Accelerating Economic Recovery Post-Covid19 through Strengthening Priority Sectors in ASEAN+6 Countries: A Generalized Method of Moment (GMM) Approach

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ABSTRACT

The Covid-19 pandemic has undermined the achievements of economic growth in various countries, including in the Southeast Asia region. The characteristics of the Southeast Asian region, which are based on the agricultural and industrial sectors, have become the foundation for economic recovery efforts. Therefore, this study chose the agricultural and industrial sectors as the database of research. Further, this study aims to analyze the influence of the agricultural sector and the industrial sector on economic growth in ASEAN+6, covering Indonesia, Thailand, Vietnam, Malaysia, the Philippines, and Singapore. In this study, secondary data will be used for the period from 1991 to 2020 and the sources is from the official website of the World Bank by taking world development indicator data with the Generalized Method of Moment (GMM) method. It was found that the share of value-added in the agricultural sector and the industrial sector in the ASEAN+6 has a significant contribution to economic recovery efforts in the region. The increase in these two sectors has shown a real impact on accelerating economic recovery through increased production activity. The findings of this study are expected to be a reference for policies to increase output in the two sectors, encourage economic growth, and accelerate economic recovery in each country.

Keywords: Agriculture; Industry; Economic growth; ASEAN.

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Acelerar la Recuperación Económica posterior al Covid 19 mediante el Fortalecimiento de los Sectores Prioritarios en los Países de la ASEAN + 6: Un Enfoque de Método Generalizado del Momento (GMM)

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RESUMEN

La pandemia de Covid-19 ha socavado los logros del crecimiento económico en varios países, incluida la región del sudeste asiático. Las características de la región del sudeste asiático, que se basan en los sectores agrícola e industrial, se han convertido en la base de los esfuerzos de recuperación económica. Por tanto, este estudio eligió los sectores agrícola e industrial como base de datos de la investigación. Además, este estudio tiene como objetivo analizar la influencia del sector agrícola y el sector industrial en el crecimiento económico en ASEAN + 6, cubriendo Indonesia, Tailandia, Vietnam, Malasia, Filipinas y Singapur. Utilizando datos para el período 1991-2020 con el método del Método Generalizado del Momento (GMM), se encontró que la participación del valor agregado en el sector agrícola y el sector industrial en la ASEAN + 6 tiene una contribución significativa a los esfuerzos de recuperación económica en la región. El incremento en estos dos sectores ha mostrado un impacto real en la aceleración de la recuperación económica a través de una mayor actividad productiva. Se espera que los hallazgos de este estudio sean una referencia para las políticas para aumentar la producción en los dos sectores, fomentar el crecimiento económico y acelerar la recuperación económica en cada país.

Palabras Clave: Agricultura; Industria; Crecimiento económico; ASEAN.

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1. Introduction

In facing the era of globalization and free trade, every country is required to be ready to compete with other countries, including ASEAN member countries. Each country must strengthen domestic economic fundamentals to face free trade, economic digitalization, and the crisis due to the Covid-19 pandemic. According to Trading Economics, the data on Indonesia is show a decline trend in economic growth with a double-digit difference in the 2nd quarter of 2020. Trading Economics noted that six countries in ASEAN experienced an economic decline in the 2nd quarter of 2020 compared to the same period last year. As many as three of them shared a decrease of more than 10 percent. Malaysia recorded the smallest decline of 3.80 percent, with economic growth in the second quarter of 2020 of 0.70 percent. Thailand and Vietnam respectively experienced economic decreases of 4.70 percent and 6.37 percent.

Indonesia is in third place with an economic decline of minus 10.37 percent. Singapore, which had earlier announced its 2nd quarter economic growth figures, also experienced an economic decline of 12.80 percent. This decline was also influenced by the characteristics of Singapore's economy, which relies on foreign trade and international finance. The Philippines became the country with the most significant economic decline in the second quarter of 2020. Based on the difference in economic growth in the 2nd quarter of 2020 against the same period in 2019, there was an economic decline of 22 percent. The Philippines is technically in recession after in the first quarter also contracted by 0.7 percent. The record of economic contraction in two consecutive quarters was also influenced by implementing a strict lockdown in the country.

One sector that plays a significant role in enhancing economic fundamentals and free trade is the industrial sector. Rahmah and Widodo (2019) contend that the industrial sector is considered a critical value-added compared to other industries. The improvement of this sector can increase the request for wrapped up or semi-finished items, both for the household and worldwide markets.

Ali et al. (2016) clarified that between economic growth and the value-added of industrial sector show a positive relationship. A few things can explain this positive relationship, first, expanding the scale of the domestic industrial sector and the era of free trade are considered capable of increasing scale efficiency. It can expand excessive opposition inside the world market, which assists propels companies in a state to take after and include present-day innovation. Moment, the period of free exchange moreover diminishes the limitations caused by remote trade, as watched in creating nations, ASEAN for the case. Foreign exchange is considered to be one of the drivers of economic growth. This also causes the high development of technological progress. Until in the end, it will encourage economic growth and become a strengthening economic fundamental.

Furthermore, the world that has a crucial function in economic growth is the rural sector. The agricultural industry with better value-added also performs a vital role as a way to improve economic growth. Don (2010) argues that agriculture's value-added agriculture has been touted to remedy issues going through farmers and rural residents. Those who sell value-introduced of agriculture declare that it will boom output and decrease economic pressure on the rural sector and result in revitalization.

In other words, these two sectors absorb quite a lot of labor. Based on this explanation, the researcher focuses on these two sectors that can prioritize after the COVID-19 recovery. Research on priority sectors has been carried out in several countries. Fakoya (2014) took a research sample in Africa and found that the way to boost Africa's economic growth is to highlight Africa's natural resources through converting them into finished products rather than emphasizing the desirability of export revenues. However, the results of research from Asom and Ijirshar (2016) show that agricultural value-added features a positive, however not substantial, impact on Nigeria's economic process in each the short and long term. Meanwhile, consistent with Awokuse and Xie (2015), economic growth results from advanced interactions between all sectors, particularly the industry. Based on the literature review above, the target of the study is to look at the effect of the agricultural and industrial sectors on economic growth in ASEAN+6.

2. Literature Review

The theoretical foundations of this paper are the theory that relate value-added and economic growth, and theory that relate employment and economic growth. The process of modifying or transforming from its initial value into a more valuable one is described as value-added by Boland (2009) in Value-Added and Economic Growth theory. Field corn, for example, is planted, harvested, stored, and fed to livestock.

According to Ruauw et al., (2012), this value-added theory is highly dependent on existing demand and often changes according to the values in a product desired by consumers, income, and the environment are many factors. Those changes consumer preferences for a product. The advantages of labor, natural resources, capital, and management are the sources of value-added.

Understanding the essence of value-added is the additional value obtained from various processing, storage, transportation, and processing activities received by business people. In the concept of micro value added is the reward received by the owners of labor in the form of wages, owners of capital in the context of interest, the owner of the resource in the form of rent, and the owner of the company (owner) in the form of profit, as well as taxes for policy controllers (Tajidan, Halil, Efendy, and Edy Fernandez, 2019).

Processing, packaging, drying, cooling, cleaning, and other agricultural value-added procedures or techniques are all examples of agricultural value-added (Mellissa, 2007). On the other hand, agrotourism and village tourism are examples of value-added farm business activities carried out by rural producers to improve the return per unit of the commodity sold. Of course, this also includes adding value to agricultural products.

Based on the neoclassical growth theories and several empirical studies previously show that the development of industrial sector in a country is always accompanied by increased productivity in the agricultural sector (Cervantes-godoy & Dewbre, 2010). In 2009, the services sector was the leading in most of ASEAN members, with Brunei Darussalam as exception. Further, based on ASEAN Key Figures (2020), show that Singapore have services as a large share which almost reaching 64.8% of the total Gross Domestic Product, followed by Thailand (61.7%), the Philippines (60.6%), and Malaysia (55.0%). Meanwhile, the industrial sector is the leading sector in Brunei Darussalam which can contribute 63.1% to the total Gross Domestic Product in the country.

According to Simeon and Victor (2016), the value of agricultural products is a viable investment sector which have higher returns, allowing producers opening new markets and extending their marketing season, and enhanced recognition for the agricultural industry. As an illustration, the agricultural sector is the dominant sector in ASEAN. According to the ASEAN CSR Network, 8 out of 10 countries in ASEAN depend on agriculture and its production. An example of a country whose economy is not supported by agriculture is Singapore. In less developed countries in ASEAN such as Myanmar and Laos, the agricultural sector contributes 40% of GDP. However, the sustainability of the agricultural sector and millions of Southeast Asians are currently threatened by climate change, unsustainable farming methods, food waste and other problems. Therefore, this study focuses on the agricultural sector in ASEAN which is the main source of food and income in several countries such as 8 out of 10 countries in ASEAN.

Furthermore, agriculture's value-added can help boost economic growth. This is in line with Fakoya (2014), who claims that rather than focusing on export revenues, one method to accomplish economic growth is increasing value-added of natural resources through transforming Africa's natural resource into finished goods. However, according to the findings of a study published in 2016, agricultural value-added is increasing. However, Government spending contributes to economic growth.

Apart from discussing the value-added of agriculture, it also discusses the value-added of the industrial sector. The industrial sector was chosen. This sector can become a driving force for the economy because the industrial sector can absorb labor. More employees with factory experience

work in the industrial sector than inexperienced farmers (Pingali, 2010). It can be said that the absorption of labor is more significant in the industrial sector.

Besides the agricultural sector, the industrial is the selected sectors which have potential to develop through increase value-added. Value-added is converting raw or semi-finished materials into finished products. According to Shahjahan Ali et al. (2016), the value-added of industrial sector has a positive impact on economic growth. Khan and Qayyum (2007) find that trade and financial sector policies positively impact economic growth. However, developing countries, such as Pakistan, must implement procedures to improve trade performance and industrial implementation. This indicates the industrial sector's importance to the economy.

Irmayanti and Bato (2017) argue that labor has long been seen as one of the favorable variables that drive economic growth in their second theory of Employment and Economic Growth. A more significant number of workers means a larger size of the domestic market. The Neo-Classical Economic Growth Theory also states that economic growth depends on developing production factors, namely: capital, labor, and technology (Sukirno, 1994). Therefore, the central policy that needs to be done is to optimize the potential possessed by the region or country.

Isla-Camargo and Cortez (2018) investigated the potential difference in Okun's coefficient during a recession and a boom. The authors found that the Okun coefficient was lower during a crash than during a recession. Meanwhile, Buendia Azorin and Sánchez de la Vega (2017) used the Regression model, indicating that the Okun coefficient varies over time and shows a response to changes in output directly derived between employment and unemployment.

Research conducted by Ioan (2014) shows that increasing employment growth rates involves both high economic performance and the development and diversification of the service sector. Ioan (2014) also suggested reducing the workweek and flexibility of work programs to boost economic productivity and promote economic growth.

3. Methodology

3.1. Data

This research focuses on the analyzing between the industrial sector, agricultural sector, and economic growth. The industrial sector is one of the selected sectors besides agriculture because development in the industrial sector is a potential strategic development. This is due to a process to increase value-added. In this study, secondary data will be used for the period from 1991 to 2020. This secondary data is using world development indicator data from the World Bank. Meanwhile, the samples used were from ASEAN+6 countries, including Indonesia, Thailand, Vietnam, Malaysia, and Singapore.

Choosing Indonesia, Thailand, Vietnam is because these countries are known as granaries (agricultural sector). Then, Malaysia, the Philippines, and Singapore were selected due to the advancement of the industrial sector. Malaysia has a fertilizer industry, while the Philippines and Singapore have a copper industry and a vaccine industry.

3.2. Method

The data use in this study is compilation data of time-series and cross-section, with the Dynamic Panel Model using Generalized Method of Moment. In this study, the economic growth t-1 as the dependent variable was included as the independent variable referring to the research of Karami (2019). The following are the equations that will be used in this study:

$$\begin{aligned} growth_{it} = & \alpha + \beta_1 Value\ Added\ Agr_{it} + \beta_2 Employment\ Agr_{it} \\ & + \beta_3 Value\ Added\ Ind_{it} + \beta_4 Employment\ Ind_{it} \\ & + \beta_5 growth_{it-1} + e_{it} \end{aligned}$$

Where :

Value Added Agr : Value-Added of Agriculture

Employment Agr : Employment of Agriculture Sector

Value Added Ind : Value-Added of Industrial Sector

Employment Ind : Employment of Industrial Sector

4. Results and Discussions

4.1. Statistic Results

In the dynamic panel model, the first step is to how to select the best model using the Chow test, Hausman test, and the Lagrange multiplier. The chow used to test whether pool effect (Null hypothesis) or fixed effect model is the best one, with the result as follow:

Table 1 The result of Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.017064	(5,164)	0.0124
Cross-section Chi-square	15.311289	5	0.0091

Source: Analysis Results, 2021

Table 2 LM Test Results

Lagrange Multiplier Tests for Random Effects

Null hypotheses: No effects

Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all other) alternatives

	Cross-section	Test Hypothesis	
		Time	Both
Breusch-Pagan	0.427467 (0.5132)	85.92882 (0.0000)	86.35629 (0.0000)
Honda	0.653810 (0.2566)	9.269780 (0.0000)	7.017038 (0.0000)
King-Wu	0.653810 (0.2566)	9.269780 (0.0000)	4.210502 (0.0000)
Standardized Honda	3.448880 (0.0003)	9.378378 (0.0000)	4.663986 (0.0000)
Standardized King-Wu	3.448880 (0.0003)	9.378378 (0.0000)	3.340149 (0.0004)
Gourieroux, et al.*	--	--	86.35629 (0.0000)

Source: Analysis Results, 2021

Based on the table 1, since the value of the probability F is less than alpha, i.e., less than 0.05, the hypothesis null (which state that the best model is Fixed effect model) is accepted. Next, let the Lagrange multiplier (LM) test determine whether the correct model uses random effects or common effects. Breusch Pagan developed this test. The Breusch Pagan method for the random effect

significance test is based on the residual value of the OLS method. The following are the results of the LM test.

The output results on table 2 show the probability value of Breush-Pagan (BP) which show 0.0000. The criteria use in the chow test is if the Breush-Pagan (BP) probability is much less than alpha ($0.0000 < 0.05$), means that the null hypothesis (H_0) is rejected, and H_1 is accepted. Based on the table, we can see that the suitable model is random model. Finally, the Hausman test is used to test whether fixed effects or random effects are the best one. The following are the results of the Hausman test.

Table 3 Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.095098	4	0.2777

Source: Analysis Results, 2021

Based on the result on table 3 show that the cross-section random with the probability 0.2777 is more than 0.05. It means that we accept the null hypothesis, and conclude that the random effects model in this study is the best.

Table 4 Estimation Results of the Generalized Method of Moments

Variable	Coefficient	Prob.
Konstanta	5.568644	0.0122
Value Added Agriculture	0.329548	0.0045
Employment Agriculture	0.174613	0.0104
Value Added Industry	0.145687	0.0170
Employment Industry	0.096101	0.0255
Growth t-1	0.448720	0.0280
J-Statistic	3.22	0.0000
R ²	0.8343	

Source: Analysis Results, 2021

Based on the estimation results using the Dynamic Panel or GMM Fixed Effect Model, the following equation:

$$\begin{aligned}
 growth_{it} = & 5.5686 + 0,3295 \text{ Value Added Agr}_{it} + 0,1746 \text{ Employee Agr}_{it} \\
 & + 0,1456 \text{ Value Added Ind}_{it} + 0,0961 \text{ Employee Ind}_{it} \\
 & + \hat{I}_5^2 0.4487 \text{ Growth}_{it-1} + e_{it}
 \end{aligned}$$

Based on the equation results we can translated into the following interpretation, the constants with the value of 5.5, which means that when all variables are 0, economic growth is 5.5%. Furthermore, the value-added agricultural variable has a coefficient value of 0.329. This approach that if the value-added of agriculture will increase by 1 percent, it will enhance economic growth by 0.329 percent. The agricultural area worker variable additionally has an advantageous coefficient of 0.174. When there's a boom in employees withinside the rural area, economic growth will boom by 0.174 percent.

Then, the value-added variable in the industrial sector obtained a coefficient value of 0.145. It can be interpreted that if the value-added of the industrial sector increases by 1 percent, then economic growth will increase by 0.145 percent. The same thing also happened to the industrial sector employee variable, which had a positive coefficient value of 0.09. This means that when industrial sector employees increased by 1 percent, economic growth will increase by 0.09 percent. The research also includes economic growth at lag-1 to see the effect of economic growth in year-1 on current economic expansion. Growth t-1 obtained a coefficient value of 0.448, means that if there is

any growth in the previous year increased by 1 percent, it would boost economic growth in the following year by 0.448 percent.

4.2. Discussions

To accelerate the post-Covid-19 economic recovery, policymakers need to prioritize the agricultural sector and the industrial sector due to the value-added of these two sectors. Policies that can be carried out specifically in the rural sector are investments in the rural sector that can increase profit returns and social returns and contribute to economic growth. Meanwhile, policies for the industrial sector include creating a conducive business climate and legal certainty, using the latest technology to encourage quality, efficiency, and productivity improvements, and provide facilities in the form of fiscal incentives.

However, amid COVID+19, it is essential to maintain health protocols when conducting mentoring and incubation programs to create processed products from both sectors to increase value-added in these two sectors. This is because the value-added in these two sectors can stimulate economic growth, as evidenced by the findings of this study. The study results are supported by Ali, Jahangir Alam Nirob, Shafiul Islam, and Jahangir Alam Nirob's (2016) research, which indicated that industrial value-added has a positive impact on economic growth. According to Fakoya (2014), transforming Africa's natural resources into final products is one approach to economic growth and development.

Based on the test findings in table 1, it appears that the agricultural sector's value-added effect on economic growth is greater than the industrial sector's value-added effect. This can show up because, withinside the ASEAN+6 countries, numerous countries are pretty superior in agriculture (Indonesia, Thailand, and Vietnam). Furthermore, the agricultural industry has the advantage of being directly linked to farmers and the regeneration of rural communities. Suppose the agricultural sector of a developed country is expected to increase the welfare of farmers. When the agricultural sector of a country is set and has high value-added, there is an excellent opportunity for a country to make a positive effect to economic growth in terms of agriculture. Don (2010) argues that value-added agriculture is touted to solve problems facing farmers and rural residents. Those who support value-added agriculture argue that it will improve output and revitalize rural communities. As a result, the requirement to engage in value-added activities reflects the need to maintain recent reductions in agricultural income (Evans, 2015).

Another reason the value-added agricultural sector can have more influence on economic growth is that the role of the agricultural sector is a crucial sector to meet basic living needs. Jhingan (2012) argues that the part of the agricultural sector is vital because it represents the primary source and largest food supply; its performance has an impact on the industry because it stimulates the tertiary and secondary sectors, supports expansion, provides additional income from agricultural exports, increases rural income and improves rural welfare. Therefore, it is vital to prioritize the agricultural sector, wherein, in this study, the agricultural sector has a more excellent added economic value than the industrial sector. It is hoped that a country with an advanced agricultural sector can export more of its agricultural products to encourage economic growth.

One of the most important macroeconomic variables that define economic efficiency is employment. Abraham and Sasikumar (2018); Afonso, Bandeira, and Magalhães (2018) Magdalena (2017); Rusanovskiy and Markov, (2018). In addition, employment problems are closely related to great social interest. Economic development and the population's social welfare are both affected by employment growth (Polozhentseva, 2016). Employment was chosen as the second variable that affects economic growth in this study based on this statement.

In this study, employment in both sectors has a positive relationship with economic growth. Employment can contribute positively to economic growth due to the significant role of labor force participation shown in this picture.

Figure 1 Labor Force Participation 2020 in ASEAN+6 Countries

Figure 1 shows Labor Force Participation in the ASEAN Region, which is experiencing an upward trend in some countries and fluctuates in some countries. This is due to disparities in the potential and economic conditions of several ASEAN countries. This statement is supported by Rizwanul (2004), who argues that more outstanding wages encourage workers to spend more on education, increasing their children's ability and productivity and laying the foundation for future economic growth.

In addition, employment in these two sectors increases economic growth, particularly in the rural sector. Meanwhile, for the industrial sector whose employment is not as significant as the agricultural sector, it can begin to develop in the industrial sector by improving the workforce's skills and improving the force's quality by conducting research, product development, and education. Development needs resource concentration in knowledge-intensive industries, skilled labor reproduction, financial investment in research and development, and education, according to Vertakova et al. (2013).

In terms of ASEAN+6, the development of the ASEAN members can make the agricultural sector through use the government's allocation of funds can be created because it absorbs more workers. This can be done by holding a labor-intensive program that focuses on processed agricultural products. This aligns with Sitanggang and Nachrowi's (2004) research that the agricultural business field is a business field that absorbs the most labor. The agricultural sector can also function as a catalyst for economic growth and create jobs (Christiaensen, 2019). Furthermore, agriculture has the potential to alleviate poverty while also improving food and nutrition security. (Ivanic & Martin, 2018).

Furthermore, increasing agricultural output is necessary for the farming industry to absorb more labor. According to Ibrahim, Shamsul, Azahar, Abdullah, and Alfares (2019), one of the primary factors that may impact productivity movement in work. Therefore, it is essential to increase the productivity of the agricultural sector by empowering farmers, forming farmer institutions/communities, collaborating with investors, academics, and the government. This is supported by research conducted by Ridhwan, Diana, Cahyaningtyas, Fenty, Indriani, Reza and Arnita (2014), which concludes that increasing agricultural productivity is highly dependent on intermediation results and the ability to adopt innovation and develop farmers. Strengthening soft infrastructure includes increasing the internal capacity of farmers, intensification of agricultural institutions, extension agencies, university intervention, and government commitment. These aspects, among others, can complement the complicated structure such as improving facilities and infrastructure such as irrigation systems, village roads, and electricity.

Employee performance is influenced by variables such as living costs, abilities, and family demands, according to Bahagia and Putri (2020). The total eigenvalue of each variable is more significant than one, indicating this. The cost of living relates to the cost associated with maintaining

one's level of living. The higher a person's cost of living, the harder they must work to make a profit. As a result, a conclusion was taken.

On the other hand, employability refers to an employee's ability to apply their knowledge and skills to solve difficulties at work. People's physical and mental capacities to accomplish their work are closely linked to their ability. The lack of this capacity influences job affects growth (Robbins, 2006).

Job stress is one of the elements of employee performance in SearchNEasy owing to the increased workload and lack of employees during the Covid-19 pandemic, according to Teoh's research (2021). Family demands are the third element that affects employee performance. The more the pressure with one's family, the more driven one is to offer it one's all at work. The tensions of family life are mounting. One of the external elements that affect a person's enthusiasm for work is family demands. This emphasizes how family obligations influence job performance.

5. Conclusion

Agriculture sectors can become priority sectors during the post-covid19 recovery period because when the value-added of the two sectors increases, it will encourage economic growth. In addition, Agriculture sectors also can become as a priority sectors during the post-covid19 recovery period because employment in these two sectors can encourage economic growth.

Policymakers can focus on advancing the agricultural sector during a pandemic because the value-added is greater than the industrial sector. The policy that can be implemented is to establish an environment that encourages enterprises to develop. This could be accomplished by giving social amenities and tax incentives to would-be entrepreneurs interested in agriculture value-added industries.

Policymakers can focus on advancing the agricultural sector because the absorption of labor is greater than the industrial sector, so policies that can be implemented include: create labor-intensive programs that still pay attention to health protocols, and Policymakers can hold a mentoring and incubation program for the creation of processed products from both sectors by taking into account health protocols.

5.1. Practical Implication

ASEAN's economic recovery during the COVID-19 period can be carried out by focusing on the base sector in each ASEAN country. For ASEAN countries whose base sector is the agricultural sector and the industrial sector, they can focus on increasing the contribution of these two sectors to economic growth. Things that can be done include utilizing technology and improving human resources. Another thing that can be done is by linking between sectors. As an illustration, the agricultural sector can play a role as a supplier of raw materials for processing industry activities.

5.2. Research Limitation

Research related to valued added is not often found, especially in ASEAN countries. In addition, this research focuses on value added in two main sectors, namely agriculture and industry. However, there is not much research on valued added that focuses on these two main sectors.

5.3. Futher Research

Further research can add other sectors. As is known, the sectors that are currently developing are the service sector as well as the technology and information sector. Moreover, during a pandemic, the technology and information sector is growing rapidly. Further researchers can focus on these two sectors or other sectors.

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