
Industrial Labor Absorption and Changes in the Economic Structure of Community-Based on Education

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ABSTRACT

Kendal Regency has developed into one of the Special Economic Zones. The development is to become one of the new industrial areas to improve the economy of the community and the region. This is undoubtedly related to the hope of increasing employment so that it is also able to increase employment and improve the economy of the community and the region. However, the availability of labor is still dominated by elementary school graduates/equivalent, and the impact of industrial development on the regional economy has not been seen significantly. Therefore, this study aims to determine the relationship between industrial growth and employment based on the last education completed, the relationship between industrial growth and industrial GRDP growth, and strategies that can be taken to maximize employment. This study uses secondary data collected from the BPS, namely Kendal Regency in Figures and Central Java Province, and related regional regulations. The primary data available is insufficient for data needs requiring time-series data. This study uses a quantitative method with the Kendalls'tau b correlation test and multiple correlation test analysis methods. It uses the calculation of the elasticity of labor and the projection of labor absorption. The result is that 1) there is a relationship between industrial growth and employment based on the last education completed, 2) there is no relationship between industrial growth and GRDP growth in the industrial sector, and 3) the strategy that can be done to maximize employment is to improve quality human resources and promote industrial growth.

INTRODUCTION

Issues related to employment have become issues that have not been wholly resolved both on a national and regional scale, both at the provincial and district levels. One of the essential points in employment is related to the workforce itself. Law Number 3 of 2013 concerning Manpower defines workforce as "everyone who can do work to produce goods or services both to meet their own needs and for the community". The Central Statistics Agency (BPS) limits the age of the workforce to >15 years, so it can be said that the

workforce is a population aged >15 years who can work.

One of the issues related to labor that is often studied is related to unemployment. The issue is reasonably related to the level of labor absorption is still relatively low from the availability of job opportunities provided by various existing sectors. The central and regional governments have sought different solutions and policies to increase employment by expanding employment opportunities by building large industries and strengthening small and medium-sized enterprises to be able to

compete and produce optimally. Company growth has multiple effects, such as creating new jobs in supporting initiatives, developing new, featured companies, and increasing the demand for additional services (Michael E. and Mark R. 2019). These efforts also aim to boost regional economic growth and improve people's welfare, which can be seen from the community's purchasing power.

One of these efforts is also implemented in Kendal Regency, Central Java. Kendal Regency began to develop into one of the centers of industrial development due to the urban sprawl phenomenon because of the development of Semarang City, which was no longer able to support the development of the industrial sector. Many policies have also begun to support these efforts by updating the regional RTRW, one of which is set for industrial estates based on PP Number 85 of 2019 concerning Kendal Special Economic Zones

(figure 1). This will directly or indirectly impact economic conditions and employment in Kendal Regency and affect the economic structure of the community, especially also supported by the existence of the TransJawa Toll Road that passes through the Kendal Regency, which will certainly have a significant effect on industrial growth. The construction of the toll road is carried out because it is expected to be able to increase the efficiency of distribution services and economic growth (Suseno et al. 2017) so that it becomes one of the factors that stimulate the growth of new industrial centers, including the existence of the Kendal Industrial Estate which predominantly develops into an industrial manufacturing area. The manufacturing industry is considered a strategic industrial sector and can encourage increased development and the regional economy (Azhar and Arifin 2011).

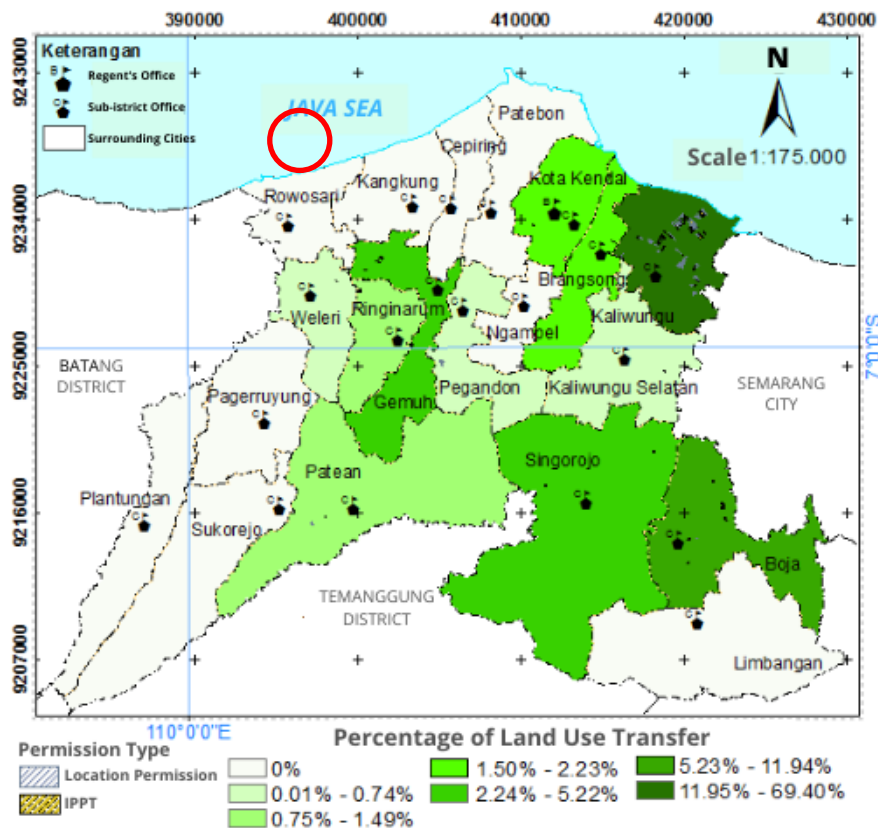


Figure 1. Kendal special economic zones (Source: Adiyaksa and Djojmartono 2020).

This condition indicates that there will be changes in the developing sector where in

fact, Kendal Regency is a coastal area and a lot of lands is developed as agricultural and

plantation land, which is around 70% (BPS 2019), as explained by Wahyuningtyas, Rusgiyono, and Wulandari (2013) who mentions in his research using the Klassen typology that the leading sector in Kendal Regency based on 2006-2010 data is the agricultural sector and the mining sector, while the potential sectors that can develop

are the manufacturing, electricity, gas, and drinking water sectors. Table 1 shows the percentage of GRDP contribution at current prices by economic sector which shows that the GRDP contribution from the manufacturing (manufacturing) sector has the highest percentage contribution compared to other sectors.

Tabel 1. Percentage of GRDP (gross regional domestic product) at current prices of kendal regency by agriculture, mining and quarrying, and processing industry sector 2012-2019

Sector	2012	2013	2014	2015	2016	2017	2018	2019
Agriculture and Mining Industry Services	41,68	40,82	41,03	41,30	41,58	41,48	41,79	41,80

Industrial development or growth in Kendal Regency will affect the economic structure and labor conditions, especially the potential for job transfer from fishermen or farmers to other sectors. However, based on BPS 2019 data, it shows that the highest education profile completed by people aged 15 years and over who work is dominated by elementary school graduates (211,945 people), followed by SMA/SMK graduates (115,300 people), then junior high school graduates (82,146 students) and diplomas. -university (48,433 people). This is quite a concern considering that there are still many people in the labor force who only finish elementary and junior high school education/equivalent. This condition needs to be a concern because most of the availability of labor still has low-quality human resources, so it is necessary to do research on how then the absorption of local labor can be maximized. This is because, according to the neoliberal view, one of the goals of education is to increase the productivity of workers and consumers in a global economy (Cachelin et al., 2015). Forster et al. (2016) also explain in their research that individuals with vocational skills have a higher probability of getting a job than those with general qualifications at the beginning of their career.

This condition is a challenge for local governments regarding the potential for

employment from the expansion of the Kendal Industrial Estate. The condition of human resources with relatively low quality will certainly affect the level of employment, which will later affect the economic structure of the community, especially for people who switch from fishing or farmer jobs to other sectors due to land loss due to land conversion for industrial area expansion. Another challenge is how to provide enough jobs, especially with technological advances that have the potential to disrupt the labor market, such as a decrease in employment in all countries, especially in developing countries due to an increase in the stock of industrial robots (Jung and Lim 2020; Peters 2017).

Kurt (2021) explains that industry 4.0 is a revolution so that jobs that require unskilled workers will be carried out by robots and skilled workers have added value to increase productivity. This makes it important to conduct studies related to the potential for employment and changes in the economic structure of society because of industrial growth in Kendal Regency so that policies for the development of new industrial areas and the phenomenon of significant industrial growth can run effectively to overcome labor problems and improve the regional economy. The novelty of the research that will be submitted compared to previous studies is in the

research area, namely industrial growth in Kendal Regency which has not been widely studied/researched because it is new industrial growth center built based on central and regional government policies and cooperation with investors.

Therefore, there are three objectives in this research. The first is knowing the relationship between industrial growth and the potential for employment in Kendal Regency based on the education completed. The second is knowing the relationship of industrial growth in Kendal Regency to changes in the economic structure of society based on the growth of GRDP in the industrial sector. And the third is identifying and knowing the strategies that can be done so that the Kendal Industrial Estate development policy and other industrial development permits related to labor absorption can be carried out optimally.

Based on the reasons and objectives above, several hypotheses were developed. First, there is a significant relationship between the last completed education of the workforce and the partial and simultaneous absorption of workers in the industrial sector. Second, there is a significant relationship between industrial growth and employment in the industrial sector. Third, there is a relationship between industrial growth and the GRDP of the industrial sector. And the fourth is the elasticity value of industrial labor due to industrial growth showing a value >1 .

RESEARCH METHOD

The data collection method was carried out based on the Record and Secondary Data method which was collected from the availability of published data from the Central Statistics Agency, namely the results of the 2011-2019 National Labor Force Survey, Kendal Regency in Figures for 2011-2019 and Central Java Province in Figures for 2011-2019. The collected data is then compiled and sorted according to research needs. Then the data is processed using the IBM SPSS application.

The data were analyzed using Kendall's tau -b correlation method and multiple correlation tests on the research variables used. Kendall's tau-b correlation test is a non-parametric statistical method that serves to test the relationship between two variables (Ilmiyah and Darminto 2020) that are not normally distributed, are not homogeneous, and have a small amount of data. This method is used because the Kendall correlation is reliable. After all, the distribution is closer to normal (Alfana 2014). Before the correlation test, the normality of the data was tested using the Shapiro-Wilk test. Razali and Wah explained that the Shapiro-Wilk test is a data normality test whose use is limited to the amount of data 50 (Oktaviani and Notobroto 2014) or small amounts of data. The correlation test is also carried out simultaneously using the multiple correlation test method, namely the correlation test method, to test the linear relationship between two or more independent variables with a single dependent variable simultaneously (Suprpto 2016).

The results of Kendall's tau b correlation test and the multiple correlation tests were analyzed using two hypotheses (Apriyanto and Harini 2012), namely:

H0 = there is no relationship or correlation between variables X and Y

H1 = there is a relationship or correlation between variables X and Y.

The hypothesis test uses a 95% confidence level or an error rate (α) of 5% (0.05) with the following conditions:

Sig. > 0.05 = H0 accepted there is no relationship between variables X and Y

Sig. < 0.05 = H1 accepted variable X has a significant relationship with variable Y (Ilmiyah and Darminto 2020).

The test results regarding the correlation coefficient (r) can be used to determine the strength of the relationship between variables (Sihombing 2017). The correlation coefficient can be interpreted through table 2 as follows.

Tabel 2. Correlation coefficient index

Coefficient Interval	Correlation Level
0,80 - 1,00	Very Strong
0,60 - 0,79	Strong
0,40 - 0,59	Fairly Strong
0,20 - 0,39	Weak
0,00 - 0,19	Very Weak

Source: (Sihombing 2017).

In addition to the correlation test, a labor elasticity test was also carried out. Analysis of the elasticity of employment absorption is a measure used to determine how much influence economic variables have on employment in a certain period with an elasticity coefficient of zero to infinity (Trianto 2017). The method of analysis was carried out to answer the first objective in this study, namely, to determine the potential for employment due to industrial growth.

Calculation of the projected labor absorption is also carried out to find out how much potential employment is in the industrial sector with the industrial growth that occurs. This calculation is done to answer the first objective, which is related to the potential for employment. The results of the calculation of the projected absorption of industrial workers can be used as the basis

for determining strategies that the government can take in the future (third goal).

RESULT AND DISCUSSION

Characteristics of Industrial Workforce

The age of industrial workers is related to the productivity that can be produced in production activities. Herawati and Sasana (2013) explained that a productive age would increase labor productivity, where a younger age will be more productive because they are passionate about work. Figure 1 below shows that the age of industrial workers in Kendal Regency is dominated by young people, especially in the 20–24-year age group, as many as 21,537 people or 19.4% of the total workforce. It is also seen that the older the age of industrial workers, the less quantity of available labor, especially those aged 50 years and over.

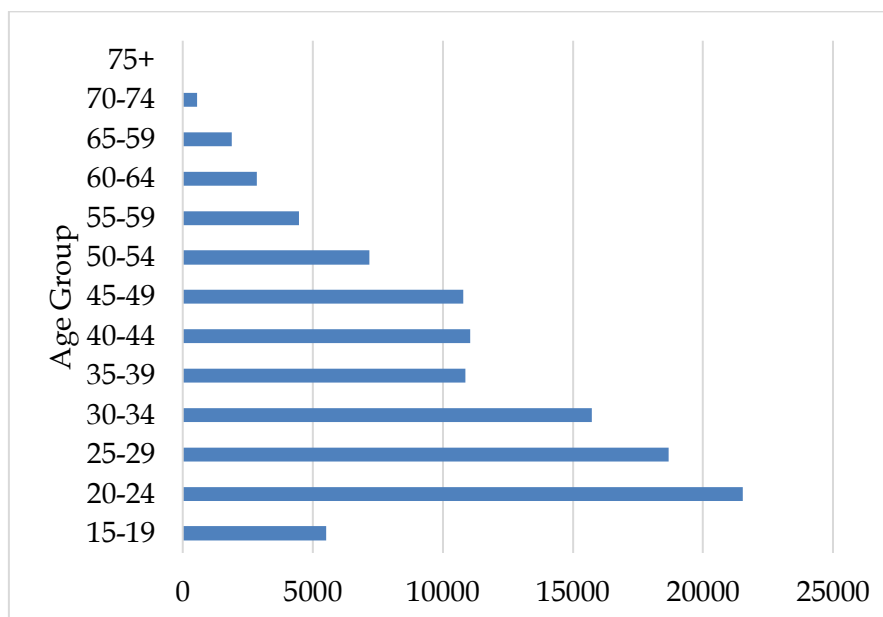


Figure 1. Diagram of the Number of Industrial Workers by Age Group
Source: BPS (Sakernas 2019)

The sex of industrial workers is also related to the productivity that can be produced in production activities. Herawati and Sasana (2013) explain that the gender of the workforce affects the high and low productivity of the workforce where male workers are considered more productive than women because they are considered to have greater energy. This greater workforce

is considered capable of carrying out various jobs in the industrial sector. The characteristics of industrial workers by gender are shown in Figure 2. The diagram shows that there are relatively more male industrial workers than female industrial workers even though the number fluctuates every year during the 2011-2019 period.

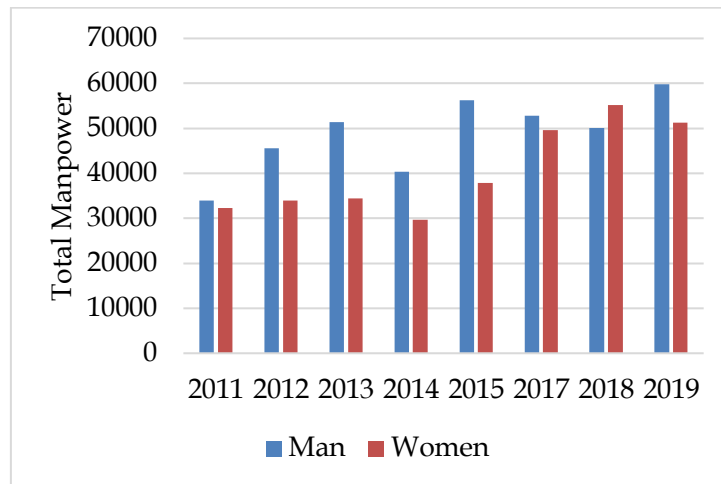


Figure 2. Diagram of the Number of Industrial Workers by Gender in Kendal Regency in 2011-2019 (Source: BPS Sakernas, 2019).

Education can be an input that can affect labor productivity. Buchari (2016) explains that the low level of education of the workforce will affect the low absorption of labor in the industrial sector and will lead to low quality and quantity of output produced by producers. Figure 3. shows the education level of industrial workers

absorbed in the Kendal Regency. Based on the diagram, it is known that since 2015 employment has been dominated by workers who have completed an education equivalent to SMA/Equivalent then followed by workers who have completed an education equivalent to SD/Equivalent, but the numbers are far apart.

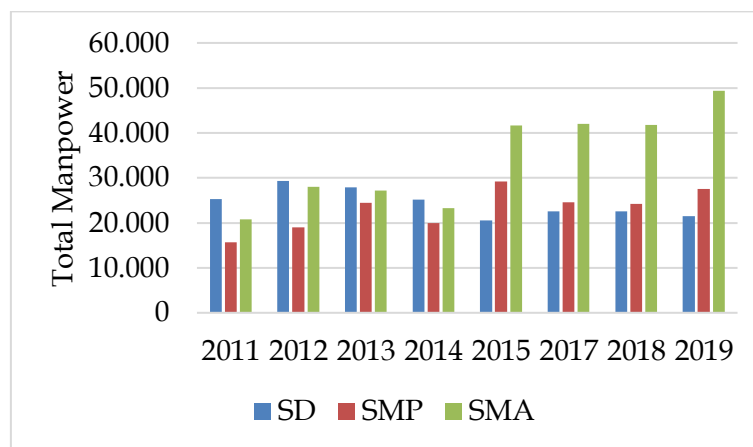


Figure 3. Diagram of the Number of Industrial Workers by Last Education Graduated in 2011-2019 (Source: BPS Sakernas, 2019)

In addition to the level of education, labor productivity can be seen through informal education, namely those who take certain courses. Figure 4. shows the number of workers who took the course or who did not. The diagram shows that most of the workers absorbed in the industrial sector

have never received certain skill courses. This can have an impact on the lack of skilled or trained workers absorbed in the manufacturing industry sector. Whereas certain competencies or skills possessed by the workforce can increase the productivity of the workers themselves and producers.

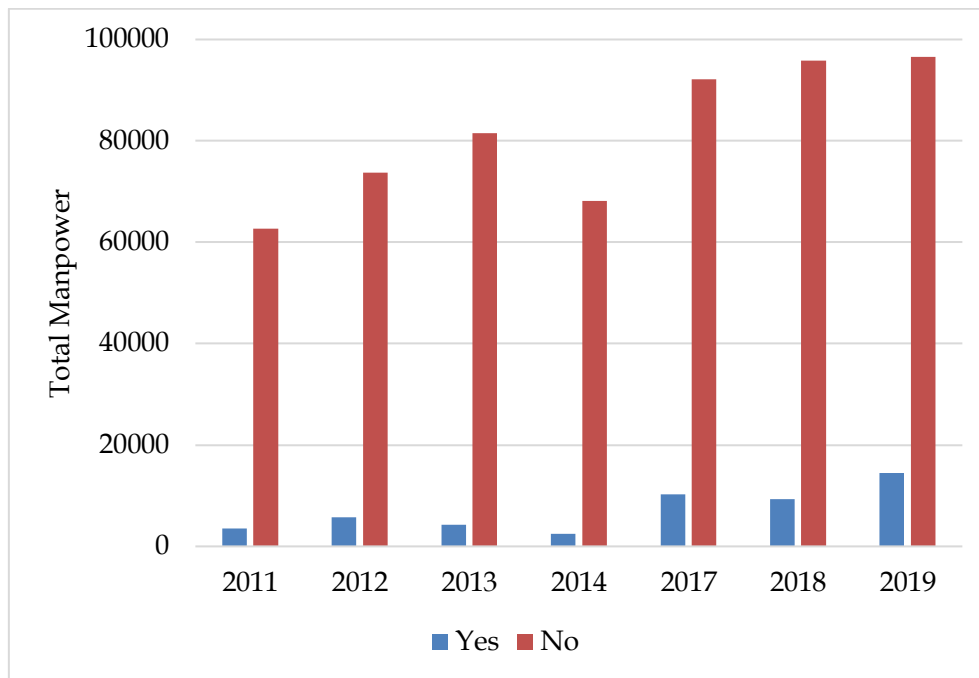


Figure 4. Chart of Number of Industrial Workers by Participation in Courses 2011-2019 (Source: BPS Sakernas 2019).

Relationship of Last Graduated Education to Industrial Manpower Absorption

Education is an investment that will improve the quality of human resources, including the workforce in an area. Education can also be used as labor capital to get better and decent jobs. Workers who are educated or have higher education, including industrial workers, will, of course, have better cognitive abilities and skills than workers who are not educated or have low education, so that they tend to be more easily

absorbed into leading sectors, including the industrial sector.

Table 2. shows the correlation test for the education of workers who have completed elementary/equivalent education level with employment. The results show that there is a negative and insignificant correlation between workers with elementary education/equivalent education and employment. This means that not many workers with SD/equivalent education are absorbed in the industrial sector.

Table 2. Correlation test of elementary/equivalent workforce education level with labor absorption

		TK	SD
TK	Correlation Coefficient	1,000	-0,634
	Sig.		0,062
	N	8	8

Source: Research result, 2020.

Table 3. shows the correlation test for the education of workers who have completed junior high school/equivalent education with employment. The results show that there is a positive and significant correlation with the degree of a strong

relationship between workers with junior high school education and employment absorption. This means that quite a lot of workers with junior high school/equivalent education are absorbed in the industrial sector.

Table 3. Correlation test of middle school/equivalent workforce education level with labor absorption

		TK	SMP
TK	Correlation Coefficient	1,000	0,667
	Sig.		0,049
	N	8	8

Source: Research result, 2020

Table 4. shows the correlation test for the education of workers who have completed high school education/equivalent with employment. The results show that there is a positive and significant correlation with a very strong

degree of relationship between workers with high school education/equivalent and employment. This means that many workers with high school education/equivalent are absorbed in the industrial sector.

Table 4. Correlation test of high school/equivalent workforce education level with labor absorption

		TK	SMA
TK	Correlation Coefficient	1,000	0,818
	Sig.		0,022
	N	8	8

Source: Research result, 2020

The results of the correlation calculation above show that the higher the education level of the workforce, the more they can be absorbed into the industrial sector. This is in line with the hypothesis that was developed; namely, there is a relationship between the last education completed and employment and Schultz's theory which explains that an increase in human capital can encourage increased productivity in a country (Nurkholis 2018). The higher the education, the more productivity will increase so that it can match the needs of workers in the industrial sector. These results are also following the results of the (Hindun 2019) research which states that the education variable has a significant and positive effect on employment. Simultaneously, the last education completed, and industrial growth

have a significant relationship to the absorption of industrial workers in Kendal Regency. Table 5. shows the results of the simultaneous calculation of education and industrial growth variables on employment. The result is that there is a positive and significant relationship with a very strong degree of relationship between education and industrial growth on employment. This is in line with the hypothesis that has been developed, namely that there is a relationship between the last education completed and employment. This positive relationship can be an illustration that education and industrial growth are one of the factors that can be used as a reference to open new job opportunities with improvements in education so that the workforce meets the qualifications needed for industrial workers.

Table 5. Simultaneous relationship of last graduated education and industrial growth on labor absorption in Kendal Regency

R	Sig. F. Change
0,976	0,025

Source: Research Result, 2020.

The Relationship of Industrial Growth to Industrial Manpower Absorption

The neo-classical economic growth theory explains that economic growth comes from three factors, namely an increase in the quality and quantity of labor, an increase in capital (through savings and investment), and an increase in the use of technology (Santian, Karismawan, and M. 2019). The factor of increasing capital can be seen through the growth of the industry, so that the industrial sector is a sector that has an important role in the economic development of a region whose development is characterized by increased production and increased product diversity (Chusna 2013). Chusna (2013) also explained that the increasing industrial growth every year is also expected to be able to increase the role of the workforce absorbed into the industrial sector through an increase in job opportunities. The increase in job opportunities can have an impact on changes in the employment structure.

Based on calculations as shown in table 6. it is known that industrial growth has a positive and significant relationship (0.009) to employment in Kendal Regency with a very strong relationship level (0.901). This shows that the results obtained are following Todaro's theory in Sulistiawati (2012) which explains the Macro-Output-Employment Model (output-employment macro model) related to investment, economic growth, and employment where output can be increased significantly maximally by investing in new industries, employment opportunities can also be increased so that employees can also be increased. The results of these calculations prove the truth of the hypothesis that has been compiled, namely that there is a relationship between industrial growth and industrial employment. The results of these calculations are also following previous research by Purwasih and Soesatyo (2017) which explains that industrial growth has a significant effect on employment.

Table 6. The relationship between industrial growth and labor absorption in Kendal Regency in 2011-2019

Industry	Industry		TK
	Correlation Coefficient	1,000	0,901
	Sig.		0,009
	N	8	8

Source: Research result, 2020.

Elasticity and Projection of Labor Absorption

The value of elasticity of employment is an indicator that will show how the strength of economic growth in the industrial sector can affect the growth of labor in the industrial sector. The elasticity value of labor absorption is 1.073, which follows the initial hypothesis, namely the value > 1, which means that the growth of GRDP in the industrial sector stimulates an increase in the

absorption of industrial workers. Meanwhile, the projected value of employment for the next ten years is 191,217 people in 2030-2031. This can be one of the points that the government can pay attention to in preparing the workforce needed in industrial employment.

The Relationship of Industrial Growth to the GDP of the Industrial Sector

Industrial growth in a region is expected to increase economic development in the region. The existence of industry is also expected to be able to open higher job opportunities so as to increase the income per capita of the population. One of the regional economic improvements can be seen based on the Gross Regional Domestic Product (GDP) at constant prices to see how the contribution of the industry's growth to regional economic development.

Industrial growth in Kendal Regency continues to increase every year. This has an impact on the GRDP share of the industrial sector, which is the highest compared to other sectors, namely with an average of >40 percent, as shown in table 7. Wibowo (2013) explains that the industrial agglomeration variable has a positive and significant

influence on economic growth in Central Java.

Even so, if seen from table 7. it is known that industrial growth has not significantly increased the value of GRDP, which still tends to fluctuate even though it is the highest contributor to GRDP. The negative and insignificant correlation value can be seen from table 8. which shows that the correlation coefficient value between industrial growth and GRDP is -0.046. This calculation is not in accordance with the initial hypothesis, which states that there is a relationship between industrial growth and industrial sector GRDP growth. This happens because the new industries that are developing have not yet operated optimally so the output produced has not increased significantly even though industrial growth has increased the GRDP share of the industrial sector compared to other sectors.

Table 7. The relationship between industrial growth and GRDP in Kendal Regency

		GDP	Industry
GDP	Correlation Coefficient	1,000	-0.046
	Sig.		0,890
	N	9	9

Source: Research result, 2020.

Strategies that can be carried out so that the Kendal Industrial Estate development policy and other industrial development permits related to labor absorption can be carried out optimally.

Kendal Regency began to develop a new industrial area in the period 2007-2017 in accordance with the Kendal Regency Regional Regulation Number 24 of 2007 concerning the Detailed Spatial Plan for the Kaliwungu Industrial Estate in Kendal Regency. The stretch of industrial development is supported by Government Regulation Number 85 of 2019 concerning the Kendal Special Economic Zone. This development is the impact of the inability of the City of Semarang to accommodate the growth of new industries. Industrial development in Kendal Regency is also inseparable from its strategic location and supporting infrastructure that continues to be developed to support industrial growth.

The location of Kendal Regency, which is on the main route of the North Coast (Pantura) of Java and is in the middle of Java, increases accessibility that supports ease of transportation, especially now that it is supported by the Trans Java Toll Road and the Kendal Port and proximity to Ahmad Yani Airport, Semarang. The proximity to Semarang City, Demak Regency, and Semarang Regency as industrial centers also supports industrial growth in Kendal Regency.

Industrial growth in Kendal Regency consists of various types of industries. Based on the Regional Regulation of Central Java Province No. 10 of 2017 concerning the Industrial Development Plan of Central Java Province for 2017-2037, it is known that the direction of industrial development consists of several types, namely the food industry, tobacco processing industry, textile

industry, apparel industry, computer industry, electronic and optical goods, and transportation equipment industry. Other. This is also explained in the Regional Regulation of Kendal Regency No. 24 of 2007, which states that industrial development in the Kaliwungu Industrial Estate includes metal, machinery, and electronics industries, chemical industries, miscellaneous industries, and agricultural industries. The Kaliwungu Industrial Estate is divided into three areas, namely large, medium, and small industrial areas.

Industrial growth is inseparable from the need for labor to support the production process as one of the supporting inputs. One of the goals of industrial development is to increase employment as a form of government to create job opportunities. The existence of industrial growth that continues to increase every year must be maximized in terms of employment in order to be able to reduce unemployment and improve the economy of the community and region.

The strategy that can be done in an effort to maximize employment in the industrial sector is to improve the quality of the workforce. This is also stated in the Central Java Provincial Regulation No. 10 of 2017 concerning the Industrial Development Plan of Central Java Province for 2017-2037 that one of the actions launched is to increase the competence of human resources (HR) by preparing expert human resources and increasing human resource capabilities. The preparation of expert human resources and the improvement of human resource capabilities are expected to be able to increase the competitiveness of the workforce so that the available workforce in Kendal Regency is not less competitive with workers from outside the region.

Improving the competence of human resources for the workforce can be done by building Skills Education Institutions (LPK) and enforcing the Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 19 of 2016 concerning the Smart Indonesia Program related to 12-year compulsory education. LPK itself can be a solution to improve the skills of the

workforce because, based on the discussion above, it is known that most of the workforce has not received special skills because they do not take courses. The preparation of a skilled workforce can also be done by improving the quality of education in vocational high schools (SMK) so that graduates have the competitiveness to enter the job market. Through improving the competence of human resources, it is expected to be able to maximize the absorption of available labor in the Kendal Regency.

Increasing human resource competence is in line with Human Capital Theory which explains that one way to increase productivity is to increase skills and abilities through investment in education, both formal schools, courses, and training (Nurkholis 2018). In addition to increasing the competence of human resources, the government can also take other steps, one of which is increasing the growth of new industries. This can be done to open up more new job opportunities. In addition to opening up new job opportunities, the growth of new industries can overcome the unemployment problem in Kendal Regency. The unemployed workforce can be absorbed into the industry according to the required qualifications. This includes dealing with the demographic bonus phenomenon, namely the period of the year in which the proportion of the working-age population is greater than the proportion of the non-working-age population.

CONCLUSION

1. Simultaneously, the relationship between the last education level and the absorption of industrial workers shows a positive and significant relationship with a very strong degree of relationship. At the same time, the relationship between industrial growth and employment shows a positive and significant relationship with a very strong degree of relationship.
2. The value of the relationship between industrial growth and the GRDP of the industrial sector still shows a negative

and insignificant relationship because the new industries that are developing have not yet operated optimally.

3. The strategy that can be done in an effort to maximize the absorption of labor in the industrial sector is to improve the quality of the workforce or human resources (HR). This method can be taken by opening and improving the quality of LPK, enforcing ministerial regulations related to compulsory education, and improving the quality of Vocational High School (SMK) graduates. In addition, it also increases the growth of new industries to create jobs and overcome the problem of unemployment.

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