

## ANALYSIS OF THE LEADING ECONOMICS SECTOR OF BANTEN PROVINCE BEFORE AND DURING THE COVID-19 PANDEMIC

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### Abstract

*The Covid-19 pandemic that occurred throughout 2020 caused the economic condition of the Banten Province to contract or grow negatively by 3.38%. Of all the existing sectors, some of them were able to grow positively. With all the potential possessed by Banten Province, it is necessary to conduct a study of the leading sectors needed for planning for sustainable development. The purpose of this research is to analyze the leading sectors before the pandemic and after the Covid-19 pandemic. The approach used in this research is quantitative with the method of location quotient (LQ) analysis, shift share and typology klassen. Based on the results of the analysis, there are three leading and competitive sectors to be developed which are categorized as advanced and rapidly growing sectors prior to the Covid-19 pandemic, namely: a) wholesale and retail trade; repair of cars and motorcycles; b) transportation and warehousing; c) and real estate. Meanwhile, during the Covid-19 pandemic, the water supply, waste management, waste and recycling sectors became a sector that still survived as a superior, competitive sector and was categorized as a developed and rapidly growing sector.*

**Keywords:** location quotient, shift share, typology klassen

### INTRODUCTION

Law (UU) Number 23 of 2014 states that the implementation of local government is intended to increase regional competitiveness by taking into account the principles of democracy, equity, and justice as well as the uniqueness of a region within the Unitary State of the Republic of Indonesia system. It also aims to accelerate the realization of community welfare through bettering services, empowerment, and community participation. The implementation of regional autonomy by empowering regional potential will be able to run if the regional superior sectors can be optimized and become a priority scale in development (Hajeri et al., 2015).

Economic growth is one of the important objectives of macroeconomic policies that will be able to provide people's welfare (Nugroho, 2017). Banten Province's commitment to increasing economic growth in order to realize regional progress is manifested in the vision and mission set out in the Banten Province Medium-Term Development Plan (RPJMD) for 2017-2022 (Hastuti et al., 2016). One of its missions is to improve the quality, growth and

equity of the economy with the priority of superior programs (Banten Provincial Government, 2017).

The determination of the leading sector can be seen through the Gross Regional Domestic Product (GRDP). GRDP at the regional level describes the ability of a region to create added value at a certain time. One of the approaches used to formulate GRDP is through business fields that present value-added data detailed according to sources of economic activity. The total of all the components of gross added value that may be produced for different production activities is what is known as GDP and GRDP from the business perspective (BPS Banten, 2021).

The size of the GDP contribution of each economic sector to the regional GDP reflects the regional economic structure. It is crucial to understand this so that efforts at economic growth may be focused on the region's potential. The economic structure also acts as a reference for planning improvement efforts in the long term (Yunan, 2008).

The COVID-19 pandemic is a worldwide issue that Indonesia is now facing. There are 1.98 million confirmed cases of COVID-19 in Indonesia, according to the most recent statistics as of June 20, 2021, and 54,662 (2.7%) of those instances resulted in death (KPCPEN, 2021). Large-scale social restrictions (PSBB), the government's quick fix to stop the spread of COVID-19, would unavoidably hurt the economy. There was a notable decline in consumption, investment, transportation, tourism, output, and economic players' confidence (BI, 2020).

In 2020, the Indonesian GDP decreased by 2.07% in comparison to 2019. From a production perspective, the transportation and warehousing business sector saw the largest growth reduction, with a 15.04% decline. With a growth decrease of 2.51%, the province group on the island of Java dominates Indonesia's economic spatial structure in 2020, accounting for 58.75% of the total (BPS, 2021b).

It is estimated that Banten Province contributes 6.82% of Java's total GDP. In 2020, the Banten economy also had a downturn or negative growth of 3.38% as a result of the Covid-19 epidemic. A few of them are the transportation and warehousing sector (-) 1.84%, the processing industry (-) 1.58%, wholesale and retail commerce, auto and motorcycle maintenance (-) 0.39%, and building (-) 0.28%. Nonetheless, there were a number of industries that saw good development, with the information and communication industry

increasing by 9.14%, health services and social activities by 7.50%, and water supply, waste management, trash, and recycling by 7.45% (BPS, 2021a).

Because Banten Province has so much potential, a study of the key industries is required in order to plan for sustainable growth. 1) To identify possible changes in the Banten Province's economic sector before and during the Covid-19 pandemic; 2) To examine Banten Province's economic performance before and during the Covid-19 pandemic; and 3) To categorize Banten Province's economic sector before and during the Covid-19 pandemic.

## METHOD

The methodology used in this study is quantitative. The secondary data used is GDP data for Banten Province from 2016–2018 (before to the Covid-19 pandemic) and 2019–2020 (during the Covid-19 pandemic), based on constant prices. The data used are all sectors in the GRDP component by comparing it to Indonesia's GDP. The data collected was then analyzed using the formula Location Quotient (LQ), Shift Share (SS) and Typology Klassen.

### Banten Province Potential Economic Sector Analysis (LQ Analysis)

According to Bendavid (1991), Q analysis is used to identify the economic sectors in GDP that fall into the fundamental and non-basic categories. Since it may be used to address demands in other places in addition to those in the current one, the basic sector is one that has the potential to grow. The base sector also demonstrates that there is an excess of the sector's goods in the area (Sjafrizal, 2008). The LQ formula is as follows:

$$LQ = \frac{X_{ij}/Y_j}{X_i/Y}$$

Information:

LQ = Location Quotient Index/Coefficient of sector i at location

$X_{ij}$  = GRDP sector i at location j

$X_i$  = GRDP sector i at the reference level

$Y_j$  = Total GRDP at location j

$Y$  = Total GRDP at the reference level

The sector at position  $j$  is considered non-basic if  $LQ$  is less than 1, meaning that its degree of specialization is lower than that of the identical sector at the reference level. The base sector is sector  $i$  at position  $j$  if  $LQ > 1$  (the sector's degree of specialization at location  $j$  is higher than that of the reference level).

### **Banten Province Economic Performance Analysis (Shift Share Analysis)**

In order to ascertain the economic development process of Banten Province in relation to the economy of the reference area in this example, Indonesia shift share analysis is used. The shift share analysis describes the economic development of Banten Province using the income variable, specifically the GRDP. National growth ( $N_{ij}$ ), proportionate growth ( $M_{ij}$ ), and competitive advantage ( $C_{ij}$ ) are the three factors that affect the shift share. The formula for shift share analysis (Glasson, 1990) is as follows:

$$N_{ij} = X_{ij} \times r_{ij}$$

$$M_{ij} = X_{ij} \times (r_i - r)$$

$$C_{ij} = X_{ij} \times (r_{ij} - r_i)$$

$$D_{ij} = N_{ij} + M_{ij} + C_{ij}$$

$$r = (Y_t - Y_o) / Y_o$$

$$r_i = (X_{it} - X_{io}) / X_{io}$$

$$r_{ij} = (X_{ijt} - X_{ijo}) / X_{ijo}$$

Information:

$N_{ij}$  = Components of National Growth (Regional Share)

$M_{ij}$  = Component of Proportional Shift (Proportional Shift)

$C_{ij}$  = Regional Share Growth Components/Competitive Advantage (Differential Shift)

$D_{ij}$  = Net Shift Component

$r$  = Total GRDP growth rate at the reference level

$r_i$  = PBRB growth rate for sector  $i$  at the reference level

$r_{ij}$  = Sector  $i$  GRDP growth rate at location  $j$

$t$  = year of analysis

$o$  = base year

$Y_t$  = Total GRDP in the year of analysis at the reference level

$Y_o$  = Total base year GRDP at the reference level

$X_{it}$  = GRDP sector  $i$  year analysis at the reference level

$X_{i0}$  = GRDP sector  $i$  base year at the reference level

$X_{ijt}$  = GRDP sector  $i$  year analysis at location  $j$

$X_{ij0}$  = GRDP sector  $i$  base year at location  $j$

If the reference level's sector  $I$  contributes little to the development of sector  $I$  at location  $j$  (in question), then the economy of sector  $I$  at location  $j$  is independent of the reference level ( $N_{ij} < 0$ ). If the reference level's sector  $I$  contributed significantly to the development of sector  $I$  at location  $j$  (in question), then the economy of sector  $I$  at location  $j$  is still dependent on the reference level if  $N_{ij} > 0$ .

The development of sector  $i$  at location  $j$  is slower than that of comparable sectors at the reference level if  $M_{ij} < 0$ . In the event where  $M_{ij} > 0$ , sector  $i$  at location  $j$  grows more quickly than comparable sectors at the reference level.

The competitiveness or competitive advantage of sector  $I$  at location  $j$  is lower than that of comparable sectors at the reference level if  $C_{ij} < 0$ . At position  $j$ , sector  $I$  is more competitive than comparable sectors at the reference level if  $C_{ij} > 0$ .

If  $D_{ij} < 0$ , then the GRDP growth at location  $j$  is included in the slow group. If  $D_{ij} > 0$ , then the GRDP growth in location  $j$  belongs to the progressive group.

### **Classification of Economic Sector in Banten Province (Klassen Typology Analysis)**

One method for classifying the economic sectors in the Banten Province is the Klassen typology analysis, which is a regional economic analysis tool. With the Indonesian economy as a point of reference, this study is utilized to determine the status of Banten Province's economy (Sjafrizal, 1997). By examining the rate of economic growth ( $g$ ) and economic contribution ( $s$ ), the Klassen typology is divided into four categories: quadrant I, which represents advanced and rapidly growing sectors; quadrant II, which is advanced and slowly growing; quadrant III, which is potential and still developing; and quadrant IV, which is relatively lagging. The formula for the Klassen typology is as follows:

$$g_i = \frac{\left( \sum_{k=0}^n \left( \frac{X_{it} - X_{i(t-1)}}{X_{i(t-1)}} \times 100\% \right) \right)}{n}$$

$$g_{ij} = \frac{\left( \sum_{k=0}^n \left( \frac{X_{ijt} - X_{ij(t-1)}}{X_{ij(t-1)}} \times 100\% \right) \right)}{n}$$

$$si = \frac{\left( \sum_{k=0}^n \left( \frac{Xi}{Yi} \times 100\% \right) \right)}{n}$$

$$sij = \frac{\left( \sum_{k=0}^n \left( \frac{Xij}{Yij} \times 100\% \right) \right)}{n}$$

Information:

- gi = GDP growth at the reference level
- gij = GRDP growth in location j
- si = GRDP contribution at the reference level
- sij = GRDP contribution at location j
- t = Year of analysis
- t-1 = One year before
- Xi = GRDP at the reference level
- Xij = GDP at location j lokasi
- Yi = Total GRDP at the reference level
- Yij = Total GRDP at location j

If  $gij > gi$  and  $sij > si$ , then the location is progressing and growing rapidly (Quadrant I). If  $gij < gi$  and  $sij > si$ , then the location is advanced but depressed (Quadrant II). If  $gij > gi$  and  $sij < si$ , then the location is potential and can still be developed (Quadrant III). If  $gij < gi$  and  $sij < si$ , then the location is relatively lagging behind (Quadrant IV).

## RESULTS AND DISCUSSIONS

Mapping the potential of leading sectors in Banten Province was analyzed using regional economic theory, namely LQ analysis, shifts share and Klassen typology.

### Potential Economic Sector of Banten Province

The superior potential of Banten Province is a potential that can be developed and has competitiveness in the market, both because of its distinctive characteristics, quality and competitive price. In addition, the superior potential comes from the utilization of the potential derived from natural resources and local cultural wealth that has the potential to be developed. Investment has an important role in the process of developing this potential, because it determines the dynamics of development, directly or indirectly, can improve

people's welfare. If the investment process goes well, the economy will grow well as long as it produces efficient output (Primadhana & Wahed, 2020).

**Table 1 The results of the calculation of the LQ index in Banten Province before and during the Covid-19 pandemic**

Sector	Banten Province	
	*	**
A. Agriculture, Forestry and Fisheries	0.44	0.43
B. Mining and excavation	0.09	0.08
C. Processing industry	<b>1.66</b>	<b>1.61</b>
D. Electricity and Gas Supply	0.86	0.89
E. Water Supply, Waste Management, Waste and Recycling	<b>1.19</b>	<b>1.18</b>
F. Construction	<b>1.00</b>	<b>1.00</b>
G. Wholesale and Retail Trade; Car and Motorcycle Repair	<b>1.01</b>	<b>1.04</b>
H. Transportation and Warehousing	<b>1.62</b>	<b>1.40</b>
I. Provision of Accommodation and Food and Drink	0.80	0.85
J. Information and Communication	<b>1.12</b>	<b>1.10</b>
K. Financial Services and Insurance	0.74	0.71
L. Real Estate	<b>2.89</b>	<b>3.05</b>
M.N. Company Services	0.58	0.56
O. Government Administration, Defense and Mandatory Social Security	0.52	0.53
P. Education Services	0.96	0.98
Q. Health Services and Social Activities	<b>1.08</b>	<b>1.05</b>
R.S.T.U. Other Services	0.86	0.82

\*before the Covid-19 pandemic

\*\*during the Covid-19 pandemic

Source: primary data processed

Economic sectors that fall into the basic and non-basic categories are identified using LQ analysis. The base sector is identified by a LQ value greater than 1. Because it not only satisfies regional demands but also those of other areas, the base sector is one that has room to grow. Additionally, the basic sector demonstrates that the area can export goods and services outside of the region and has an excess of the sector's products to fulfill its own demands. The base sector in Banten Province did not undergo any notable changes before to or during the Covid-19 outbreak, as Table 1 illustrates. Water supply, waste management, waste and recycling; construction; wholesale and retail trade; automobile and motorcycle repair; transportation and warehousing; information and communication; real estate; health services and social activities are among the fundamental sectors.

Based on the results of the interview, it was also explained that Banten Province is an area with upstream industries that support many national activities, one of which is the processing industry in the upstream sector such as the upstream chemical industry and the upstream metal industry. This industry is a very strategic industry for other manufacturing industries. This is important so that the downstream industry does not depend on imports. In addition to the upstream industry, the manufacturing industry is also quite high in growth in Banten Province, such as household needs, footwear and food and drink.

Banten also has a large potential of marine and fishery resources. The potential of capture fisheries resources in Banten is currently only utilized 117,170 tons/year. The newly used land for fishery activities is only 22% of the existing area. Supported by the facilities of two fishing ports in Karangantu Serang (North Coast of Java) and Binuangeun Lebak (South Coast of Java) with 32 Fish Landing Bases (PPI) and Fish Auction Places (TPI) spread across the City and District of Banten Province. This certainly requires the support of investors to be able to develop this potential (Rizal, 2013).

The large number of industrial factory waste that has not been handled properly in Banten Province has encouraged the growth of the waste management industry. This sector is quite potential, considering that the distribution of new waste management business fields is around 0.38% in Banten Province (Adianti, 2018).

The building industry is also the backbone of Banten Province, particularly the creation of infrastructure that promotes higher production factor productivity, facilitates people mobility, the flow of products and services, and facilitates interregional commerce.



It is impossible to separate the degree of expertise of those who operate in this industry from the accomplishment of infrastructure development. One area that consistently exhibits an upward tendency is Banten Province, both in terms of the number of construction workers and the minimum pay. Without a doubt, this will improve employment in Banten Province's construction industry (Diartho & Hanuraga, 2018).

The growth of the trade sector in Banten Province also increased. The trading industry is one type of business that determines economic activity on the distribution side. The retail industry, or the selling of products at retail establishments, is one of the enterprises that contributes to the growth of the trade sector in Banten Province, according to the findings of the interviews. What's intriguing now is a contemporary retail establishment that offers a variety of apparel, boards, and everyday essentials. The contemporary market, which is extensively distributed across Banten Province, is one example. When it comes to their suppliers, modern marketplaces often have a rather strong negotiating position. This is so that significant purchases of items from suppliers may be made since contemporary retailers are often businesses with a pretty large size and extensive distribution systems (Pandin, 2009).

The transportation and warehousing industry in Banten Province is also the base sector both before and during the Covid-19 pandemic. Especially since the rise of e-commerce businesses that require cooperation with logistics and transportation service providers (Yasmin, 2019).

The information and communication sector is currently a necessity. The scope of communication and information technology services through print media and electronic media has reached to remote areas of Banten Province. Banten people's access to telecommunications and internet facilities is currently increasing rapidly. This is indicated by the increasing percentage of households owning landlines, mobile phones and internet access. (Ngatono, 2016) explains that every 1% increase in Base Transceiver Station (BTS) will contribute to the increase in GRDP in Banten Province by 0.134%. The Covid-19 pandemic also seems to have had a positive impact on the growth of this sector, due to the large number of consumer demands due to Work from Home (WFH) (Satyagraha, 2021).

Another sector that is the basis in Banten Province is real estate. According to informants, this industry provides a fairly high absorption of labor and supports economic

growth in the form of the real sector or property. The number of project developments in Banten Province, whether they are commercial, industrial, residential or long-term investments will provide sufficient job opportunities for the people of Banten. In developed and developing countries, property development and business are growing rapidly, while in Indonesia the increase in property investment indicates that there has been a significant economic improvement (Hidayat, 2007).

The health services sector and social activities are sectors that are quite superior during the Covid-19 pandemic. This is due to the disbursement of Covid-19 payments for health workers. In addition, this growth is also supported by an increase in the income of hospitals, clinics and health laboratories for Covid-19 services (Satyagraha, 2021). The delivery of direct financial aid from zakat, infaq, and alms both from zakat collecting units and the community was another way that several social activities were conducted during the COVID-19 epidemic (Iskandar et al., 2020).

### **Banten Province Economic Performance**

Using shift share analysis, the economic development process of Banten Province is linked to the economy of the reference region, which in this instance is Indonesia. The shift share analysis describes the economic development of Banten Province using the income variable, specifically the GRDP. Table 2 illustrates the large disparities between Banten Province's GDP before and during the Covid-19 outbreak. Before the Covid-19 epidemic in 2016–2018, Banten Province's gross regional product (GRDP) increased by 46179.51 billion rupiah. The fact that every sector in the shift share is increasing indicates that Banten Province's GDP development is progressive. Construction, real estate, auto and motorcycle maintenance, wholesale and retail trade, manufacturing, and transportation and warehousing are the top five industries. These industries fall under the base sector that has the potential to grow when evaluated through the lens of economic base analysis.

The value of the GRDP of Banten Province during the Covid-19 pandemic, namely in 2019-2020, actually experienced a regressive growth of (-) 16727.44 (billion rupiah). Almost all sectors that grew positively before the Covid-19 pandemic experienced a large negative shift. Information and communication; real estate; agriculture, forestry, and fisheries; health services and social activities; and financial and insurance services are the five industries that have fared the best throughout the COVID-19 epidemic. With a positive shift

value, it is evident that the following fundamental sectors have survived the COVID-19 pandemic: a) communication and information; b) real estate; and c) health services and social activities.

One industry that has weathered the COVID-19 epidemic is information and communication, particularly because of its importance to MSMEs. Following regulatory regulations on social distancing is essential when using internet marketing as a marketing tool. MSMEs' use of the marketplace for e-marketing has a beneficial effect on economic resilience, according to (Awali & Rohmah, 2020).

The financial services and insurance sectors are also one of the sectors that have survived the Covid-19 pandemic. This is primarily aimed at supporting the rise of MSMEs which require support from all stakeholders, including financial institutions and insurance. The implementation of a credit policy with low interest rates and a simple process is one of the programs to revitalize MSMEs (Sugiri, 2020).

The shift share development is influenced by the components of national growth (Nij), proportional growth (Mij) and competitive advantage (Cij). Based on the calculation of the national growth component (Nij), in this case GDP growth in Indonesia has had a positive influence of 40728.83 (billion rupiah) on the GRDP growth of Banten Province before the Covid-19 pandemic. This explains that almost all economic sectors in Banten Province are still dependent on the Indonesian economy. Meanwhile, during the Covid-19 pandemic, the national growth component actually had a negative effect of (-) 25795.10 billion rupiah on the growth of the GRDP of Banten Province. This means that national general policies actually reduce the dependence of the Banten Province's economy on the Indonesian economy.

Additionally, the proportionate growth component (Mij) indicates the significant shifts in Banten Province's economy brought about by the industrial mix. The analysis's findings indicate that the industrial mix had a negative impact on Banten Province's economic growth prior to the Covid-19 epidemic of (-) 267.28 billion rupiah. This explains the weaker overall growth of Banten Province's development sector compared to the national development sector. This also indicates that regional policies have not been fully capable of providing a significant acceleration of sector productivity growth in Banten Province. As for the Covid-19 Pandemic, the industry mix has a positive influence.

amounting to 16795.36 billion rupiah. This suggests that the development sector in Banten Province has grown much faster as a result of the Covid-19 epidemic.

The competitive advantage component (Cij) states that the sector has competitiveness in the economy in Banten Province. Table 2 explains that Banten Province has a positive competitive advantage value before the Covid-19 pandemic of 5717.96 billion rupiah, so it can be said that the level of competitive advantage in the economy of Banten Province is higher than Indonesia or in other words has a competitive advantage. Based on this, the basic sectors that have positive competitive advantages include: a) wholesale and retail trade industry; repair of cars and motorcycles; b) construction; c) real estate; d) transportation and warehousing.

During the Covid-19 pandemic, the province's overall competitive advantage value was -7227.70 billion rupiah. This suggests that Banten Province's economy has less competitive advantage than Indonesia's, or, to put it another way, no competitive advantage at all. Accordingly, it is evident that the water supply, waste management, garbage and recycling, and construction sectors are the fundamental industries that have fared well throughout the COVID-19 epidemic and have a competitive edge. Amidst the COVID-19 epidemic, construction services are crucial, particularly when it comes to enhancing healthcare facilities (Masinambow & Gosal, 2021).

**Table 2 Results of calculating shift share values in Banten Province before and during the Covid-19 pandemic (billions of rupiah)**

Sector	Component*			Shift Share*	Component**			Shift Share**
	National Growth*	Growth Proportion*	Advantage Competitive*		National Growth**	Growth Proportion**	Advantage Competitive**	
A. Agriculture, Forestry and Fisheries	2321.77	-561.43	11.68	1772.02	-1374.64	1791.53	449.86	<b>866.75</b>
B. Mining and excavation	301.45	-220.24	-80.22	0.98	-162.33	106.18	-182.97	-239.12
C. Processing industry	14604.93	-2434.97	-1818.43	<b>10351.52</b>	-8722.73	4179.51	-2723.09	-7266.32
D. Electricity and Gas Supply	436.72	-141.54	26.59	321.77	-243.71	141.32	-392.40	-494.79
E. Water Supply, Waste Management, Waste and Recycling	38.85	-0.33	7.82	46.34	-24.76	48.91	6.77	30.91
F. Construction	3812.88	1016.52	1225.89	<b>6055.29</b>	-2599.60	1095.22	93.82	-1410.56
G. Wholesale and Retail Trade; Car and	5406.89	-440.86	2161.74	<b>7127.77</b>	-3551.38	1195.27	-170.18	-2526.30

Motorcycle Repair								
H. Transportation and Warehousing	2639.46	1419.76	107.46	<b>4166.68</b>	-1663.13	-2783.49	-4215.64	-8662.26
I. Provision of Accommodation and Food and Drink	962.55	82.45	453.67	1498.67	-648.33	-527.80	526.55	-649.58
J. Information and Communication	2244.51	1458.22	-77.50	3625.23	-1534.36	4421.55	-395.70	<b>2491.49</b>
K. Financial Services and Insurance	1216.88	-73.03	142.17	1286.02	-743.02	1173.58	-131.94	<b>298.61</b>
L. Real Estate	3360.88	-1053.91	2950.13	<b>5257.09</b>	-2282.10	3236.56	-84.22	<b>870.24</b>
M.N. Company Services	407.00	283.11	-106.97	583.14	-272.62	9.78	49.32	-213.52
O. Government Administration, Defense and Mandatory Social	715.56	-89.26	77.86	704.16	-456.70	450.52	-46.25	-52.43

Security								
P. Education Services	1192.42	-139.79	696.47	1749.09	-794.76	1165.68	-183.46	187.46
Q. Health Services and Social Activities	477.06	180.50	49.14	706.69	-320.92	982.05	-233.66	<b>427.47</b>
R.S.T.U. Other Services	589.03	447.56	-109.54	927.05	-400.00	109.02	-94.51	-385.49

\*before the Covid-19 pandemic

\*\*during the Covid-19 pandemic

Source: primary data processed

### Banten Province Economic Classification

One method for classifying the economic sectors in the Banten Province is the Klassen typology analysis, which is a regional economic analysis tool. With the Indonesian economy as a point of comparison, this study is used to determine the status of Banten Province's economy. By examining the rate of economic growth (g) and economic contribution (s), the Klassen typology is divided into four categories: quadrant I, which represents advanced and rapidly growing sectors; quadrant II, which is advanced and slowly growing; quadrant III, which is potential and still developing; and quadrant IV, which is relatively lagging.

Before the Covid-19 pandemic, Banten Province had five industries that fell into the advanced and rapidly expanding category, as explained in Table 3. These industries were: a) water supply, waste management, waste and recycling; b) wholesale and retail trade; c) transportation and warehousing; d) real estate; e) health services and social activities.

The water supply, waste management, trash, and recycling sectors, on the other hand, were the only highly developed and quickly expanding industries that managed to survive the COVID-19 epidemic. This is a result of the Covid-19 epidemic, which caused the volume of medical waste to almost double (Yolarita & Kusuma, 2020). According to Government Regulation Number 101 of 2014 regulating the management of hazardous and toxic waste, medical waste in Indonesia is categorized as B3 waste and is subject to regulations. In the midst of the government's attempts to break the chain of transmission of COVID-19, medical waste must be adequately managed to prevent further issues (Yolarita & Kusuma, 2020).

**Table 3 Classification of typology sectors based on the growth rate and contribution of the Indonesian GDP sector and the GRDP of Cities and Regencies in Banten Province before and during the Covid-19 pandemic**

Sector	Banten Province	
	*	**



	gij*	gi*	sij*	si*	Clas s	gij* *	gi**	sij**	si**	Clas s
A. Agriculture, Forestry and Fisheries	<b>3.93</b>	3.90	5.61	<b>12.69</b>	<b>2</b>	<b>3.55</b>	1.71	5.42	<b>12.48</b>	<b>2</b>
B. Mining and excavation	0.02	<b>1.41</b>	0.70	<b>7.91</b>	<b>4</b>	- 8.30	- <b>1.95</b>	0.60	<b>7.29</b>	<b>4</b>
C. Processing industry	3.65	<b>4.28</b>	<b>35.15</b>	21.21	<b>3</b>	- 4.69	- <b>2.93</b>	<b>33.02</b>	20.49	<b>3</b>
D. Electricity and Gas Supply	3.85	<b>20.97</b>	1.04	<b>1.31</b>	<b>4</b>	- 11.43	- <b>2.37</b>	0.89	<b>1.01</b>	<b>4</b>
E. Water Supply, Waste Management, Waste and Recycling	<b>6.09</b>	5.08	<b>0.10</b>	0.08	<b>1</b>	<b>7.03</b>	5.49	<b>0.10</b>	0.08	<b>1</b>
F. Construction	<b>8.02</b>	6.44	9.57	<b>9.94</b>	<b>2</b>	- <b>3.06</b>	- 3.26	9.92	<b>9.96</b>	<b>2</b>
G. Wholesale and Retail Trade; Car and Motorcycle Repair	<b>6.70</b>	4.71	<b>13.37</b>	13.25	<b>1</b>	- 4.01	- <b>3.74</b>	<b>13.49</b>	12.91	<b>3</b>
H. Transportatio	<b>7.97</b>	7.78	<b>6.63</b>	4.08	<b>1</b>	- 29.3	- <b>15.0</b>	<b>5.50</b>	3.91	<b>3</b>

n and Warehousing						3	6			
I. Provision of Accommodation and Food and Drink	<b>7.87</b>	5.55	2.41	<b>3.01</b>	<b>2</b>	- <b>5.64</b>	- 10.22	2.44	<b>2.89</b>	<b>2</b>
J. Information and Communication	8.15	<b>8.32</b>	<b>5.64</b>	5.04	<b>3</b>	9.14	<b>10.60</b>	<b>6.22</b>	5.67	<b>3</b>
K. Financial Services and Insurance	<b>5.41</b>	4.82	2.96	<b>4.01</b>	<b>2</b>	2.26	<b>3.26</b>	2.91	<b>4.11</b>	<b>4</b>
L. Real Estate	<b>7.90</b>	3.54	<b>8.42</b>	2.92	<b>1</b>	2.15	<b>2.36</b>	<b>8.94</b>	2.93	<b>3</b>
M.N. Company Services	7.26	<b>8.54</b>	1.02	<b>1.74</b>	<b>4</b>	- <b>4.41</b>	- 5.43	1.03	<b>1.84</b>	<b>2</b>
O. Government Administration, Defense and Mandatory Social Security	<b>5.04</b>	4.52	1.74	<b>3.35</b>	<b>2</b>	- 0.65	- <b>0.08</b>	1.76	<b>3.34</b>	<b>4</b>
P. Education Services	<b>7.43</b>	4.54	2.97	<b>3.09</b>	<b>2</b>	1.33	<b>2.63</b>	3.10	<b>3.16</b>	<b>4</b>

Q. Health Services and Social Activities	<b>7.50</b>	6.99	<b>1.19</b>	1.11	<b>1</b>	7.50	<b>11.60</b>	<b>1.29</b>	1.23	<b>3</b>
R.S.T.U. Other Services	7.95	<b>8.85</b>	1.48	<b>1.72</b>	<b>4</b>	- 5.43	- <b>4.10</b>	1.51	<b>1.83</b>	<b>4</b>

\*before the Covid-19 pandemic

\*\*during the Covid-19 pandemic

Source: primary data processed

## CONCLUSION

The three leading and competitive sectors that need to be developed are wholesale and retail trade, auto and motorcycle repair, transportation and warehousing, and real estate. These sectors were classified as advanced and growing prior to the Covid-19 pandemic based on the results of the analysis using the LQ, shift share, and Klassen typology methods. In the meanwhile, during the COVID-19 pandemic, the water supply, waste management, waste, and recycling sectors emerged as a sector that continued to thrive as a highly competitive and developed industry that was expanding quickly.

The Banten Provincial Government needs to prioritize the development of these leading sectors so as to increase labor absorption. This can be done by increasing the strategy of promotional activities in these leading sectors to attract domestic and foreign investors.

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