

LABOR ABSORPTION AND CONTRIBUTION OF THE PROCESSING INDUSTRY SECTOR TO ECONOMIC GROWTH IN THE PROVINCE OF THE BANGKA BELITUNG ISLAND

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Abstract

This research aims to analyze the absorption of labor and the contribution of the processing industry sector to economic growth in the Province of the Bangka Belitung Islands. The data used in this research is secondary data of time series for the period 2012 to 2021 which is sourced from the Indonesia Statistics (BPS) of the Bangka Belitung Islands Province and literature studies. The analytical method used to calculate the elasticity of employment opportunities to see the absorption of labor and the proportion method to see the contribution of economic growth this research used the proportion method. The results showed that the Manpower and Workforce Growth Rate in the processing industry sector in the Province of the Bangka Belitung Islands in 2009-2021 is fluctuated. The average distribution of workers in the processing industry sector is 6.45 percent. The highest distribution of labor in the processing industry sector occurred in 2020 was 8.19 percent and the lowest in 2010 at 4.47 percent. The absorption of labor in the processing industry sector is mostly absorbed in the tin metal processing industry. The processing industry sector is one of the five sectors that have the largest contribution to the economic structure of the Bangka Belitung Islands over the last 10 years besides agriculture sector, trade sector, mining sector, and construction sector. The average elasticity of employment opportunities in the Province of the Bangka Belitung Islands is 315.41 percent.

Abstrak

Penelitian ini bertujuan untuk menganalisis penyerapan tenaga kerja dan kontribusi sektor industri pengolahan terhadap pertumbuhan ekonomi di Provinsi Kepulauan Bangka Belitung. Data yang digunakan dalam penelitian ini adalah data sekunder time series periode 2012 hingga 2021 yang bersumber dari Badan Pusat Statistik (BPS) Provinsi Kepulauan Bangka Belitung dan studi literatur. Metode analisis yang digunakan untuk menghitung elastisitas kesempatan kerja untuk melihat penyerapan tenaga kerja dan metode proporsi untuk melihat kontribusi pertumbuhan ekonomi penelitian ini menggunakan metode proporsi. Hasil penelitian menunjukkan bahwa Laju Pertumbuhan Tenaga Kerja dan Tenaga Kerja Sektor Industri Pengolahan di Provinsi Kepulauan Bangka Belitung Tahun 2009-2021 berfluktuasi. Rata-rata sebaran tenaga kerja sektor industri pengolahan sebesar 6,45 persen. Penyaluran tenaga kerja sektor industri pengolahan tertinggi terjadi pada tahun 2020 sebesar 8,19 persen dan terendah pada tahun 2010 sebesar 4,47 persen. Penyerapan tenaga kerja di sektor industri pengolahan sebagian besar terserap di industri pengolahan logam timah. Sektor industri pengolahan merupakan salah satu dari lima sektor yang memiliki kontribusi terbesar terhadap struktur perekonomian Kepulauan Bangka Belitung selama 10 tahun terakhir selain sektor pertanian, sektor perdagangan, sektor pertambangan, dan sektor konstruksi. Elastisitas rata-rata kesempatan kerja di Provinsi Kepulauan Bangka Belitung sebesar 315,41 persen.

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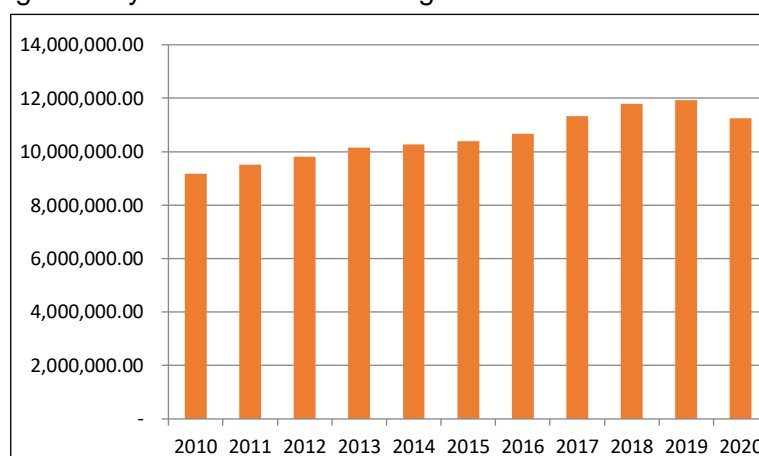
INTRODUCTION

One of the benchmarks for the success of a country's economic development is economic growth. Economic growth can be measured nationally through Gross Domestic Product (GDP) and regionally through Gross Domestic Regional Product (GDRP). So in other words, economic growth is an increase in the GDP and GDRP of a country (Mankiw, 2010).

Gross Domestic Regional Product is also one of the important indicators used to see the economic development of a region because it can know the rate of economic growth and changes in the economic structure of the region (Sukirno, 2011). The industrial sector acts as the leading sector (leading deposit). With the development in the industrial sector, it will spur and encourage the development of other sectors, such as the agricultural sector and the service sector, so it will lead the expansion of job opportunities which will increase people income and demand (Arsyad, 2010). According to the Indonesian Standard Classification of Business Fields (KBLI), the economic sector in GDRP is grouped into 17 business fields, one of which is the processing industry (Badan Pusat Statistik, 2020).

Sihombing in (Matitaputty, 2010) states that increasing the competitiveness of the processing industry sector by not forgetting the agricultural sector which incidentally is a labor-intensive sector or that uses a lot of labor and the agricultural sector is a provider of industrial raw materials in order to remain a strategic sector in national development. The important thing from the use of factors that influence regional economic growth is the pattern of concentration, where there is a group of various types of industries in a certain place, resulting in external benefits which in this case are agglomeration savings. This means that an industry can effect the accumulation in Industry Supporting Factors and centralization in Industry activities. In the micro-economic approach workers absorb the recovery process within the area readjusting their demand for labor. When population movement is introduced the system reorganizes at a new equilibrium (Grinberger & Samuels, 2018).

In the Province of the Bangka Belitung Islands, the development of the processing sector is a long-term development. Its because the processing sector has big contribution to GDRP. Although there had been a decline in the contribution of GDRP at constant prices by business field, the processing industry until 2020 was the highest contributor to GDRP.



Source: Indonesia Statistics, 2022

Figure 1. Processing Industry

Figure 1 shows that the development of the processing industry sector from ADHK GDRP in the Province of the Bangka Belitung Islands from 2010 to 2020. There was a significant increase from 2010 to 2019, but in 2020 the number of processing industry was decrease due to the large number of private smelters had not operated and closed, while the performance of the processing industry in the Province of the Bangka Belitung Islands is supported by the basic metal (tin) industry.

With the development of the processing sector, it is hoped that it will be able to absorb the existing workforce in the Province of the Bangka Belitung Islands. Labor absorption is the number of people who are absorbed to be able to work in an agency or company. This labor absorption accommodates the available workforce if the employment is adequate or sufficient and balanced with the number of available workers. The processing industry is one sector that has an important role in the absorption of labor so that it can trigger the economic growth.

Based on the background that has been described, the researchers are interested in researching and analyzing, with the research title "Analysis of Manpower Absorption in the Processing Sector and Its Contribution to Economic Growth in the Province of the Bangka Belitung Islands". Bagian ini berisi: (1) pentingnya penelitian yang dilakukan; (2) penjelasan tentang objek dan ruang lingkup studi; (3) menyajikan literatur terbaru terkait dengan topik yang diteliti; (4) menganalisis kekuatan & kelemahan publikasi sebelumnya; (5) menyampaikan prinsip-prinsip hasil penelitian atau keadaan terkini, dan (6) menyampaikan tujuan dan kebaruan penelitian; keadaan seni dan tujuan harus dihubungkan dengan jelas.

LITERATURE REVIEW

Employment

Employment creation is one of the goals of economic development, especially in Indonesia, where the growth of the labor force is greater than the growth of employment opportunities. The increasing and improving in economy development will also increasing in the absorption of labor, so that it affects the availability of labor in an area. There are two factors that influence the state of the workforce, namely the demand factor (influenced by the dynamics of economic development) and the supply factor (determined by the company's population structure).

Labor absorption is certainly influenced by labor factors which are an integral part in a development process (Ismei, 2015). Labor is not only seen as a part in the creation of output, but also how the quality of the workforce interacts with other production factors to create added value (productivity). The economic sector will experience changes during the development process. Likewise, the percentage of the population working in various economic sectors will also experience changes. This is inseparable from the development of human resources and employment (Ade, 2015).

Labor absorption shows the amount or quantity of labor used by a particular sector or business unit. It can be interpreted that labor is the real number of workers employed in a business unit. According to the Central Statistics Agency, employment is the number or number of people working in all economic sectors. Employment absorption is a condition where labor actors are accepted to carry out tasks or a situation that reflects the availability of jobs or employment opportunities to be filled by job seekers (Citamaha, 2018).

Economic Growth Theory

Economic growth is a description of the dynamic aspects of an economy, namely seeing how an economy develops or from time to time, so that it can know the rate of economic growth in a country (Arsyad, 2010).

The Economic growth is a benchmark for the success/ of a country's development, especially in the economic field. Economic growth is measured by the growth rate of Gross Domestic Product (GDP) for the national scope and Gross Domestic Regional Product (GDRP) for the regional scope. In the understanding of macroeconomics, economic growth is the addition of GDP or GDRP (Mankiw, 2013).

Basically, economic growth theory can be grouped into two, namely classical and modern economic growth theory. In classical economic growth theory, the analysis is based on the belief in the effectiveness of the free market mechanism. Classical economic theory is a theory coined by economists who lived in the 18th century to the early 20th century. The classical economists

include Adam Smith, David Ricardo and W.A Lewis. Another theory that explains economic growth is the modern theory of economic growth (Anwar, 2018).

Processing Industry

Viewed from the point of view of microeconomic theory, industry is a collection of companies that produce homogeneous goods or goods that have very close interchangeability. However, in terms of income generation, macro industry is defined as economic activity that creates added value. So, the definition of industry is a collection of companies that produce similar goods that have added value, such as managing raw goods into finished goods that is ready for consumption which is more valuable with the aim of generating income (Teguh, 2010).

The processing industry is all economic activities that produce goods and services that are not classified as primary products. Primary products are products classified as raw materials, which are produced by the exploitation of natural resources from agriculture, forestry, marine, and mining, with the possibility of including initial processing products up to standard forms and technical specifications and commonly traded as primary products (Bank Indonesia, 2021).

RESEARCH METHOD

The research method used in this research is literature study and documentation. The literature study technique is carried out by collecting previous research and previous theories related to research problems. The Documentation technique is obtaining data and information from written reports and published data. To increase the sharpness of the analysis, interviews (indept interviews) were also conducted with resource persons who were considered to have extensive information on the research carried out.

The type of data in this study is quantitative data, which is the type of data that can be measured or calculated directly with the 2012-2021 time period. The source of data in this study is secondary data, namely data obtained from the Indonesia Statistics of the Bangka Belitung Islands Province as well as literature that is considered relevant to this research.

To analyze the number of workers in the processing sector, the “measurable average as a measure of growth” model is used with the formula:

$$L^0 = \frac{L_t - L_{t-1}}{L_{t-1}} \times 100\%$$

Where : the notation L^0 is the rate of growth of the number of workers in the processing sector, L_t is number of workers in the processing sector in year t , L_{t-1} is number of workers in the processing sector in year $t-1$

To calculate the growth rate of production value in the processing sector, the average measurement model is used with the formula:

$$Q^0 = \frac{Q_t - Q_{t-1}}{Q_{t-1}} \times 100\%$$

Where : the notation Q^0 is the rate of growth of the production value of the processing sector, Q_t is production output value of the processing sector in year t , Q_{t-1} is production output value of the processing sector in year $t-1$

To find out the magnitude of employment in the processing sector in Bangka Belitung Province in 2013-The absorption the elasticity of employment opportunities. By using the formula:

$$\eta N = \frac{L^0}{Q^0}$$

Where : the notation N is elasticity of employment opportunity, L is labor growth rate (%), Q is Growth rate of production value (%)

Criteria:

- a. $E = 1$ Unitary Elasticity, means that if the output value increases by 1%, the absorbed workforce will increase by 1%, on the other hand, if the output value decreases by 1%, the absorbed workforce will decrease by 1%.
- b. $E > 1$ Elasticity, means that if the output value increases by 1%, the number of employed workers will increase by more than 1%, on the other hand, if the output value decreases by 1%, the absorbed workforce will decrease by more than 1%
- c. $E < 1$ Inelasticity, means that if the value of output increases by 1%, the number of workers absorbed will increase by less than 1%, on the other hand, if output decreases by 1%, the number of workers absorbed will decrease by less than 1%.

To measure the contribution of the small industry sector to GDRP, the proportion analysis method is used (Djarwanto, 2001) with the formula:

$$S = \frac{X}{Y} \times 100\%$$

Where : the notation S is the value of the proportion of the processing industry to GDRP, X is production value of the processing sector, Y is gross regional domestic product in Bangka Belitung Province

RESULT AND DISCUSSION

1. Manpower in the Processing Sector in the Province of the Bangka Belitung Islands

Manpower in the processing sector is seen from the population aged 15 years and over who work according to the main job status in the processing sector. The following are workers in the Processing sector of the Bangka Belitung Islands Province:

Table 1
Manpower in the Processing Industry Sector in the Province of the Bangka Belitung Islands

Year	Manpower in the Processing Sector	Total Labor Force of Bangka Belitung	Distribution Percentage of Manpower	Manpower Growth Rate
2009	25.017	506.284	4,94%	-
2010	26.128	585.136	4,47%	4,44%
2011	32.186	589.634	5,46%	23,19%
2012	35.971	583.102	6,17%	11,76%
2013	36.162	596.786	6,06%	0,53%
2014	35.500	604.223	5,88%	-1,83%
2015	35.853	623.949	5,75%	0,99%
2016	56.124	686.830	8,17%	56,54%
2017	44.153	672.618	6,56%	-21,33%
2018	49.462	701.366	7,05%	12,02%
2019	54.396	715.927	7,60%	9,98%
2020	57.320	699.881	8,19%	5,38%
2021	53.380	701.440	7,61%	-6,87%

Source: Bank Indonesia, 2022

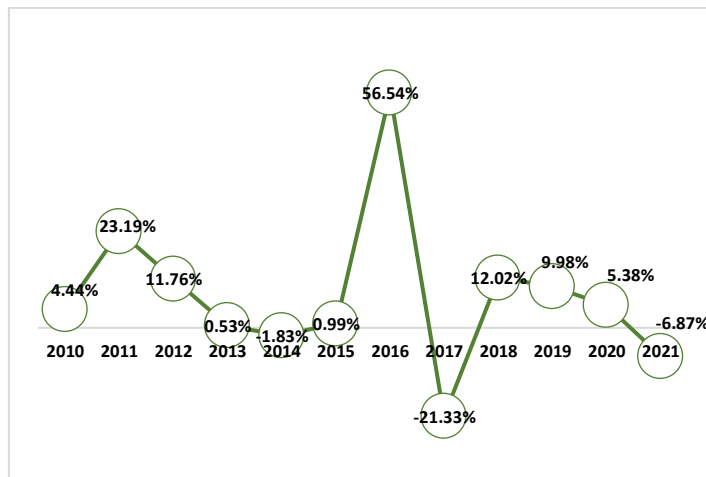
Table 1 shows that manpower in the Processing Sector in the Province of the Bangka Belitung Islands in 2009-2021 experienced fluctuations. The average number of workers in the Processing sector is 41,666 people. The largest number of workers in the Processing sector occurred in 2020, namely 57,320 people. This condition shows that, despite fluctuations in the Covid-19 pandemic situation, the processing industry sector has a major role in supporting the economy in the Bangka Belitung Islands in the 2020-2021 period. Especially the increasing prices of Bangka Belitung's leading commodities, especially tin, CPO and pepper which can be utilized properly by people who work in the processing industry sector. Meanwhile, the lowest number of workers in the processing sector occurred in 2009 at 25,017 people.

Meanwhile, the total workforce of the Bangka Belitung Islands Province in 2009-2021 shows an increasing trend. But in 2020, the total workforce declined by 5,38 percent due to a reduction in the workforce in the tertiary sector such as the trade sector and the provision of accommodation

in 2020 due to Covid-19. The average number of workers in the Bangka Belitung Islands Province is 635,937 people. The highest number of labor force occurred in 2019 at 715,927 and the lowest in 2009 at 506,284 people.

2. Manpower Growth Rate in Processing Sector

The following is the growth rate of labor in the processing sector in the Bangka Belitung Islands:



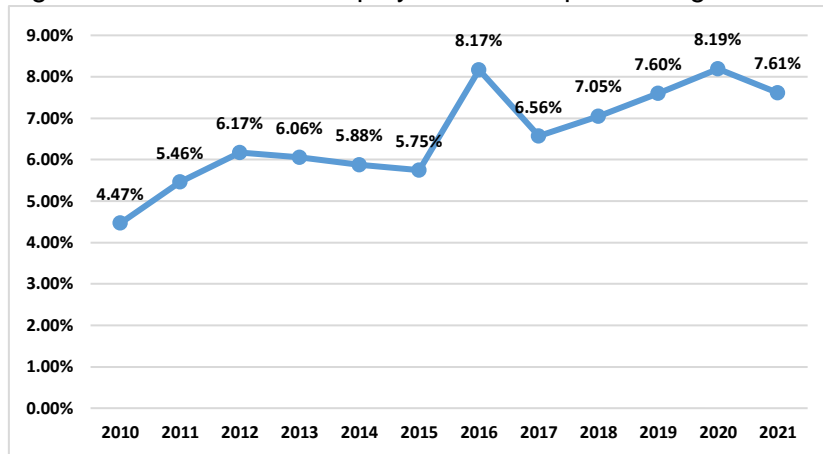
Source: Indonesia Statistics, 2022 (Processed data)

Figure 2. Labor Growth Rate Processing Sector

The growth rate of labor in the industrial sector in 2010-2021 shows fluctuating developments. The average rate of labor growth is 7.90 percent. The highest growth rate occurred in 2016 at 56.54 percent and the lowest growth occurred in 2017 at -21.33 percent compared to the previous year. This condition shows that the current year's workforce growth compared to last year shows fluctuations that can increase and decrease in the relevant year.

3. Distribution of Manpower Absorption in the Processing Sector

The following is the distribution of employment in the processing sector



Source: Indonesia Statistic, 2022 (Processed data)

Figure 3. Distribution of Labor Percentage Processing Sector

The distribution of workers in the processing sector is obtained from the number of workers in the processing sector to the total workforce in the Province of the Bangka Belitung Islands. The average distribution of workers in the processing sector is 6.45 percent. The highest distribution of labor in the processing sector occurred in 2020 at 8.19 percent and the lowest in 2010 at 4.47 percent. Absorption of labor in the processing sector is mostly absorbed in the tin metal processing industry.

4. Gross Regional Domestic Product at Constant Prices in the Processing Sector

The Following is the Gross Domestic Regional Products at Constant Prices (PDRB ADHK) in the Processing Sector:

Table 2.
Gross Domestic Regional Product (GDRP) at Constant Prices Processing Sector (in Million Rupiah)

Year	GDP of the Processing Industry Sector	ADHK GDP	Processing Industry Sector Contribution	Processing Industry Sector Growth Rate	Job Opportunity Elasticity
2009	2.275.230,00	10.270.106,00	22,15%	-	-
2010	9.174.667,79	35.561.904,17	25,80%	2,81%	158,04%
2011	9.515.757,31	38.013.990,30	25,03%	3,72%	623,66%
2012	9.804.877,79	40.104.906,13	24,45%	3,04%	387,05%
2013	10.143.283,59	42.190.857,09	24,04%	3,45%	15,38%
2014	10.270.405,23	44.159.439,52	23,26%	1,25%	-146,07%
2015	10.400.639,61	45.962.303,99	22,63%	1,27%	78,42%
2016	10.680.473,09	47.848.371,79	22,32%	2,69%	2101,41%
2017	11.337.679,96	49.985.153,67	22,68%	6,15%	-346,63%
2018	11.787.736,60	52.208.035,50	22,58%	3,97%	302,91%
2019	11.928.979,01	53.941.901,70	22,11%	1,20%	832,52%
2020	11.257.430,58	52.699.208,70	21,36%	-5,63%	-95,49%
2021	11.870.051,11	55.360.736,62	21,44%	5,44%	-126,31%

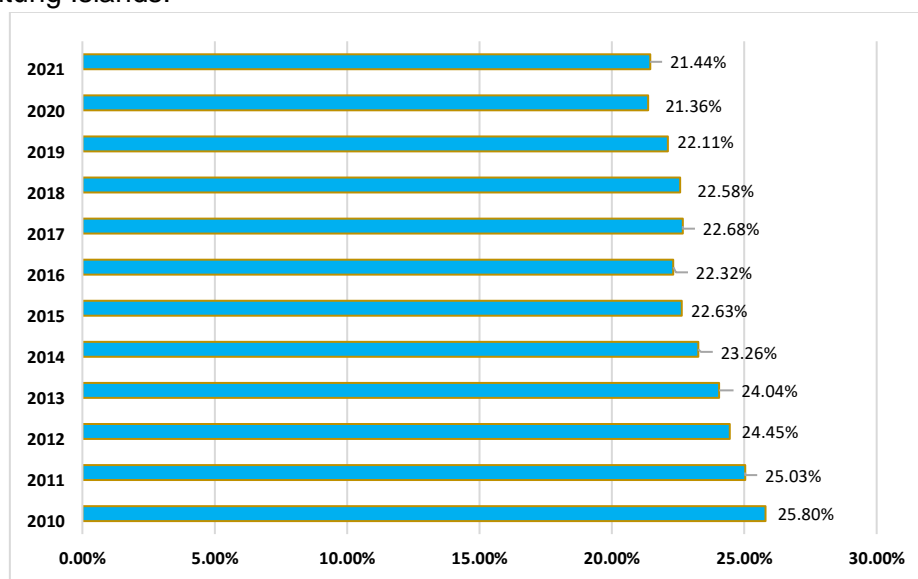
Source: Bangka Belitung Islands Province in Figures, 2022

The Gross Domestic Regional Product (GDRP) at Constant Prices in the processing sector in 2010-2021 shows an increase. The increase that occurred was 29.38 percent. The average GDRP of the processing sector is Rp. 10,680,998.47. During the last 10 years, the processing industry has a large output value of ADHK GDRP in the Province of the Bangka Belitung Islands.

ADHK GDRP of the Bangka Belitung Islands Province in 2010-2021 has increased and only decreased in 2020 by Rp 52,699,208.70. The average GDRP of ADHK in the Province of the Bangka Belitung Islands is Rp. 43,715,916.55. In 2021, after the Covid-19 pandemic, the economic growth rate of the Bangka Belitung Islands experienced the highest growth on the island of Sumatra by contributing 2.34 percent to the GDRP of Sumatra Island and 0.51 percent to the total GDRP in 34 provinces in Indonesia.

5. Processing Industry Sector Contribution

The following is the contribution of the processing industry sector in the Province of the Bangka Belitung Islands:



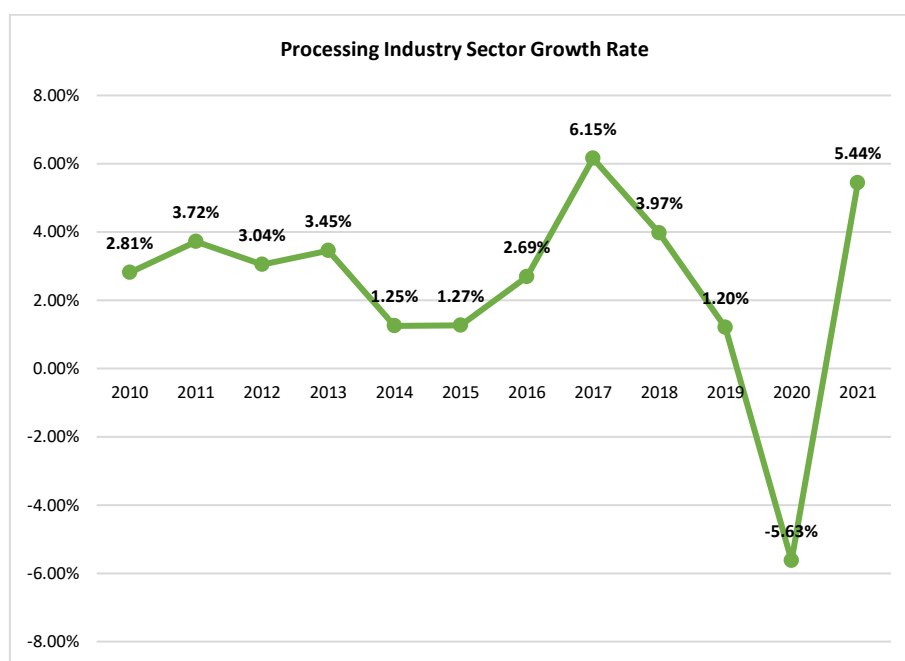
Source: Indonesia Statistic, 2022 (Processed data)

Figure 4. Processing Industry Sector Contribution

The contribution of the processing sector is obtained from the number of processing industry sectors divided by the total GDRP ADHK of the Province of the Bangka Belitung Islands. The contribution of the processing sector in 2010-2021 shows a declining trend of 4.36 percent. The highest contribution from the processing sector occurred in 2010 at 25.80 percent and the lowest occurred in 2020 at 21.36 percent. The processing sector is one of the five sectors that have the largest contribution to the economic structure of the Bangka Belitung Islands over the last 10 years. The five sectors include the Processing Sector, Agriculture Sector, Trade Sector, Mining Sector, and Construction Sector. Although the contribution of the processing sector shows a downward trend, this sector still contributes greatly to the GDRP in Bangka Belitung. The high contribution of the processing sector is due to the rising prices of export commodities, namely tin and CPO amid limited global supply. The increasing global market demand for processing industrial products such as tin has pushed up the demand for leading commodities.

6. Processing Industry Sector Growth Rate

The following is the growth rate of the processing industry sector in the Province of the Bangka Belitung Islands:



Source: Indonesia Statistic, 2022 (Processed data)

Figure 5. Processing Industry Sector Growth Rate

The growth rate of the processing industry sector in 2010-2021 shows a positive fluctuating trend and only in 2020 shows negative growth. The average growth rate of the processing sector is 2.45 percent. The highest growth rate of the processing sector occurred in 2017 at 6.15 percent and the lowest occurred in 2020 at -5.63 percent. In 2020 the growth rate of the processing industry sector experienced a deep contraction. The decline in the performance of the processing industry was caused by the slowdown in CPO prices along with the entry of the palm track season. In 2021 the processing industry sector shows positive growth. This increase in performance was supported by the tin metal industry in line with the increase in commodity prices. In addition, the high number of tin smelters that have obtained export permits because they have been able to meet the export requirements of tin metal. The large potential demand for Bangka Belitung tin in the global market is the main factor in increasing the processing industry sector

7. Job Opportunity Elasticity

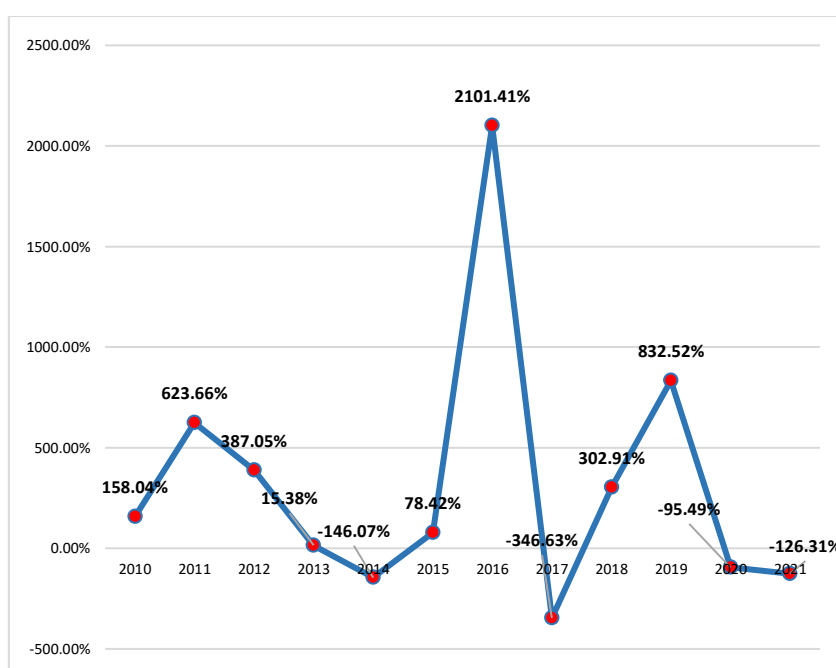
The following is the elasticity of employment opportunities in the Province of the Bangka Belitung Islands:

Table 3.
Job Opportunity Elasticity

Year	Job Opportunity Elasticity	Information
2010	158,04%	Elastic
2011	623,66%	Elastic
2012	387,05%	Elastic
2013	15,38%	Elastic
2014	-146,07%	Inelastic
2015	78,42%	Elastic
2016	2101,41%	Elastic
2017	-346,63%	Inelastic
2018	302,91%	Elastic
2019	832,52%	Elastic
2020	-95,49%	Inelastic
2021	-126,31%	Inelastic

Source: Bangka Belitung Islands Province in Figures, 2022

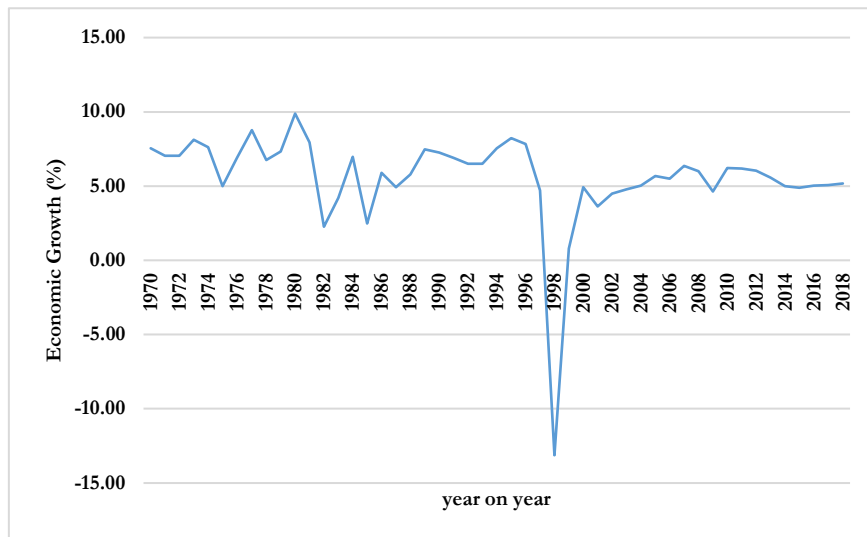
The following is a graph of the elasticity of employment opportunities:



Source: Bangka Belitung Islands Province in Figures, 2022 (Processed data)

Figure 6. Job Opportunity Elasticity

The elasticity of employment opportunities is used to determine the amount of labor absorption in the processing sector in Bangka Belitung Province in 2010-2021. The average elasticity of employment opportunities in the Province of the Bangka Belitung Islands is 315.41 percent. The highest elasticity occurred in 2016 at 2,101.41 percent. The lowest employment elasticity occurred in 2017 at -346.63 percent. In 2010, 2011, 2012, 2013, 2015, 2016, 2018, and 2019 there was an elasticity of employment, means hat if the output of the processing sector in the form of GDRP in the processing sector increased by more than 1 percent, the number of workers absorbed would increase by more than 1 percent. Meanwhile, in 2014, 2017, 2020, and 2021, there will be inelasticity which means that if the output of the processing sector in the form of GDRP in the processing sector increases by less than 1 percent, the number of workers absorbed will decrease by less than 1 percent.



Source: World Bank (2017) World Development Indicator (Author calculation)
Figure 7. Annual Indonesia's Economic Growth Rates, 1985-2018 (%)

CONCLUSIONS

Manpower and Workforce Growth Rates in the Processing Industry Sector in the Province of the Bangka Belitung Islands in 2009-2021 are fluctuated, although there were fluctuations in the Covid-19 pandemic situation, the processing sector had a major role in supporting the economy in the Bangka Belitung Islands in the period 2020 -2021. The average distribution of workers in the processing sector is 6.45 percent. The highest distribution of labor in the processing sector occurred in 2020 at 8.19 percent and the lowest in 2010 at 4.47 percent. Absorption of labor in the processing sector is mostly absorbed in the tin metal processing industry. The processing sector is one of the five sectors that have the largest contribution to the economic structure of the Bangka Belitung Islands over the last 10 years. The five sectors include the Processing Sector, Agriculture Sector, Trade Sector, Mining Sector and Construction Sector.

The average elasticity of employment opportunities in the Province of the Bangka Belitung Islands is 315.41 percent. In 2010, 2011, 2012, 2013, 2015, 2016, 2018 and 2019 there was an elasticity of employment opportunity which means that if the output of the processing sector in the form of GDRP in the processing sector increases by more than 1 percent, the number of workers absorbed will increase by more than 1 percent. Meanwhile, in 2014, 2017, 2020, 2021, there will be inelasticity, which means that if the output of the processing sector in the form of GDRP in the processing sector increases by less than 1 percent, the number of workers absorbed will decrease by less than 1 percent.

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