poverty line, n: number of population, and q: number of poor people.

Table 1: Scenarios of Industrial Estate Development Policy

No	Scenario	Code
1	Increased investment of industry sectors in basic metal and finished goods from metal located in the industrial estate by 18 percent	S1a
2	Increased investment of industry sectors in basic metal and finished goods from metal located outside the industrial estate by 18 percent	S1b
3	Increased investment of industry sectors in textiles, apparel, leather and footwear located in the industrial estate by 18 percent	S2a
4	Increased investment of industry sectors in textiles, apparel, leather and footwear located outside the industrial estate by 18 percent	S2b
5	Increased investment of industry sectors in food and beverage located in the industrial estate by 18 percent	S3a
6	Increased investment of industry sectors in food and beverage located outside the industrial estate by 18 percent	S3b
7	Increased investment of industry sectors in chemical, goods from chemical, rubber and plastics and oil milling located in the industrial estate by 18 percent	S4a
8	Increased investment of industry sectors in chemical, goods from chemical, rubber and plastics and oil milling located outside the industrial estate by 18 percent	S4b
9	Increased investment of industry sectors in basic metal, finished goods from metal, extiles, apparel, leather and footwear located in the industrial estate by 18 percent	S5a
10	Increased investment of industry sectors in basic metal, finished goods from metal, extiles, apparel, leather and footwear located outside the industrial estate by 18 percent	S5b
11	Increased investment of industry sectors in basic metal, finished goods from metal, extiles, apparel, leather, footwear, food and beverage located in the industrial estate by 18 percent	S6a
12	Increased investment of industry sectors in basic metal, finished goods from metal, extiles, apparel, leather, footwear, food and beverage located outside the industrial estate by 18 percent	S6b
13	Increased investment of industry sectors in basic metal, finished goods from metal, extiles, apparel, leather, footwear, food, beverage, chemical, goods from chemical, rubber and plastics and oil milling located in the industrial estate by 18 percent	S7a
14	Increased investment of industry sectors in basic metal, finished goods from metal, extiles, apparel, leather, footwear, food, beverage, chemical, goods from chemical, rubber and plastics and oil milling located outside the industrial estate by 18 percent	S7b

Based on equation (1), it can be performed analysis on:

- The Headcount index, or the proportion of population below the poverty line ($\alpha = 0$)

$$P_0(y; z) = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^0 \tag{2}$$

- The Poverty gap index which is the average size of the expenditure gap of each the poor on the poverty line. The higher the index value, the higher the average expenditure of residents from the poverty line ($\alpha = 1$)

$$P_1(y; z) = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^1 \tag{3}$$

- The poverty severity index provides an overview of the spread of expenditure among the poor. The higher the index value, the higher the expenditure gap among the poor ($\alpha = 2$)

$$P_2(y; z) = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^2 \tag{4}$$

3. Result

West Java Province is the province that has the largest industrial estates in Indonesia, that are 25 industrial estates (33.8 percent). Based on the data from Industry Statistics in 2013, there were 6,460 processing industrial companies in West Java province, which were still largely located outside industrial estates (5,064 industries, or 78 percent), while the remaining 1,396 industrial companies were located in the industrial estate (22 percent). Nevertheless, the role of industrial estates in West Java province is indicated by the high contribution of processing industry in the industrial estates in the output creation of processing industry in West Java province, by 48.05 percent. At present, the industrial estates in West Java province continue to expand and increase the intensity of the manufacturing activities of processing sector in the industrial estate. In 2013, the processing sector contributed 35% to the Regional GDP of West Java with a growth rate of about 5.5 percent per year.

The structure of non-oil and gas processing industry in West Java is dominated by capital-intensive industries (automotive, electronics, machinery & equipment industries), labor-intensive industries (textile, leather goods and footwear industries), and resource-based industries (food and beverage). High dependence on this branch is very vulnerable to changes occurring in the industrial sector. If something happens, and causes the industrial sector is experiencing problem, the impact will be directly felt in the processing sector, which in turn it has an impact on the overall economy of West Java, on the economic growth, income level and poverty rates of household.

One of the accounts in SAM of West Java province in 2013 is the institutional account which consists of three types of institutions, namely households, corporate enterprises and government. The classification of household income in the economy of West Java Province is based on the types of work of the head of household, as well as broken down by residency in rural and urban areas. Based on SAM data of West Java presented in Table 2, the total household income of West Java Province is Rp 614,943,935.15 Million.

The highest income is obtained by high-income household in urban areas by 35.40 percent, followed by middle-income households in urban areas by 19.06 percent, and the third largest is the middle-income households in

rural areas by 18.63 percent. The income from the industrial estates are enjoyed by the institutions of high-income households in urban areas because in general the industrial estates are located in the centers of economic growth in urban areas. After it is performed simulation starting from S1a to S7b, the income of all household groups has increased. This is in line with results of research conducted by [10] stating that it is only the processing industry sector which can generate enough demand for labor to increase household income.

Table 2: Distribution of Household Income of West Java Province in 2013

Household	Region	Income (Million Rp)	Percentage (%)
Household of Low Income		91.531.527,04	14,88
Household of Middle Income	Rural	114.576.136,91	18,63
Household of High income		14.630.894,96	2,38
Household of Low Income		59.306.863,98	9,64
Household of Middle Income	Urban	117.208.688,40	19,06
Household of High income		217.689.823,86	35,40
Total		614.943.935,15	100

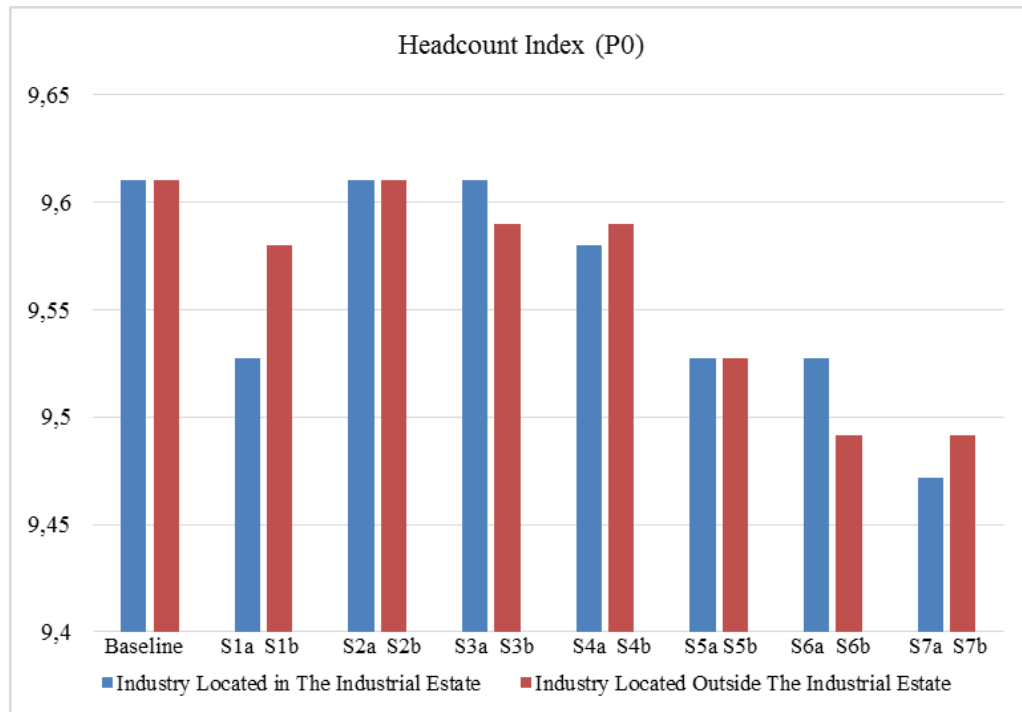Source: SAM data processed of West Java Province, 2013

Figure 2: Headcount Index in West Java Province

Then, it is performed simulation analysis of increased investment in the processing sector in West Java

province. It is obtained the value of headcount index (P0) which is in aggregate decreased between 0.0199 percent and 0.1380 percent. This shows that the policy of increasing investment in processing industry in West Java province in general will have an impact on the reduction of household poverty. Increased investment in processing industries located in the industrial estates provides impacts on decrease in household poverty rate by 0.1380 percent (S7a) better than the impacts of increased investment in the processing industry outside the industrial estates on poverty rate decrease which is only by 0.1185 percent (S7b).
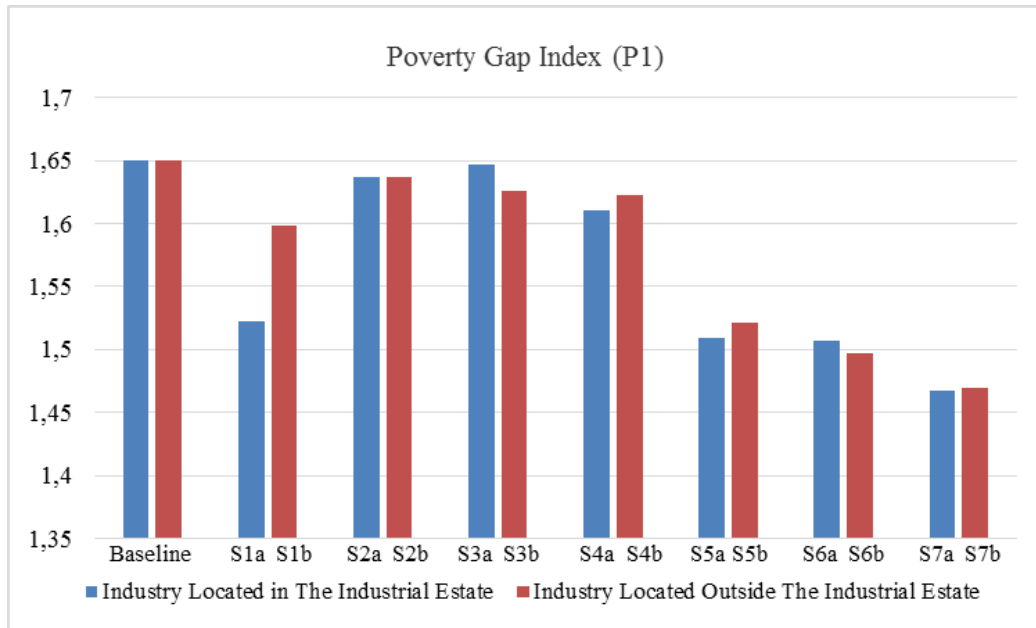

Figure 3: Poverty Gap Index in West Java Province

Similarly, the results of the analysis of the gap of poverty shows that the policy of increasing investment in the processing sector, located in the industrial estate is able to reduce the gap of poor households income on the poverty line. It can be seen in Figure 3 that after it is performed policy simulations, the index of poverty gap declines by between 0.0029 percent and 0.1828 percent.

The biggest decrease occurs in simulation 7, where the poverty gap index decreases by 0.1828 percent. While the analysis results of the severity of poverty in Figure 4 shows that the policy of increasing investment in the processing sector, located in the industrial estate is able to reduce poverty severity index. It is seen that the poverty severity index decreases by between 0.0025 percent and 0.1588 percent.

Based on the analysis of headcount index, the gap and severity index of the household poverty in West Java province, it is obtained that the policy of increasing investment in the industrial estates provides impacts on poverty reduction, that is better than the investment outside the industrial estate.

The results of this analysis is in line with the results of research conducted by [8] stating that the policy of economic development of a region by using the industrial cluster strategy provides good impacts on poverty reduction in the metropolitan regions as well as in non-metropolitan regions.
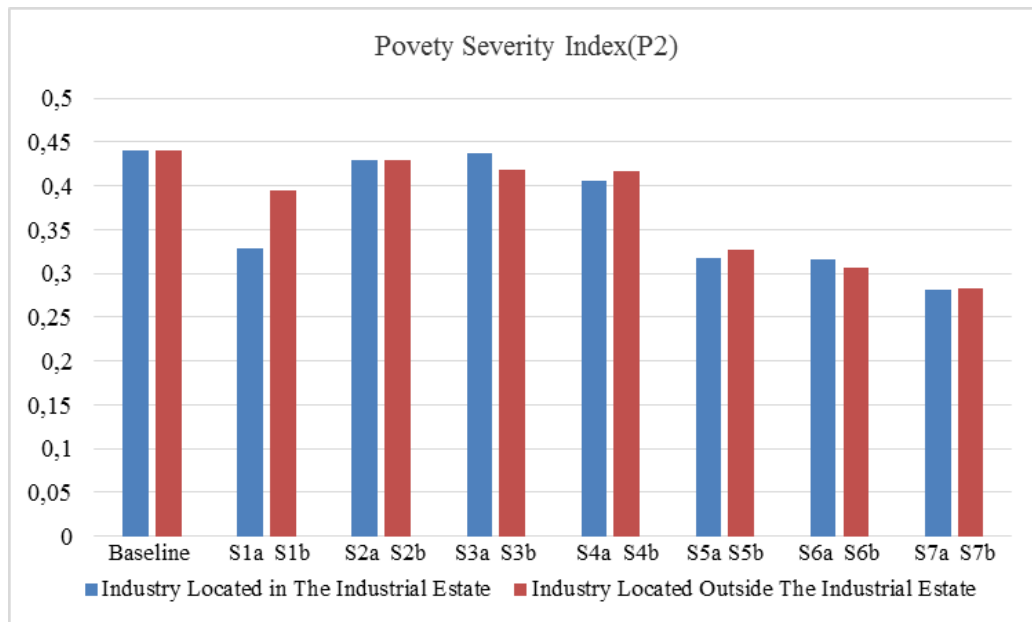
Figure 4: Poverty Severity Index in West Java Province

4. Conclusion

The policy of industrial estate development through increased investment in the processing sector located in industrial estates has impacts on the increased household income and decrease poverty rate of households in West Java province. The policy of increasing investment in the industrial estates in West Java province provides impacts on household poverty reduction, which is higher than the increase in investment of processing industry located outside the industrial estates. Therefore, investment in the industrial estate is better than the investment outside the industrial estate.

Based on the results of this research, the policy recommendations that can be set by the government in order to develop industrial estates that can encourage the growth of the regional economy, reduce household poverty, are among others: (a) facilitating and directing new industries to be located in the industrial estates in accordance with the characteristics of industry types, so that in the future, industries located in the industrial estates can become the industry having the same types and can increase the chances of the formation of industrial clusters and (b) the implementation of industrial estate development policy should not be the same for all regions. Especially for the hinterland area from the growth center, it is necessary to build industrial estates based on local resources, such as rural industrial estate, local industrial park, or agricultural industrial park.

References

[1] Kemenperin, "Rencana Strategis Kementerian Perindustrian Tahun 2015-2019," Biro Perencanaan, Ed., ed. Jakarta: Kementerian Perindustrian, 2015.

[2] K. S. Kim and N. Gallent N, "Industrial Park Develompent and Planning in South Korea," Regional Studies, vol. 31, no. 4, pp. 424-430, 1997.

[3] M. Perry and C. Yeoh, "Singapore's Overseas Industrial Park," Regional Studies, vol. 34 no. 2, pp.

199-206, 2000.

[4] J. Vidova, "Industrial Parks-History, Their Present and Influence On Employment," Review Of Economic Perspectives, vol. 10, no. 1, pp. 41-58, 2010.

[5] P. Dedeić and Z. Brnjas, "Industrial Park as Instrument of Local Economic Development In Managing Structural Changes: Trends And Requirements," Coimbra: Faculty of Economics, 2012.

[6] F. Morales and M. Fernandes, "The Impact of Industrial District Affiliation on Firm Value Creation," European Planning Studies, vol. 11, no. 2, pp 155-170, 2003.

[7] G. Becattini and F. Musotti, "Measuring the district effect. Reflections on the literature," Banca Nazionale del Lavoro Quarterly Review, vol. 226, pp. 259–290, 2003.

[8] C. S. Fowler and R. G. Kleit, "The Effects of Industrial Clusters on the Poverty Rate," Economic Geography, vol. 90, no. 2, pp.129–154, 2015.

[9] E. Thorbecke, "The Social Accounting Matrix dan Consistency-Type," Washington DC: The World Bank, 1988.

[10] G. F. Papanek, R. Pardede, and S. Nazara S., "Pilihan Ekonomi yang Dihadapi Presiden Baru," Jakarta: Transformasi, 2014.