

Analysis of Investment Policy of Local Government in the Era of Industrial Revolution 4.0

Budi Supriatono Purnomo, Alfira Sofia
 Fakultas Pendidikan Ekonomi dan Bisnis
 Universitas Pendidikan Indonesia
 Bandung, Indonesia
 budi.purnomo@upi.edu, alfira.sofia@upi.edu

Abstract—Local governments as public service providers have an important responsibility in an effort to improve the welfare of the community within the local government. One of the efforts that can promote the improvement of people's welfare in the financial perspective is to improve the investment climate. West Java Province is one of the biggest provinces in Indonesia and also one of the biggest regional investment destinations. As the era of Industrial Revolution 4.0 has started in 2011, investment policies have to be developed in line with the changes occurred. This study aims to 1) identify the Investment Performance of Java Provincial Government; 2) recognize the direction of investment policy of West Java Provincial Government and its relation with Industrial Revolution 4.0. This study used secondary data on investment from 2013 until 2017. The results showed that the investment performance in West Java in the 2013-2017 have fluctuations values and the big decline in 2016-2017. It was also found that some leading sectors have very low investment value compared to other sectors. The central and regional governments must again elaborate each policy in more detail in order to achieve the consistency and sustainability of each program.

Keywords—*investment performance; investment policy; industrial revolution 4.0; local government*

I. INTRODUCTION

The Ministry of Industry has designed Making Indonesia 4.0 as an integrated roadmap to implement a number of strategies in entering the era of Industry 4.0. In order to achieve these goals, collaborative steps are needed involving several stakeholders, ranging from government institutions, associations and industry actors, to academics. Since 2011, the Industrial Revolution 4.0 has begun to go hand in hand with increasing connectivity, interaction, and the boundaries between humans, machines, and other resources that are increasingly converging through information and communication technology [1,2]. The fourth industrial revolution becomes a big leap for the industrial sector, where information and communication technology is fully utilized, not only in the production process, but also throughout the industrial value chain [3]. This gave birth to a new business model with a digital base in order to achieve high efficiency and better product quality.

Business development in a country cannot be separated from investment growth [4]. The importance of investment management is very much realized by the government in its

efforts to improve the country's economy [5]. The central government and local governments have a strong commitment to provide business convenience and continue to encourage the maintenance of a conducive business climate [6]. This is expected to expand employment opportunities and encourage a more evenly inclusive economic growth acceleration. However, with demands to collaborate in the Industry 4.0 era, the central and regional governments must be able to make consistent policies. Monitoring and evaluation steps must also be carried out for several policies that are already underway [2].

West Java Province has a vision to be the best investment destination in Southeast Asia in 2025 and is supported by several factors. The magnitude of the potential of human resources both as a source of labor as well as a market for the products and services produced is a supporting factor. In the last five years, the investment climate in West Java has been very well proven by various awards such as Investment Award given to the Investment Board of PTSP Operator, Award of Indonesia Attractiveness Index. However, whether the achievements achieved in the investment performance have been in line with the industrial development roadmap set by the central government, still needs some in-depth examination and comprehensive analysis. One aspect that is reviewed is by reviewing the industry sector which is a priority in five years of governance (2013-2017). Consistency of the strategy adopted by the West Java Provincial Government is compared to the central government strategy. Indonesia enters the Industry 4.0 by preparing five manufacturing sectors that will become a pilot to strengthen the fundamental structure of the country's industry. The five sectors are the food and beverage industry, the automotive industry, the electronic industry, the chemical industry, and the textile industry.

Previous research on the impact of the industrial revolution has been carried out by Soime researchers [1,2,7,8]. Previous research focused on the impact of the industrial revolution on industrial practices in several countries and their relationship to the learning process in preparing workers. While research linking the impact of the industrial revolution on the role of the government in developing investment in its region has not been widely studied. Therefore this research is important because it contributes to the theoretical development in providing literature related to local government investment policies in the

industrial revolution era. Thus this study aims to 1) identify the Investment Performance of Java Provincial Government; 2) recognize the direction of investment policy of West Java Provincial Government and its relation with Industrial Revolution 4.0.

II. METHOD

A. Research Design

The subject of this study is the West Java Province as a regional investment destination on a national scale. Twenty-six (26) regencies/cities are examined, especially related to the amount of investment in the region.

Data were obtained from the annual report of the Integrated Investment and Licensing Agency in the West Java region and the Investment Coordinating Board (BKPM, Badan Penanaman Modal dan Perizinan Terpadu). This study also uses document studies related to policies and strategies implemented by local governments in the Industrial Revolution 4.0. Documents used include relevant news that were accessed from official government pages both central and regional and applicable laws or regulations. Data source extraction through document study is complementary in the qualitative research process. Bungin stated that the level of credibility of a qualitative research result is determined by the use and utilization of existing documents [9].

B. Data Analysis Technique

Quantitative descriptive analysis approach was used with the aim to make a description or overview of the facts of the phenomenon being investigated. The secondary data collected were processed and analyzed using descriptive statistical technique. The stages in a row were organizing data in accordance with the research objectives, processing data with relevant technique, and analyzing the meaning of each value obtained. Meanwhile, content analysis was carried out on documents collected. Holsti, in Moleong, stated that content analysis is all techniques used to draw conclusions through attempts to find message characteristics, and are carried out objectively and systematically [10,11].

III. RESULTS AND DISCUSSION

From the annual report of the Integrated Investment and Licensing Agency in the West Java region and the Investment Coordinating Board (BKPM, Badan Koordinasi Penanaman Modal), the data were then compiled as follows.

A. Industry Sector with Biggest Investment Value in 2013-2017

Based on Table 1, in the last five consecutive years, the sectors that gained most interest from investors (judging from the investment value) are not the same. The motor vehicle industry and other transportation equipment in 2013-2015 have always been ranked 1 or 2 of the highest investments, while in 2016-2017 they dropped considerably in the 19th rank. On the contrary, the paper and printing industry and housing industry, industrial area and offices instead, they become sectors that attract investors the most in in the last two years, namely in

2016-2017. There are new sectors emerging in 2017 such as the transportation, warehouse and communication sectors. Meanwhile, electricity, gas and water industry only appeared one time as an industry that attracted investors, namely in 2014.

TABLE I. RANKING OF THE TOP 5 SECTORS THAT ATTRACTED INVESTORS IN 2013-2017

2013			
No	Sector	Investment (Rp.)	Ratio
1	Motor vehicle and other means of transportation	29,020,942,363,000	31.03
2	Metal, machinery, and electronics	14,665,779,050,000	15.68
3	Trade & repair	13,246,469,334,926	14.16
4	Chemical and pharmaceutical	6,139,924,444,161	6.57
5	Food and beverage	608,497,378,822	6.51
2014			
No	Sector	Investment (Rp.)	Ratio
1	Motor vehicle & other means of transportation	20,178,371,156,557	18.53
2	Trade & repair	17,400,352,530,660	15.98
3	Metal, machinery, and electronics	13,658,578,688,831	12.54
4	Construction	13,498,752,610,000	12.40
5	Electricity, gas, and water	9,646,680,880,000	8.86
2015			
No	Sector	Investment (Rp.)	Ratio
1	Trade & repair	3,991,493,342,854	19.74
2	Motor vehicle and other means of transportation	8,563,397,464,938	15.28
3	Metal, machinery, and electronics	12,799,416,167,724	10.53
4	Chemical and pharmaceutical	9,346,645,624,898	7.70
5	Construction	7,999,765,918,474	6.58
2016			
No	Sector	Investment (Rp.)	Ratio
1	Trade & repair industry	39,106,216,912,252	27.34
2	Paper and printing	30,704,199,892,390	21.46
3	Food and beverage	12,376,350,524,670	8.65
4	Non-metal mineral	11,686,284,747,415	8.17
5	Housing, industrial estate and offices	11,018,772,643,537	7.70
2017			
No	Sector	Investment (Rp.)	Ratio
1	Paper and printing	15,664,533,811,453	14.63
2	Food and beverage	13,097,481,310,611	12.23
3	Housing, industrial estate and offices	9,771,234,562,123	9.13
4	Non-metal mineral	9,203,552,895,289	8.60
5	Transportation, warehouse, and communication	7,440,150,150,000	6.95

From Table 1, it can be seen that the metal, machinery and electronics industries have consistently been for the five years in a row always the favorite sector that attracted investors in West Java. It proved previous research about industries sectors which leading in revolution 4.0 [1,2]. The food and beverage industry has a fluctuating investment value, as seen from its ratio of 6.51% in 2013 and then dropped in the next two years so that it is not in the category of interest. In 2016, the industry emerged in the third place with a ratio of 8.65% and increased

significantly to 12.23% in 2017 as the second most attractive sector for investors.

B. Growth of investment value in 2013-2017

The development of investment value in West Java in total can be seen in Table 2. Fluctuations in investment value clearly occur in the 2013-2017 period. The investment value in 2017 has decreased to around IDR 36 trillion compared to 2016.

The development of investment value was not directly correlated with the development of the number of projects or the amount of labor absorbed in the same period [3]. This can be seen in Table 3 and Table 4. When an investment value of increased by 16.44% in the 2013-2014, the number of projects actually fell by 21.83%. On the other hand, based on the number of workers absorbed, there is an increase although the percentage is only 4.31%.

Investment in West Java seems to have problems in the 2016-2017. This can be seen from the value of the investment, the number of projects and the amount of labor absorbed which all experienced a decline of 25.16%, 76.58% and 59.66% (in Table 2, 3, and 4).

The biggest decrease in labor absorption occurred in the 2016-2017. Similarly, the largest decrease in the number of investment projects in West Java occurred during this period.

TABLE II. DEVELOPMENT OF VALUE OF INVESTMENT IN WEST JAVA IN 2013-2017

Year	Investment Value (Rp)	Increase/Decrease (in %)
2013	93,518,909,767,520	
2014	108,893,992,857,533	16.44
2015	121,516,952,815,583	11.60
2016	143,044,682,157,855	17.72
2017	107,056,423,760,000	-25.16

TABLE III. DEVELOPMENT OF TOTAL INVESTMENT PROJECTS IN WEST JAVA 2013-2017

Year	Projects	Increase/Decrease (in %)
2013	31,709	
2014	24,788	-21.83
2015	37,213	50.13
2016	38,057	2.27
2017	8,912	-76.58

TABLE IV. DEVELOPMENT OF TOTAL ABSORBED WORKERS IN THE INVESTMENT PROJECT IN WEST JAVA 2013-2017

Year	Workforce	Increase/Decrease (in %)
2013	379,130	
2014	395,450	4.31
2015	349,377	-11.65
2016	479,751	37.32
2017	193,547	-59.66

C. The development of the leading sector in West Java based on the Industrial Revolution 4.0 in 2013-2017

The Industrial Revolution 4.0 era is claimed to have been born since 2011 [1,2]. Several countries have had programs to support their industries in facing this era. The Ministry of

Industry of the Republic of Indonesia in 2018 stipulated five leading manufacturing sectors to be the priority to support the preparation of the Industrial Revolution 4.0. The five sectors are the textile, electronics, automotive, chemical, and food and beverage industries. While West Java as one of the leading provinces of investment in Indonesia certainly should also support the vision of the central government.

If it is correlated between the leading sectors set by the government and the development of the investment value of these sectors, then there is a lack of synchronization. Table 5 shows the ranking trend of investment value in leading sectors from year to year. In three sectors, namely the textile and footwear industry, the electronics industry, and the automotive industry, it is seen that in 2016-2017 there was a drastic decline in investment value. Only the food and beverage industry whose investment value in the last two years has increased in line with the government program on top priority sector.

TABLE V. RANKING TRENDS AND VALUE OF INVESTMENT RATIOS OF LEADING SECTORS IN 2013-2017

Leading Sectors	Year	Rank	Ratio (in %)
Textile and footwear industry	2013	6	0.01
	2014	10	2.76
	2015	11	2.32
	2016	10	2.11
	2017	12	3.77
Electronic industry	2013	2	0.05
	2014	3	12.54
	2015	3	10.53
	2016	15	0.40
	2017	16	0.70
Automotive industry	2013	1	2.64
	2014	1	18.53
	2015	2	15.28
	2016	19	0.03
	2017	19	0.14
Chemical industry	2013	4	1.97
	2014	9	2.94
	2015	4	7.69
	2016	12	2.02
	2017	6	6.84
Food and beverage industry	2013	5	0.15
	2014	6	6.34
	2015	9	5.18
	2016	3	8.65
	2017	2	12.23

Table 5 also shows that the investment value (seen from the ratio to total investment) of the leading sectors is still very low. In 2017, the five sectors on average only had a ratio of 4.74%, where only the food and beverage industry have the largest ratio of 12.23%. The automotive and electronics industries in the same year only had ratios of 0.14% and 0.70% respectively. Figure 1 describes all leading sectors have a low investment ratios which is below 13%.

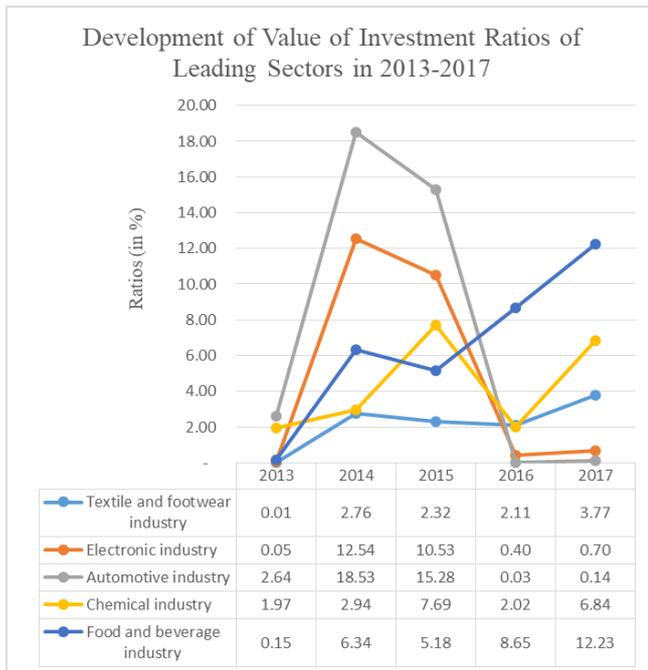


Fig. 1. Development of value of investment ratios of leading sectors in 2013-2017.

IV. CONCLUSION

The results of this study show that the investment performance in West Java in the 2013-2017 was not too good. This can be seen from the fluctuations in the percentage increase in investment value in 2013-2016 and the big decline in 2016-2017. Similarly, when viewed from the number of projects and the amount of labor absorbed in the same period. Global economic conditions and both central and regional government policies during this period are thought to be the cause. More in-depth and comprehensive research is needed to determine the related factors and the empirical proof.

The direction of investment policy in West Java Province in the last five years has not been in line with the priority sectors set by the central government regarding the preparation of Industrial Revolution 4.0. This is evident from leading sectors which actually have very low investment value compared to other sectors. The central and regional governments must again elaborate each policy in more detail in order to achieve the consistency and sustainability of each program. Assistance, monitoring, and evaluation must be implemented both for programs that have not been running or that are already underway.

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REFERENCES

- [1] H. Bauer, F. Brandl, C. Lock, G. Reinhart, "Integration of Industries 4.0 in Lean Manufacturing Learning Factories." *Procedia Manufacturing*, vol. 23(2017), pp. 147-52, 2018.
- [2] T. D. Oesterreich, F. Teuteberg. 2016. "Understanding the Implications of Digitisation and Automation in the Context of Industry 4.0: A Triangulation Approach and Elements of a Research Agenda for the Construction Industry." *Computers in Industry*, vol. 83, pp. 121-39.
- [3] S. Vaidya, P. Ambad, S. Bhosle, "Industry 4.0 - A Glimpse." *Procedia Manufacturing* 20: 233-238. 2018.
- [4] E. Y. Lee, B. C. Cin, "The Effect of Risk-Sharing Government Subsidy on Corporate R&D Investment: Empirical Evidence from Korea", *Technological Forecasting and Social Change*, vol. 77(6), pp. 881-90. 2010.
- [5] Y. Choi, H. S. Esfahani, "Direct Foreign Investment and Expropriation Incentives: A Mitigating Role for Match-Specific Capital." *The Quarterly Review of Economics and Finance*, vol. 38(1), pp. 47-59. 1998.
- [6] S. Hong, S. Lee, "Adaptive Governance and Decentralization: Evidence from Regulation of the Sharing Economy in Multi-Level Governance." *Government Information Quarterly*, vol. 35(2), pp. 299-305. 2018.
- [7] C. Santos, A. Mehraei, A. C. Barros, M. Araújo, E. Ares, "Towards Industry 4.0: An Overview of European Strategic Roadmaps." *Procedia Manufacturing*, vol. 13, pp. 972-79, 2017.
- [8] J. Enke, R. Glass, A. Kreß, J. Hambach, M. Tisch, J. Metternich, "Industrie 4.0 - Competencies for a Modern Production System." *Procedia Manufacturing*, vol. 23(2017), pp. 267-72. 2018.
- [9] B. H. M. Bungin, *Penelitian Kualitatif: Komunikasi, Ekonomi, Kebijakan Publik, dan Ilmu sosial*. Jakarta: Kencana Prenama Media Group, 2007.
- [10] O. R. Holsti, *Content Analysis for the Social Sciences and Humanities*. Reading, MA: Addison-Wesley, 1969.
- [11] L. J. Moleong, *Metodologi Penelitian Kualitatif*. Bandung: Remaja Rosdakarya, 2007.