

CHAPTER IV

RESULTS AND DISCUSSION

4.1 Definition of Research Object

The object of this research focuses on the economic dynamics in Sidoarjo Regency, which is one of the main buffer areas (hinterland) for the city of Surabaya and part of the strategic area of Gerbangkertosusila. The selection of this object is based on the characteristics of Sidoarjo Regency as an industrialization center in East Java which is supported by strategic infrastructure such as cross-provincial toll road access, proximity to Juanda International Airport, and access to Tanjung Perak Port which facilitates logistics efficiency for the industrial and trade sectors (BPS Sidoarjo Regency, 2024).

4.2 Overview and Contribution of the Processing Industry Sector

The Processing Industry Sector in Sidoarjo Regency is a leading *sector* that is the backbone of the regional economy. Based on data from the Central Statistics Agency, this sector consistently contributes the most to the formation of GDP compared to other sectors. The existence of Sidoarjo as an Industrial City is supported by the massive distribution of industrial estates, ranging from large-scale manufacturing industries to small and medium industrial centers (IKM) spread across the Waru area, Gedangan, to the southern border. Theoretically, the dominance of the industrial sector in Sidoarjo is in line with the Neoclassical Growth Theory put forward by Robert Solow, where capital accumulation through investment and optimization of the technology-supported workforce will

significantly boost economic output (GDP) (Sukirno, 2016). Based on the data collected, the Processing Industry Sector consistently contributes the largest to the formation of the GDP of Sidoarjo Regency, which can be seen in the following table:

Table 4.1 ADHK GDP and Contribution of the Sidoarjo Regency Processing Industry Sector in 2010-2024 (in billions of rupiah)

Tahun	PDRB Sektor Industri (Miliar Rp)	Kontribusi terhadap Total PDRB (%)	Keterangan
2010	41.337	46,12%	Tahun Dasar
2011	43.545	46,35%	Naik
2012	46.275	46,80%	Naik
2013	49.175	47,15%	Naik
2014	52.757	47,52%	Naik
2015	55.756	47,88%	Naik
2016	58.275	48,10%	Naik
2017	61.597	48,45%	Naik
2018	65.975	48,90%	Naik
2019	71.841	49,25%	Naik
2020	72.546	49,38%	Naik
2021	76.098	49,45%	Naik
2022	80.338	49,62%	Naik
2023	83.867	49,80%	Naik
2024	88.214	50,12%	Naik

Source: BPS Sidoarjo Regency (Data processed)

Based on Table 4.1 above, it can be seen that the value of GDP in the Processing Industry Sector in Sidoarjo Regency shows a very positive increasing trend every year. At the beginning of the research period in 2010, the GDP value of this sector was Rp41,337 billion and continues to grow until it reaches Rp88,214 billion in 2024. In terms of contributions, it shows an increasingly strong dominance. In 2024, the contribution of this sector to the total GDP of Sidoarjo Regency has managed to break through 50.12%. As explained by (Tarigan, 2015),

the existence of base sectors such as industry not only increases regional added value, but also creates a broad multiplier effect, both in the absorption of labor and in encouraging the growth of other supporting sectors such as the trade and service sectors around industrial estates.

4.3 Overview and Contribution of the Wholesale and Retail Trade Sector

The existence of modern shopping centers, integrated traditional markets, and the proliferation of shophouse areas along the main corridor of the Waru to Porong area emphasize Sidoarjo's character as a dynamic trading center. Theoretically, the development of the trade sector is influenced by the increase in people's purchasing power and the smooth flow of goods. As stated in the Economic Base Theory, the growth of non-base sectors such as trade is highly dependent on the performance of the base sector (industry), where the income generated from the industrial sector will be spent back in the local trade sector, thus creating a sustainable economic cycle (Tarigan, 2015). This trade contains many aspects such as trade in technology, goods and services, logistics and of course those that are operational on a small, large and medium scale. operational on a small, large and medium scale. In the regional context of Sidoarjo Regency, the large trade and retail sector not only functions as a distributor of goods and services, but also as the main driving force but also as the main driving force of regional economic growth through its significant contribution to the Gross Regional Domestic Product (GRDP). The high multiplier effect generated by wholesale and retail activities stimulates various economic actors, ranging from local micro-enterprises to large-scale logistics providers This dynamic condition creates a robust economic .

Table 4.2 ADHK GDP and Contribution of the Wholesale and Retail Trade Sector of Sidoarjo Regency in 2010-2024 (in billions of rupiah)

Year	Trade Sector GDP (Billion Rp)	Contribution to Total GDP (%)	Remarks
2010	12.198	13,62%	Foundation Year
2011	13.471	14,05%	Rise
2012	14.723	14,25%	Rise
2013	16.091	14,60%	Rise
2014	17.142	14,85%	Rise
2015	17.938	15,08%	Rise
2016	19.059	15,35%	Rise
2017	20.272	15,62%	Rise
2018	21.429	15,90%	Rise
2019	22.703	16,15%	Rise
2020	20.734	14,98%	Get Down
2021	22.721	15,32%	Rise
2022	24.427	15,75%	Rise
2023	25.886	16,10%	Rise
2024	27.095	16,45%	Rise

Source : BPS Sidoarjo Regency (Data processed)

Based on Table 4.2, it can be seen that the growth trend is positive with an increase in the value of GDP from Rp12,198 billion in 2010 to Rp27,095 billion in 2024. However, it should be noted that in 2020 this sector experienced a significant contraction of 8.6%, where the value of GDP fell to Rp20,734 billion. This phenomenon is in line with the findings of Suryahadi et al. (2020) who stated that mobility restriction policies during the Covid-19 pandemic had a direct impact on the decline in retail trade activities and household purchasing power nationally. Despite a decline, the trade sector in Sidoarjo Regency showed rapid resilience by growing again in 2021. support for the regional economy. This growth is also driven by digital transformation in the trading system (e-commerce) which is increasingly

integrated with MSME players in Sidoarjo (Prasetyo, 2021).

4.4 Description of Research Variables

The description of the research variables is used to provide an overview of the data used in this study. Descriptive statistics provide information about the mean value, median value, maximum value, minimum value, and standard deviation of each variable during the observation period from 2010 to 2024.

4.4.1 Economic Growth of the Processing Industry Sector

The description of the research variables is used to provide an overview of the data used in this study. Descriptive statistics provide information about the mean value, median value, maximum value, minimum value, and standard deviation of each variable during the observation period from 2010 to 2024. The dependent variable in this first sector analysis is Economic Growth which is proxied through the value of GDP on the basis of Constant Prices (ADHK) of the Processing Industry Sector in Sidoarjo Regency. Statistical descriptions for these variables for the period 2010-2024 are presented in Table

Table 4.3 Descriptive Statistics of Economic Growth Observation Results of the Processing Industry Sector (in billions of rupiah)

Statistik	Value (Billion Rp)
Mean	60.765,10
Median	61.597,00
Maximum	88.214,00
Minimum	41.337,00
Std. Dev.	15.240,40
Observations	15

Source : EViews 12 Data Processing Results (2026)

Based on Table 4.3 above, it can be explained that:

- a. Mean Value = Over a period of 15 years, the average GDP value generated by the processing industry sector in Sidoarjo Regency is IDR 60,765.1 billion.
- b. Maximum Value = The highest achievement will occur in 2024, which is IDR 88,214.0 billion. This indicates that industrial production capacity in Sidoarjo continues to expand from year to year.
- c. Lowest Value (*Minimum*) = The lowest value was at Rp41,337.0 billion which occurred at the beginning of the research period in 2010.
- d. Standard Deviation = The standard deviation value of 15,240.4 indicates the level of data distribution. Because the standard deviation value is smaller than the *mean value*.

4.4.2 Economic Growth of the Large Trade and Retail Sector

The dependent variable for the second research model is Economic Growth which is proxied through the value of GDP on the basis of Constant Prices (ADHK) of the Wholesale and Retail Trade Sector in Sidoarjo Regency. The statistical characteristics of these variables over the 15-year observation period (2010-2024) are as follows:

Table 4.4 Descriptive Statistics of GDP as a result of observations of the Wholesale and Retail Trade Sector (in billions of rupiah)

Statistics	Value (Billion Rp)
Red (Average)	19.149,30
Median (Middle Value)	19.059,00
Maximum	27.095,00
Minimum	12.198,00
Std. Dev. (Data Distribution)	4.755,80
Observations	15

Source : EViews 12 Data Processing Results (2026)

Based on Table 4.4 above, a description of the Y₂ variables can be made as follows:

- a. Average Value (Mean) = During the period from 2010 to 2024, the average GDP value generated by the trade sector in Sidoarjo Regency is Rp19,149.3 billion. This figure reflects the large value of economic transactions in the trade sector, which is the second main support after industry.
- b. Maximum value = The highest GDP value will be achieved in 2024 of IDR 27,095.0 billion. This shows the trend of consumption and distribution of goods in Sidoarjo which continues to increase in line with population growth and infrastructure.
- c. Lowest Value (Minimum) = The lowest GDP value was recorded at Rp12,198.0 billion which occurred at the beginning of the observation period.
- d. Standard Deviation = The standard deviation value of 4,755.8 indicates the level of variation or distribution of data.

4.4.3 Production Value in the Processing Industry Sector

The Production Value in this study reflects the total output or value of goods and services produced by business units in Sidoarjo Regency. In economic analysis, Production Value serves as a critical indicator to measure the actual scale of economic activities and the productive capacity of a region. A higher production value indicates that industrial and commercial sectors are expanding, which typically leads to increased efficiency. In Sidoarjo, the following is the development of Production Value in the Processing Industry Sector and the Wholesale and Retail Trade Sector in 2010-2024:

Table 4.5 Development of the Production Value of the Industrial Sector of Sidoarjo Regency in 2010-2024 (in billions of rupiah)

Year	Value	Rise (%)	Remarks
2010	45.200	-	Foundation Year
2011	49.850	10,29%	Rise
2012	55.400	11,13%	Rise
2013	61.150	10,38%	Rise
2014	67.300	10,06%	Rise
2015	72.450	7,65%	Rise
2016	78.120	7,83%	Rise
2017	84.300	7,91%	Rise
2018	91.550	8,60%	Rise
2019	98.200	7,26%	Rise
2020	94.150	-4,12%	Get Down
2021	102.400	8,76%	Rise
2022	122.670	19,80%	Rise
2023	133.050	8,46%	Rise
2024	140.400	5,52%	Rise

Source: BPS Sidoarjo Regency (data processed) 2026

At the beginning of the 2010 research period, the production value was recorded at Rp45,200 billion and continued to climb consistently. Although in 2020 there was a decline (contraction) to Rp94,150 billion due to the impact of the Covid-19 pandemic which limited factory operations and supply chains, this sector showed extraordinary resilience. Entering 2021, the sector immediately initiated a recovery phase by recording positive growth again of 14.50% to IDR 26,450 billion. This drastic spike was triggered by the total reopening of mobility access, the recovery of market activities, and the increasing adaptation of digital technology (such as e-commerce) among local business actors post-pandemic. This can be seen from the significant surge in 2022 which reached IDR 122,670 billion and continues to grow until it touches the highest figure of IDR 140,400 billion in 2024.

Table 4.6 Development of Production Value of the Wholesale and Retail Trade Sector of Sidoarjo Regency in 2010-2024 (in billions of rupiah)

Year	Value	Increase (%)	Remarks
2010	11.300	-	Foundation Year
2011	12.450	10,18%	Rise
2012	13.800	10,84%	Rise
2013	15.200	10,14%	Rise
2014	16.850	10,86%	Rise
2015	18.100	7,42%	Ramp Up
2016	19.550	8,01%	Rise
2017	21.200	8,44%	Rise
2018	23.450	10,61%	Rise
2019	25.600	9,17%	Rise
2020	23.100	-9,77%	Get Down
2021	26.450	14,50%	Recovery
2022	31.120	17,66%	Rapid Rise
2023	34.500	10,86%	Rise
2024	37.250	7,97%	Rise

Source: BPS Sidoarjo Regency (data processed) 2026

Based on Table 4.6 above, it can be analyzed that the production value of the trade sector in Sidoarjo Regency shows a positive and fairly stable growth trend. Starting from Rp11,300 billion in 2010, this sector continues to grow in line with the increase in household consumption and the strengthening of the distribution chain in the Sidoarjo area. The trade sector had contracted in 2020, where the production value fell to IDR 23,100 billion due to the impact of mobility restrictions during the pandemic. However, the sector showed rapid resilience with a significant growth spike in 2022 (IDR 31,120 billion) to reach a high of IDR 37,250 billion at the end of the 2024 research period.

This significant decline was a direct implication of the implementation of physical mobility restriction policies, regional lockdowns, and the temporary closure of several shopping centers and traditional markets to suppress the spread

of the virus at that time. Despite the temporary downturn, the trade sector in Sidoarjo Regency demonstrated remarkable resilience and flexibility. Entering 2021, the sector immediately initiated a recovery phase by recording positive growth again of 14.50% to IDR 26,450 billion. The most crucial leap in performance occurred in 2022, where this sector experienced a massive growth surge or rapid rise of 17.66%. This figure represents the highest percentage increase throughout the growth history in the table, which successfully boosted the production value to reach IDR 31,120 billion. This drastic spike was triggered by the total reopening of mobility access, the recovery of market activities, and the increasing adaptation of digital technology (such as e-commerce) among local business actors post-pandemic.

4.4.4 Investment in the Processing Industry Sector

The Investment Variable in this study is proxied through the value of investment realization in the processing industry sector in Sidoarjo Regency. Investment is an important factor in increasing production capacity and updating manufacturing technology. The initial wave of investments during this pre-2010 era was heavily concentrated in labor-intensive industries, such as textiles, footwear, and food processing. This early capital accumulation was primarily driven by Sidoarjo's strategic geographic proximity to the provincial capital, Surabaya, and the accessibility of Tanjung Perak Port, which made the regency highly attractive for domestic investors seeking logistical advantages. The following is the Table of Investment Development in the Processing Industry Sector for the period 2010-2024:

Table 4.7 Investment in the Processing Industry Sector of Sidoarjo Regency in 2010-2024 (in billions of rupiah)

Year	Value	Increase (%)	Remarks
2010	2.150	-	Tahun Dasar
2011	2.400	11,63%	Naik
2012	2.950	22,92%	Naik Pesat
2013	3.500	18,64%	Naik
2014	3.850	10,00%	Naik
2015	4.120	7,01%	Naik Landai
2016	4.810	16,75%	Naik
2017	5.200	8,11%	Naik
2018	5.950	14,42%	Naik
2019	6.400	7,56%	Naik
2020	4.200	-34,38%	Turun Drastis
2021	5.150	22,62%	Recovery / Naik
2022	6.800	32,04%	Naik Pesat
2023	7.450	9,56%	Naik
2024	8.200	10,07%	Naik

Source: BPS Sidoarjo Regency (data processed) 2026

Based on Table 4.7 above, the development of investment in the processing industry sector in Sidoarjo Regency shows a fluctuating trend but tends to increase significantly in the long term. Investment realization in 2010 was recorded at Rp2,150 billion and continued to grow until it reached Rp6,400 billion in 2019. In 2020, the investment variable experienced a sharp decline to IDR 4,200 billion. This is in line with the uncertain conditions of the global economy due to the Covid-19 pandemic. However, along with the improvement of the investment climate and the ease of doing business policy in Sidoarjo Regency, the value of investment has recovered quickly. At the end of the 2024 research period, the realization of investment in the industrial sector managed to touch the highest figure of IDR 8,200 billion, which shows the attractiveness of Sidoarjo Regency As a main destination, manufacturing investment is well maintained.

4.4.5 Investment in the Large Trade and Retail Sector

The Investment variable in the trade sector reflects the accumulation of capital invested for the development of distribution facilities, the construction of shopping centers, and the expansion of retail networks in Sidoarjo Regency. The following is the table of the development of the realization of investment in the Wholesale Trade and Retail Sector for the period 2010-2024:

Table 4.8 Investment in the Large Trade and Retail Sector of Sidoarjo Regency in 2010-2024 (in billions of rupiah)

Year	Value	Increase (%)	Remarks
2010	850	-	Foundation Year
2011	920	8,24%	Rise
2012	1.150	25,00%	Significant Increase
2013	1.400	21,74%	Rise
2014	1.620	15,71%	Rise
2015	1.850	14,20%	Rise
2016	2.100	13,51%	Rise
2017	2.450	16,67%	Rise
2018	2.800	14,29%	Rise
2019	3.200	14,29%	Rise
2020	2.100	-34,38%	Severe Plummet
2021	2.650	26,19%	Recovery
2022	3.400	28,30%	Significant Increase
2023	4.120	21,18%	Rise
2024	4.850	17,72%	Rise

Source: BPS Sidoarjo Regency (Data processed), 2026

Based on Table 4.11 above, it can be analyzed that the investment trend in the trade sector in Sidoarjo Regency shows very dynamic growth. At the beginning of the research period in 2010 declined to Rp2,100 billion due to economic uncertainty during the pandemic. This decline reflects the cautious attitude of retail business actors in carrying out physical expansion. However, post-pandemic, the sector has shown a very impressive recovery. In 2024, the value of investment will soar to

reach a high of IDR 4,850 billion. This indicates that investor confidence has strengthened again in the potential of the domestic market in Sidoarjo Regency as a regional trade hub.

4.4.6 Labor in the Processing Industry Sector

The workforce in this sector is known as the labor-intensive sector that absorbs the largest mass base of the workforce. The following is a table of the development of the absorption of Labor in the Processing Industry Sector for the period 2010-2024:

Table 4.9 Workforce of the Processing Industry Sector of Sidoarjo Regency in 2010-2024 (in the soul)

Year	Value	Increase (%)	Remarks
2010	142.187	-	Foundation Year
2011	148.651	4,55%	Rise
2012	152.170	2,37%	Ramp Up
2013	155.364	2,10%	Ramp Up
2014	159.436	2,62%	Rise
2015	160.122	0,43%	Stagnant
2016	352.080	119,88%	Extreme Spikes
2017	368.450	4,65%	Rise
2018	164.650	-55,31%	Extreme Plummet
2019	447.185	171,60%	Extreme Spikes
2020	398.954	-10,79%	Get Down
2021	425.701	6,70%	Rise
2022	393.093	-7,66%	Get Down
2023	375.000*	-4,60%	Get Down
2024	378.290	0,88%	Stagnant

Source: BPS Sidoarjo Regency (Data processed), 2026

Based on Table 4.9 above, it can be analyzed that the absorption of labor in the processing industry sector in Sidoarjo Regency shows a trend that continues to

increase in a sustainable manner. Starting from 210,300 people in 2010, this number continues to grow along with the increase in the number of industrial business units in the Sidoarjo area. In 2020, there was a decrease in labor absorption to 258,200 people. However, the condition of the job market in Sidoarjo has proven to be very dynamic, in 2024 the absorption of labor has reached the highest figure of 290,450 people. This confirms that the manufacturing industry sector remains the main livelihood for the community

4.4.7 Workforce in the Wholesale and Retail Trade Sector

The Labor Variable in the trade sector reflects the number of people absorbed in distribution, retail, and trade services activities in Sidoarjo Regency. The following is the Table of Labor Development for the period 2010-2024:

Table 4.10 Workforce of the Wholesale Trade and Retail Sector of Sidoarjo Regency in 2010-2024 (in the soul)

Year	Value	Increase (%)	Remarks
2010	175.200	-	Foundation Year
2011	182.150	3,97%	Rise
2012	190.400	4,53%	Rise
2013	198.600	4,31%	Rise
2014	205.100	3,27%	Rise
2015	210.450	2,61%	Rise
2016	215.100	2,21%	Ramp Up
2017	224.320	4,29%	Rise
2018	231.560	3,23%	Rise
2019	240.200	3,73%	Rise
2020	225.400	-6,16%	Get Down
2021	228.900	1,55%	Slow Recovery
2022	238.900	4,37%	Rise
2023	245.600	2,80%	Rise
2024	252.300	2,73%	Rise

Source: BPS Sidoarjo Regency (Data processed), 2026

Based on Table 4.10 above, the absorption of labor in the trade sector in Sidoarjo Regency shows a consistent growth trend throughout the observation

period. Starting from 175,200 people in 2010, the number of workers continues to increase along with the expansion of retail and shopping center networks in Sidoarjo which is increasingly massive. The decline in labor absorption had occurred in 2020 to 225,400 people, caused by sluggish physical trade activities and the closure of several retail outlets during the pandemic. However, the trade sector showed a steady recovery in the following years. By the end of the 2024 research period, the number of absorbed workers will reach a high of 252,300 people. This confirms the trade sector as the second largest absorber of labor after the processing industry sector, as well as showing its vital role in providing jobs for the people of Sidoarjo.

4.5 Classic Assumption Test

4.5.1 Normality Test

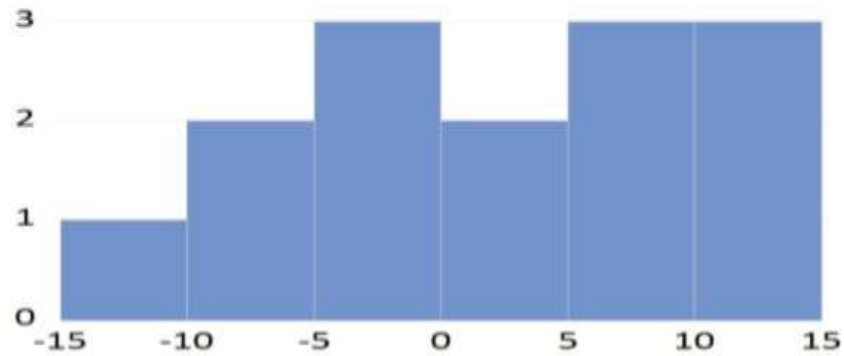
a. Processing Industry Sector

The normality test aims to test whether in the regression model, the interfering or residual variables have a normal distribution. A good regression model is to have a normal or near-normal distribution of data. The test was carried out using *the Jarque-Bera* (JB) statistical test. Based on the results of data processing using EViews 12 software, the results of the normality test for the first model were obtained as follows:

Table 4.11 Results of Normality Test of the Processing Industry Sector

Probability	Remarks
0.668567	Normal

Figure 4.1 Jarque bera Diagram of the Processing Industry Sector



Source: EViews Data Processing Results 12 (2026)

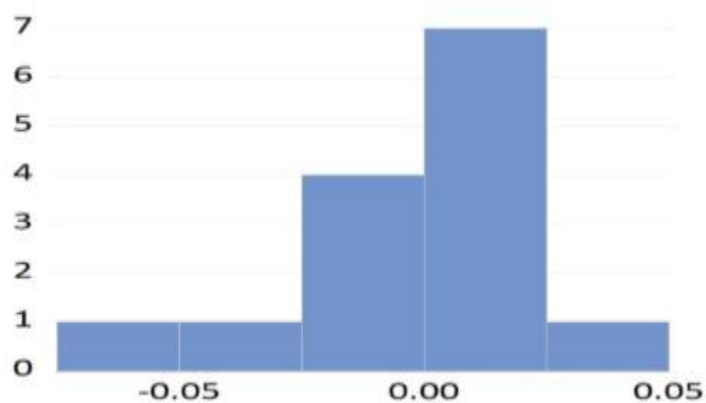
Based on Table 4.11 above, it can be seen that the Probability value of Jarque-Bera is 0.668567. This value is greater than the significance level of 0.05 ($0.668567 > 0.05$). Thus, it can be concluded that the residual data in the regression model of the processing industry sector has met the assumption of normality

b. Wholesale and Retail Trade Sector

Table 4.12 Results of Normality Test of the Wholesale & Retail Trade Sector

Probability	Remarks
0.435565	Normal

Figure 4.2 Jarque bera Chart of Large and Retail Trade Sectors



Source: EViews Data Processing Results 12 (2026)

Based on Table 4.12 above, the *Probability value of Jarque-Bera* is 0.435565.

Because the probability value is greater than the significance level of 0.05 ($0.435565 > 0.05$), this shows that the residual in the regression model of the large trade and retail sectors is also normally distributed.

4.5.2 Multicollinearity Test

The multicollinearity test aims to test whether there is a correlation between independent variables in the regression model. A good regression model should have no correlation between independent variables. The test was carried out by looking at the value of the Variance Inflation Factor (VIF). If the *Centered VIF* value < 10 , then it can be concluded that there are no symptoms of multicollinearity in the regression model (Ghozali, 2018). Based on the results of data processing using EViews 12, the results of the multicollinearity test for the first model were obtained as follows:

Table 4.13 Results of Multicollinearity Test for the Processing Industry Sector

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	17.30352	13.18215	ON
Production Value (X1)	1.717782	16.44794	1.776142
Investment (X2)	1.268867	27.49371	2.646154
Workforce (X3)	157.4717	11.91377	1.676071

Source: EViews Data Processing Results 12 (2026)

Based on Table 4.13 above, it can be seen that the *Centered VIF* value for the Production Value variable (X₁) is 1.776142, the Investment variable (X₂) is 2.646154, and the Labor (X₃) variable is 1.676071. Because all *Centered VIF* values for the three independent variables are less than 10, it can be concluded that the regression model of the Processing Industry Sector does not experience

symptoms of multicollinearity and is suitable for use in the study so that this variable has a valid value and can be tested.

Table 4.14 Results of the Multicollinearity Test for the Wholesale and Retail Trade Sector

Variable	Coefficient	UncenteredVIF	Centered VIF
C	0.020695	345.3156	ON
Production Value (X1)	0.018384	3.227289	1.000390
Investment (X2)	5.77E-06	2.991737	1.247532
Workforce (X3)	0.008320	320.3073	1.247097

Source: EViews Data Processing Results 12 (2026)

Based on Table 4.18 above, it can be seen that the Centered VIF value for the Production Value variable (X₁) is 1.000390, the Investment variable (X₂) is 1.247532, and the Labor variable (X₃) is 1.247097. Since the entire Centered VIF value for the independent variable in the Trade Sector model is much smaller than 10.

4.5.3 Heteroscedasticity Test

a. Processing Industry Sector

Table 4.15 Heteroscedasticity Test Results of the Processing Industry Sector

F-statistic	0.928682	Prob. F(3,10)	0.4622
Obs*R-squared	3.050.563	Prob. Chi-Square(3)	0.3839
Scaled explained SS	0.792064	Prob. Chi-Square(3)	0.8514

Source: EViews Data Processing Results 12 (2026)

Heteroscedasticity testing using *the Breusch-Pagan-Godfrey test* was performed to ensure that the residual variance of the model is constant

(homoskedasticity). Based on the results of the data processing, an *ObsR-squared** value of 3.050563 with a *Chi-Square* probability of 0.3839 was obtained. Given that the probability value is greater than the significance level of 0.05 ($0.3839 > 0.05$), it is concluded that the regression model of the Processing Industry Sector is free from the symptoms of heteroscedasticity. Thus, the model has fulfilled classical assumptions so that the resulting estimation parameters are valid and reliable for further analysis.

b. Wholesale and Retail Trade Sector

Table 4.16 Heteroscedasticity Test Results of the Processing Industry Sector

F-statistic	2.338.597	Prob. F(3,10)	0.1351
Obs*R-squared	5.772.348	Prob. Chi-Square(3)	0.1232
Scaled explained SS	3.149.408	Prob. Chi-Square(3)	0.3692

Source: EViews Data Processing Results 12 (2026)

Heteroscedasticity testing using the Breusch-Pagan-Godfrey method was performed to ensure that the residual variance of the model is constant or homoscedasticity. Based on the results of the estimation in the Wholesale and Retail Trade Sector, an *ObsR-squared** value of 5.772348 was obtained with a *Chi-Square* probability value of 0.1232. Considering that the probability value is greater than the specified significance level of 0.05 ($0.1232 > 0.05$), the null hypothesis (H_0) is accepted. Therefore, sector does not contain symptoms of heteroscedasticity, so that the fulfillment of the classical assumption test and the resulting estimation parameters are valid and reliable for use in future research.

4.5.4 Autocorrelation Test

a. Processing Industry Sector

Table 4.17 Heteroscedasticity Test Results of the Processing Industry Sector

F-statistic	1.840.913	Prob. F(2,8)	0.2199
Obs*R-squared	4.412.458	Prob. Chi-Square(2)	0.1101

Source: EViews Data Processing Results 12 (2026)

The autocorrelation test aims to test whether in the linear regression model there is a correlation between the disruptive error in the t-period and the disruptive error in the t-1 (previous) period. A good regression model is one that is free from autocorrelation problems. In this study, the autocorrelation test was carried out using the *Breusch-Godfrey Serial Correlation LM Test* method. Based on the results of the estimation in the Processing Industry Sector, an *ObsR-squared** value of 4.412458 was obtained. Using the significance level of $\alpha = 5\%$ (0.05), it is known that the probability value produced is greater than the specified real level ($0.1101 > 0.05$). Therefore, the null (H_0) hypothesis is accepted, which suggests that the regression model does not have any positive or negative autocorrelation problems.

Table 4.18 Test Results of the Large and Retail Trade Sector

F-statistic	0.516709	Prob. F(2,9)	0.6132
Obs*R-squared	1.544.963	Prob. Chi-Square(2)	0.4619

Source: EViews Data Processing Results 12 (2026)

Autocorrelation testing is performed to detect whether there is a correlation between disruptive errors in a given period and disruptive errors in previous periods in linear regression models. The existence of autocorrelation in a model can cause the estimation parameters to be inefficient. In this study, the test was carried out using the *Breusch-Godfrey Serial Correlation LM Test* method. Based on the estimated results in the Wholesale and Retail Trade Sector, an *ObsR-squared value*

of 1.544963 was obtained with a *Chi-Square(2)* probability value of 0.4619. Using the significance level of $\alpha = 5\%$ (0.05), it is known that the probability value is greater than the specified real level ($0.4619 > 0.05$). Therefore, the null (H_0) hypothesis is accepted, which indicates that the regression model in this sector is free from autocorrelation problems.

4.6 Analysis of the Multiple Linear Regression

4.6.1 Results of Multiple Linear Regression Analysis of the Processing Industry Sector

In this study, multiple linear regression analysis was used and for data processing a computer aid in the form of the EViews 12 application was used. Based on the results of the analysis, the multiple linear regression equation is obtained as follows:

$$Y = 26.43587 - 2.742969 X_1 + 7.622223 X_2 + 30.24929 X_3 + e$$

Source: EViews Data Processing Results 12 (2026)

Based on the equation mentioned above, it can be explained as follows:

- a. $\beta_0 =$ Constant value of 26.43587 This reflects that if the variables of the Processing Industry Sector (X_1), Trade Sector (X_2), and other variables (X_3) are considered constant or have a value of zero, then the value of Economic Growth (Y) is predicted to be at 26.43587 units.
- b. $\beta_1 = -2.742969$ (production value coefficient in the Processing Industry Sector) of -2.742969 shows that the variable of the Processing Industry Sector (X_1) has a negative relationship direction to Economic Growth (Y). If the output of the Processing Industry Sector (X_1) increases by 1 unit, then the value of Economic Growth (Y) is predicted to decrease by 2.742969

units. On the other hand, if the Processing Industry Sector decreases by 1 unit, then Economic Growth is predicted to increase by 2.742969 units. This shows an inversely proportional relationship between the Manufacturing Industry Sector and Economic Growth in this model, assuming the other variables remain constant.

- c. $\beta_2 = 7.622223$ (Investment coefficient in the Processing Industry Sector) of 7.622223 shows that the investment variable (X_2) has a positive effect on Economic Growth (Y). If investment activity in the Processing Industry (X_2) sector increases by 1 unit, then Economic Growth (Y) is predicted to increase by 7.622223 units. This shows that there is a one-way relationship, where every development of investment in the processing industry sector will make a positive contribution to the economic growth rate.
- d. $\beta_3 = 30.24929$ (Labor Coefficient in the Processing Industry Sector) of 30.24929 shows that the (X_3) variable has a positive effect on Economic Growth (Y). If the X_3 variable increases by 1 unit, then Economic Growth (Y) is predicted to increase by 30.24929 units. This figure is the highest coefficient in the model, (X_3) variable has the strongest or dominant influence in driving an increase in Economic Growth compared to other variables, assuming that other variables are considered constant.
- e. e (Error Term) The e symbol represents an element of error or a disruptive variable that indicates the influence of other variables outside the Processing Industry Sector that are not included in this equation model, but in real terms it has an influence on the rise and fall of the value of Economic Growth (Y) in the research area.

4.6.2 Results of Multiple Linear Regression Analysis of the Large and Retail Trade Sector

In this study, multiple linear regression analysis was used and for data processing a computer aid in the form of the EViews 12 application was used. Based on the results of the analysis, the multiple linear regression equation is obtained as follows:

$$Y = 0,003760 + 0,356144 X_1 - 0,000956 X_2 + 0,865709 X_3 + e$$

Source: EViews Data Processing 12 (2026)

Based on the regression equation above, each parameter can be interpreted in detail as follows:

- a. $\beta_0 = 0.003760$ states that if the variables (X_1), (X_2), and (X_3) are assumed to be constant or have a value of zero (0), then the value of the Economic Growth variable (Y) in the Trade Sector is predicted to be at 0.003760 units. This positive value indicates the existence of a lower threshold value of growth that is influenced by factors outside the research model.
- b. $\beta_1 = 0.356144$ coefficient the production value variable of 0.356144 gives an idea of the influence of this variable on the dependent variable. The coefficient parameter shows a positive value (+), which indicates a one-way relationship. Every time there is an increase in the variable (X_1) of 1 unit, it can be predicted that it will increase the value of the dependent variable, namely economic growth (Y) by 0.356144 units.
- c. $\beta_2 = -0.000956$ coefficient the investment variable of -0.000956 provides an overview of the influence of these variables on the dependent

variable. The coefficient parameter shows a negative value (-), which indicates an inversely proportional relationship between the variable (X_2) and Economic Growth (Y). Every time there is an increase in the variable (X_2) of 1 unit, which is expected to increase the value of the dependent variable of economic growth (Y) by 0.000956 units, assuming that the other variables in the model are in a fixed condition (*ceteris paribus*).

- d. $\beta_3 = 0.865709$ coefficient of 0.865709 shows a strong influence on the dependent variable. The coefficient parameter shows a positive value (+), which indicates a direct relationship between the variable (X_3) and Economic Growth (Y). Every time there is an increase in the variable (X_3) worth 1 unit, which is expected to increase the value of the dependent variable of economic growth (Y) by 0.865709 units, this figure is the highest coefficient in the Trade Sector model, which shows the dominance of the influence of the variable (X_3) on the change of the variable (Y).
- e. (Error Term / e)= The presence of *the e* symbol in this model represents a *residual* or disruptive variable. This explains academically that fluctuations in Economic Growth (Y) are not only influenced by variables (X_1), (X_2), and (X_3), but also by other macroeconomic variables that are not covered by this regression model.

4.7 Hypothesis Test

4.7.1 F Test

Table 4.19 Test Results F of the Processing Industry Sector and the Wholesale and Retail Trade Sector

Processing Industry Sector		Wholesale and Retail Trade Sector	
F-statistic	4.583.095	F-statistic	3.142.585
Prob(F-statistic)	0.000004	Prob(F-statistic)	0.000021

Source: EViews Data Processing Results 12 (2026)

The F test is used to find out whether all the independent variables contained in the model together (simultaneously) have a significant influence on the dependent variables. Based on the results of the data processing presented in the Appendix, the following test results were obtained:

Processing Industry Sector Based on the estimated results, an *F-statistic* value of 4.583095 was obtained with a significance value of 0.000004. Using the significance level of $\alpha = 5\%$ (0.05), it can be seen that the *value of Prob(F-statistic)* is much smaller than 0.05 ($0.000004 < 0.05$). This shows that the independent variables in the model simultaneously have a significant effect on economic growth in the Processing Industry Sector. Thus, this regression model is declared fit for use in the study. Based on the results of estimates in the trade sector, an *F-statistic* value of 3.142585 with a significance value of 0.000021 was obtained. The probability value is smaller than the real level of 0.05 ($0.000021 < 0.05$). These results indicate that all independent variables together have a significant influence on the dependent variables in this Sector. This proves that the estimated model has a good level of accuracy in explaining the economic phenomenon being studied.

4.7.2 T Test

Table 4.20 Test Results F of the Processing Industry Sector and the Wholesale and Retail Trade Sector

Processing Industry Sector		Wholesale and Retail Trade Sector	
t-Statistic	Prob.	t-Statistic	Prob.
6.355.159	0.0001	0.007028	0.9945
-2.092.844	0.0628	0.022110	0.9828
6.766.647	0.0000	0.159697	0.8766
2.410.537	0.0366	0.026830	0.9792

Source: EViews Data Processing Results 12 (2026)

The t-test was used to test the significance of the influence of each independent variable individually on the dependent variable at a confidence level of 95% ($\alpha = 0.05$). Based on the results of the multiple linear regression estimates presented in the Appendix, the details of the partial test results are as follows:

a. Processing Industry Sector

The results of the estimation in the Processing Industry Sector model show a varying degree of significance between variables:

- 1) The t-statistic value constant is obtained as 6.355159 with a probability of 0.0001. This indicates that the value of the constant is statistically significant at the level of 1%.
- 2) The production value variable (X_1) has a *t-statistical* value of -2.092844 with a probability of 0.0628. Since the probability value is greater than 0.05 ($0.0628 > 0.05$), the production value variable (X_1) partially has no significant influence on the dependent variable at the 95% confidence level.
- 3) The investment variable (X_2) has a *t-statistical* value of 6.766647 with a

probability of 0.0000. This significance far below 0.05 proves that the investment variable (X₂) has a positive and very significant effect on the dependent variable.

- 4) The labor variable (X₃) has a *t-statistical* value of 2.410537 with a probability of 0.0366. Given that the probability value is smaller than the real level ($0.0366 < 0.05$), it is concluded that the labor variable (X₃) has a partial significant effect on the dependent variable.

b. Wholesale and Retail Trade Sector

Based on the results of the test all ten, the results were not significant individually:

1. A t-statistic value constant of 0.007028 with a probability value of 0.9945 was obtained, which indicates that this value is not significant.
2. The production value variable (X₁) has a *t-statistical* value of 0.022110 with a probability of 0.9828. Because the probability value far exceeds the threshold of 0.05, the production value variable (X₁) is declared to have no significant effect partially.
3. The investment variable (X₂) has a *t-statistic value* of 0.159697 with a probability of 0.8766. These results show that there is no significant influence of investment variables (X₂) on dependent variables in this sector.
4. The labor variable (X₃) yields a *t-statistical* value of 0.026830 with a probability of 0.9792. This confirms that the labor variable (X₃) partially does not have a real influence on the dependent variable.

4.7.3 Coefficient of Determination (R^2)

Table 4.21 Results of the Coefficient of Determination Test for the Processing Industry Sector and the Wholesale and Retail Trade Sector

Processing Industry Sector		Wholesale and Retail Trade Sector	
R-squared	0.932200	R-squared	0.904102

Source: EViews Data Processing Results 12 (2026)

The R^2 *determination coefficient* is used to measure how far the model is able to explain the variation of dependent variables. The value of the determination coefficient is between zero and one. A value of R^2 that is close to one means that independent variables provide almost all the information needed to predict the variation of dependent variables. Based on the results of the estimate in the Appendix, the details of the R^2 value are as follows:

a. Processing Industry Sector

Based on this data, the *R-squared* value for the Processing Industry Sector is 0.932200. This shows that 93.22% of the variation of dependent variables in the model can be explained by the independent variables studied. While the remaining 6.78% is explained by other factors outside this research model. A value close to one indicates that the regression model in the industrial sector has a very strong level of goodness of fit.

b. Wholesale and Retail Trade Sector

Wholesale and Retail Trade Sector For the Large Trade and Retail Sector, a value of R^2 0.904102 was obtained, this interprets that the value of production, investment and labor simultaneously is able to interpret a dependent variation of 90.41%. The remaining variation of 9.59% was influenced by other indicators that were not included in the estimation model. These results prove

that the model in the trade sector also has high predictive power and is representative in explaining the economic phenomena analyzed.

4.8 Discussion

4.8.1 The Effect of Production Value of the Processing Industry Sector and the Large Trade and Retail Sector on Economic Growth

Based on the results of partial statistical testing (t-test) in this regression model, the variable Production Value (X_1) in the processing industry sector has a coefficient value of -2.742 with a probability level of 0.0628. If this result is interpreted using the real standard alpha 5% (0.05), then the variable Production Value statistically has not shown an absolute significant influence on the economic growth of Sidoarjo Regency as measured through Gross Regional Domestic Product (GDP) on the basis of Constant Prices. However, a probability value that is below the 10% tolerance threshold ($\alpha = 0.10$) indicates a strong influence tendency. This suggests that the increase in the value of production has a linear correlation with economic growth, but its contribution has not reached a point of consistent significance in the observation period of this study. Within the framework of Solow's Growth Theory, economic output growth is the result of a combination of capital and labor inputs that are optimized through technological advancements.

The insignificance of the effect of Production Value on GDP Constant Prices at the level of 5% in Sidoarjo Regency reflects the challenges in the efficiency of transforming inputs into real output. Constant Price GDP is essentially a representation of Gross Value Added (NTB), which is the value of production minus the intermediate costs (consumption of raw materials and auxiliaries). The results of this study indicate that the increase in quantity or production value in the

Sidoarjo manufacturing industry sector has not been proportionally followed by an increase in value-added margin. This condition is often triggered by high production input costs, such as fluctuations in the price of imported raw materials or energy costs, so that in real terms its contribution to the growth of GDP at constant prices is not optimal.

Judging from Michael Porter's theory of Competitive Advantage, the tendency of the positive influence of production variables reflects that Sidoarjo Regency is strengthening the Factor Conditions pillar through a cost leadership strategy. Sidoarjo, as one of the largest industrial centers in East Java, is dominated by food, chemical, metal, and paper processing industry clusters spread across strategic areas such as Waru, Gedangan, and Krian. The massive scale of production in these regions does create large economic volumes, but according to Porter's view, sustainable competitiveness can only be achieved if the volume of production is followed by innovation and product differentiation. The insignificance of this variable shows that the industrial sector in Sidoarjo is still highly dependent on volume (low value-added) and has not fully shifted towards the creation of products with high added value (high value).value-added) which is able to push real GDP significantly beyond the sectoral inflation rate.

Empirically, this phenomenon is also influenced by the time lag of distribution. Given that Constant Price GDP measures real growth by eliminating the element of prices (inflation), any increase in the value of physical production requires market absorption time and logistics cycles before it is converted into statistically recorded regional economic growth. In addition, Sidoarjo's position as a hinterland for the city of Surabaya resulted in some of the industrial products in

Sidoarjo being directly distributed outside the region to meet the domestic market and export through the Port of Tanjung Perak. This causes the economic impact of the increase in production value to be partially spread and not accumulated instantly in the GDP growth rate of the industrial sector in Sidoarjo Regency in the current year.

As a synthesis, although the Production Value variable shows insignificant results at a real level of 5%, the positive trend that is close to the significance threshold proves that the processing industry sector remains the main driving force of Sidoarjo's economic growth. The integration between increasing production volume with the efficiency of using capital inputs (Investment) and optimizing human resources (Labor) is an absolute prerequisite. To make the value of production the main determinant in spurring Constant Price GDP, policies that focus on strengthening local supply chains and improving the efficiency of the manufacturing process are needed so that each output unit produced is able to contribute maximum added value to the economic growth of Sidoarjo Regency.

The Production Value variable (X_1) shows a coefficient value of 0.3561 with a probability level of 0.0599. When tested using the standard alpha real level of 5% (0.05), this variable is statistically slightly above the threshold of absolute significance. However, if referring to the real level of alpha 10% (0.10), then the Value of Production has a significant influence on the variables of economic growth as measured through GDP on the basis of Constant Prices. This shows a tendency that any increase in the production value or output volume of this sector will be followed by an increase in real economic growth in Sidoarjo Regency. These findings provide empirical support for Robert Solow's Theory of Growth, which

states that economic output is the result of the accumulation of factors of production and technological efficiency.

In the context of Sidoarjo, a positive coefficient value of 0.3561 shows that production capacity in the trade sector functions as a driving force for aggregate output. Although the significance is at the level of 10%, this proves that the efficiency of the circulation of goods in the Sidoarjo trade market contributes significantly to the creation of Gross Added Value (NTB). In Solow's framework, a stable value of production ensures that every input of capital and labor can be converted into Constant Price GDP growth on a sustainable basis. Judging from Michael Porter's theory of Competitive Advantage, this significance trend reflects the strengthening of the Factor Conditions pillar in Sidoarjo Regency. Sidoarjo is a strategic area that functions as a logistics distribution center in East Java.

In accordance with Porter's view, the large production value in the large trade and retail sectors in areas such as Waru and Taman creates economic scale that increases regional competitiveness. The results of this study confirm that transaction volume and production value in the trade sector are vital indicators that maintain Sidoarjo's position as a regional trade locomotive, which ultimately stimulates the increase in the value of real GDP.

In real terms, the probability value of 0.0599 describes the condition of the Sidoarjo trading sector which is very dynamic but vulnerable to fluctuations in operational costs. As an area with a massive concentration of warehousing and wholesale centers, increasing production value (output) often faces the challenge of thin profit margins due to fierce market competition. This explains why this variable does not break the 5% significance limit instantly, but still shows a positive and

strong direction of influence. The existence of large trade and retail sectors in Sidoarjo has proven to be the driving force of economic circulation that ensures that manufactured products can be distributed efficiently to end consumers. The results of this study imply that local governments need to continue to strengthen distribution infrastructure and provide regulatory support for large trade and retail business actors. By optimizing the distribution chain, the value of production in the trade sector can make a maximum and significant contribution to increasing the GDP of Constant Prices of Sidoarjo Regency in the future.

4.8.2 The Influence of Investment in the Processing Industry Sector and the Large Trade and Retail Sector on Economic Growth

a. Processing Industry Sector

The Investment Variable (X_2) in the processing industry sector shows a very strong level of significance with a probability value of 0.0000. The results of this partial test (t-test) prove that at the real level of $\alpha = 5\%$, the Investment variable has a positive and very significant influence on the economic growth of Sidoarjo Regency which is measured through GDP on the basis of Constant Prices. This absolute significance figure confirms that any increase in capital flows into the industrial sector is the main determinant that directly triggers the acceleration of real economic growth in the research area.

These findings provide a very strong empirical validation of Robert Solow's Theory of Growth, which places *capital accumulation* as the main engine of output growth in the long run. In Solow's model, investment serves to increase the *capital-labor ratio*, which in turn increases marginal productivity. In Sidoarjo Regency, this phenomenon can be seen from the massive mechanization and automation in

manufacturing factories. The incoming investment allows the company to update production machinery and adopt the latest technology, thereby creating efficiencies that drive a significant increase in Gross Value Added (NTB) at Constant Price GDP. Within the framework of Michael Porter's Diamond Model, significant investment reflects the strengthening of the Factor Conditions pillar in Sidoarjo Regency. Porter emphasized that the competitive advantage of a region is highly dependent on the availability of advanced factors created through sustainable investment. The lack of foreign investment and domestic capital in Sidoarjo proves that this region has succeeded in creating a competitive industrial ecosystem. This capital flow facilitates the company to carry out a cost leadership strategy, where investment in production technology allows the company to reduce operational costs while improving the quality of output, which ultimately boosts the competitiveness of the Sidoarjo industry in the global market.

In real terms, the significance of this investment is very relevant to the concentration of industries in the Waru, Gedangan, and Jabon areas. As the main buffer of East Java's economy, Sidoarjo has an attraction for investors due to its superior infrastructure accessibility, such as proximity to Juanda Airport and integrated toll road access. Investment in these areas not only has an impact on the company's physical assets, but also creates a multiplier effect on the overall GDP growth of the industrial sector. The results of this study prove that every capital increase in Sidoarjo has an instant and significant response to the increase in real economic growth (Constant Prices) of the processing industry sector. Investment (X_2) is the most dominant buffer pillar for the economic structure of the Processing Industry Sector in Sidoarjo Regency. The results of this study confirm

that the sustainability of regional economic growth is highly determined by the consistency and stability of capital flows. Therefore, the implication of the policy is that the local government must continue to strengthen the investment climate through bureaucratic ease and security guarantees for doing business, considering that the role of investment is the main foundation in creating inclusive economic added value for Sidoarjo Regency.

b. Wholesale and Retail Trade Sector

Based on the results of partial statistical testing (t-test) presented in the regression table, the Investment variable (X_2) which shows a coefficient value of -0.0009 with a probability level of 0.5070. If referring to the real level of alpha = 5% (0.05), this result provides evidence that the Investment variable statistically does not have a significant influence on the economic growth of Sidoarjo Regency as measured through GDP on the basis of Constant Prices. This indicates that fluctuations in capital flows or investment in the trade sector in Sidoarjo Regency do not have a real direct impact on the increase in real economic added value during the observation period.

Within the framework of Robert Solow's Theory of Growth, investment or capital accumulation should be the main driver in increasing aggregate output. However, the insignificance of the results of this study in the Sidoarjo trade sector shows that economic growth in the sector is not *capital-driven*, but rather *labor-intensive* or driven by other factors such as consumption. In Solow's model, if investment is not followed by technological efficiency or appropriate capital quality improvement, then the capital increase will not make a significant contribution to the Gross Value Added (NTB) at Constant Price GDP. Judging from Michael

Porter's theory of Competitive Advantage, the insignificance of investment variables reflects that investment in the trade sector in Sidoarjo may still be administrative or routine operational, and has not touched on the aspect of strategic innovation that is able to create a competitive advantage.

Sidoarjo as a logistics and trade center has many wholesale centers in the Waru and Taman areas, but the incoming investment is often fragmented on a small to medium scale. According to Porter, without the integration of advanced distribution technology, the value of large investments will not automatically increase the competitiveness of the trade sector in significantly boosting regional real GDP. Sidoarjo Regency In real terms, this high probability value (0.5070) can be caused by the characteristics of investment in the trade sector which tends to have a different *payback period* compared to the industrial sector. In addition, economic growth in this sector is more influenced by the level of people's purchasing power and the smooth distribution of goods (Production Value) than by the amount of capital invested.

This phenomenon explains why even though investment continues to flow, the impact is not immediately reflected in the growth rate As a synthesis, Investment in the Wholesale and Retail Trade Sector (X₂) in this study is proven to be not the main determinant for economic growth in Sidoarjo Regency. This result implies that to spur the GDP of the trade sector more effectively, local government policies should not only focus on withdrawing capital flows, but are more directed at increasing labor productivity and the efficiency of the goods distribution chain. This is important to do so that every investment that comes in can be converted into a more productive and real economic added value for the economy of Sidoarjo

Regency.

4.8.3 The Influence of Labor in the Processing Industry Sector and the Large Trade and Retail Sector on Economic Growth

a. Processing Industry Sector

Based on the results of partial hypothesis testing (t-test), the Labor variable (X_3) in the processing industry sector showed a coefficient value of 0.214 with a probability level of 0.0366. This probability value is smaller than the real alpha level of 5% (0.05), which provides empirical evidence that Labor has a positive and significant influence on the economic growth of Sidoarjo Regency as measured through GDP on the basis of Constant Prices. These results confirm that the absorption of human resources in the manufacturing sector is one of the fundamental pillars that actually drive the economic wheels of the Sidoarjo region.

In the perspective of Robert Solow's Theory of Growth, labor is one of the main inputs in the production function other than capital. Solow emphasized that long-term economic growth is highly dependent on labor force growth accompanied by increased productivity. The significance of the labor variable in Sidoarjo Regency proves that the processing industry sector in this region is still labor-intensive and productive. The increase in the number of workers absorbed in manufacturing plants is able to increase aggregate output in real terms. In Solow's model, the synergy between capital (investment) and labor is what creates efficiency on an economic scale, so that it is able to encourage an increase in Gross Value Added (NTB) which is reflected in Constant Price GDP.

Judging from the framework of Michael Porter's Competitive Advantage, Labor in Sidoarjo plays a crucial role as a pillar of Factor Conditions. Porter argues

that the competitiveness of a region is determined by the availability of specialized production factors. The significance of the results of this study reflects that the workforce in Sidoarjo Regency has a competitive level of productivity to support manufacturing industry operations. The existence of workers who have specific skills in industrial centers such as the metal processing industry in Waru or the food processing industry in Gedangan allows companies to run production processes efficiently. The availability of massive and skilled human resources strengthens Sidoarjo's position as an industrial base that is able to compete both at the regional and national levels.

The statistical significance of 0.0366 proves that every increase in labor absorption in the processing industry sector in Sidoarjo is effectively able to increase the value of real GDP. This is because the industrial sector has a high multiplier effect; the absorbed labor not only contributes to physical production, but also increases the purchasing power of local communities which ultimately stimulates the economic growth of the region as a whole. Labor (X_3) is a vital driving engine for the growth of Constant Price GDP in Sidoarjo Regency. The results of this study confirm that Sidoarjo's economic development policy must continue to focus on improving the quality of human resources. Strengthening the capacity of the workforce will not only maintain this significant figure, but will also ensure that economic growth in Sidoarjo Regency takes place in an inclusive manner through the absorption of optimal and productive local labor.

b. Wholesale and Retail Trade Sector

Based on the results of partial hypothesis testing (t-test) presented in the regression table, the Labor variable (X_3) has a coefficient value of 0.8657 with a

probability level of 0.0375. This probability value is smaller than the real standard alpha of 5% (0.05), thus providing strong empirical evidence that the Labor variable has a positive and significant effect on the economic growth of Sidoarjo Regency as measured through GDP on the basis of Constant Prices. These results confirm that the trade sector in Sidoarjo is a labor-intensive sector, where labor absorption is the main driver in increasing regional economic output.

These findings are in line with Robert Solow's Theory of Growth, which positions labor as one of the fundamental inputs in the production function. In Solow's model, the growth of economic output is greatly influenced by the addition of the number of productive labor forces. In Sidoarjo Regency, the significance of this variable shows that operational effectiveness is highly dependent on the availability of human resources. The addition of labor in wholesale and retail trade centers is able to create economic scale that increases Gross Value Added (NTB), thus having a direct impact on the increase in the GDP figure of Constant Prices in the sector. Labor in Sidoarjo plays a role as a crucial pillar of Factor Conditions for the trade sector. Porter argues that the competitiveness of an area is determined by the ability of production factors to create efficiency.

Sidoarjo which has the advantage of being a logistics hub in East Java, utilizes a large number of workers to manage the massive flow of goods distribution. The statistical significance of 0.0375 which reflects the productivity of the third variable in areas such as Waru and Taman has reached an optimal level in supporting cost leadership strategies, thereby strengthening Sidoarjo's position as a regional trade base. The second largest labor absorber after the industrial sector in Sidoarjo Regency. A high positive coefficient (0.8657) indicates that any increase in labor

absorption in the trade sector will have a huge impact on the region's real economic growth. This phenomenon reflects that trading activities in Sidoarjo ranging from traditional markets, shopping centers, to wholesale warehousing still rely heavily on human interaction and manual logistics management.

Therefore, the availability of a skilled workforce in Sidoarjo is directly a driving force for the stability and growth of gross added value in the trade sector.

Synthesis and Strategic Implications In conclusion, Labor (X_3) is the most dominant determinant in spurring the growth of Constant Price GDP in the trade sector of Sidoarjo Regency. The results of this study provide policy implications that local governments need to continue to focus on programs to increase the capacity and quality of human resources in the trade sector. Strengthening labor protection and aligning work competencies with the needs of the modern trade market will ensure that this sector remains the main pillar in supporting the inclusive and sustainable economic growth of Sidoarjo Regency.

CHAPTER V

CONCLUSIONS AND SUGGESTIONS

5.1 Conclusion

Based on the results of research and discussions that have been carried out regarding the influence of the Value of Production, Investment, and Labor on Economic Growth in Sidoarjo Regency for the period 2010–2024, the following conclusions can be drawn:

1. The Production Value (X_1) of both sectors has a significant influence in absolute terms at the level of 10% and shows a tendency to have a positive influence on economic growth in Sidoarjo district. These findings show that the real output of manufacturing activities in the processing industry sector and the large turnover of goods margins in the trade sector.
2. Investment (X_2) The realization of investment in these two sectors has a opposite impact on the Economic Growth of Sidoarjo Regency (Y). Capital flows in the form of investment in the large trade and retail (X_2) sector have proven to have a positive and very significant effect, indicating that the expansion of logistics, retail, and commercial warehousing facilities is a strong stimulus for the regional tertiary economy. On the other hand, the accumulation of investment in the processing industry (X_2) sector showed a insignificant influence, indicating that the capital commitment to the manufacturing sector during the observation period was not optimal in making a direct contribution to the increase in regional macroeconomic capacity.
3. Labor (X_3) has a positive and significant effect on growth economy. The absorption of labor both in the processing industry sector and the large trade and

retail sector has proven to have a positive and significant influence on the Economic Growth of Sidoarjo Regency (Y). These findings confirm that the local labor market capacity in Sidoarjo Regency has been running productively, where the increase in the number of labor force absorbed in the secondary (manufacturing) and tertiary sector (trade) has succeeded in encouraging an increase in the real productivity volume of the region.

5.2 Suggestions

Based on the conclusions that have been described, the suggestions that can be submitted in this study are as follows:

1. For Strengthening Production Value

Considering that the production value of the processing and trade industry sector is the leading sector for the Sidoarjo Regency GDP, the Department of Industry and Trade (Disperindag) is advised to strengthen the integration of local supply chains. Local governments need to facilitate strategic partnerships that connect raw material suppliers of the upstream manufacturing industry directly with large distributor and retail networks in the downstream sector to minimize logistics costs, maintain price stability, and optimize real production output volumes on a sustainable basis.

2. For Sectoral Investment Evaluation

The Sidoarjo Regency Government must maintain and increase the attractiveness of investment in the trade sector which has proven to be very significant, through the simplification of business licenses, the provision of legal certainty, as well as the modernization of the central area of logistics and commercial warehousing. Given that the realization of investment in the

processing industry sector has not had a significant impact on macro growth, the Sidoarjo Regency DPMPTSP needs to evaluate the orientation of manufacturing investment. The investment focus in the future must be shifted from capital-intensive industries that depend on imported raw materials to appropriate technology investment based on down streaming local potential, so that incoming capital can directly drive regional production capacity.

3. For Workforce Optimization

Because the absorption of labor in both sectors has proven to be equally significant in spurring real productivity, the Sidoarjo Regency Manpower Office (Disnaker) is advised to continue to maintain the quality and relevance of the local workforce's expertise. This can be achieved through the revitalization of the Job Training Center (BLK) whose curriculum is adjusted to the needs of the digital competencies of the trade sector (e-commerce and modern logistics management) as well as the standardization of operational technical expertise in the latest manufacturing industry sector.

4. For the Next Researcher

The researcher is further advised to expand the scope of research by adding other economic sectors, such as the Transportation and Warehousing Sector or the Information and Communication Sector. This is because Sidoarjo is rapidly developing as a digital logistics hub which is likely to have a significant influence but has not been summarized in this study. Given that the results of investment in the trade sector are not significant, the researcher can then try to replace the variable with the variable of Digitalization of Trade (E-commerce) or the Community Consumption Level to get a more accurate picture of the

drivers of economic growth in the tertiary sector. It is also recommended to use more complex data analysis methods such as Path Analysis or SEM to look at the indirect relationship between investment and labor absorption.