

Work Force Absorption on the Verge of Demographic Bonus Era at the Special Capital Region of Jakarta

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Abstract: As Indonesia's largest economic hub, DKI Jakarta plays a crucial role in national growth, reflected in its high Gross Regional Domestic Product (GRDP) and workforce absorption in sectors such as trade, transportation, and communications. However, Jakarta's appeal as an economic center with high minimum wages leads to intense competition in the labor market. The Open Unemployment Rate (OUR) has fluctuated, highlighting the challenges in creating adequate employment opportunities. Additionally, Jakarta faces the demographic bonus phenomenon, with a growing productive-age population dominated by millennials and Gen Z. This demographic bonus presents opportunities for economic growth, but it requires strategies to enhance the quality of human resources to ensure optimal employment absorption and maximize the region's economic potential.

Keywords: Labor Market, Labor Absorption, Unemployment, Bonus Demographic



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INTRODUCTION

Economic growth is often measured through Gross Regional Domestic Product (GRDP), which reflects the added value of goods and services produced in a region. According to Todaro & Smith (2008), economic growth is seen from the growth rate of GRDP at constant prices. An increasing GRDP indicates that economic activity is going well, as well as signaling the potential for labor growth due to increased production and demand for goods and services. This is expected to reduce the unemployment rate in a region. Therefore, economic growth is often considered an indicator of successful development because it can reflect the welfare of the community through increased economic activity and employment. The high competition in the labor market also contributes to the relatively high open unemployment rate in DKI Jakarta. Unemployment rate measures the number of people of working age who are actively seeking work but have not yet found it. According to the BPS definition, open unemployment includes those who do not have a job and are looking for work, preparing a business, or who think it is impossible to find a job. The unemployment rate in Jakarta peaked in 2010 and 2019, with contributing factors such as the global economic crisis and the COVID-19 pandemic. However, since 2016, the unemployment rate trend has tended to decline although it has not shown significant improvement over the past eight years. One of the biggest challenges in creating jobs in Jakarta is the demographic bonus, where the proportion of the productive-age population (15-64 years old) continues to increase.

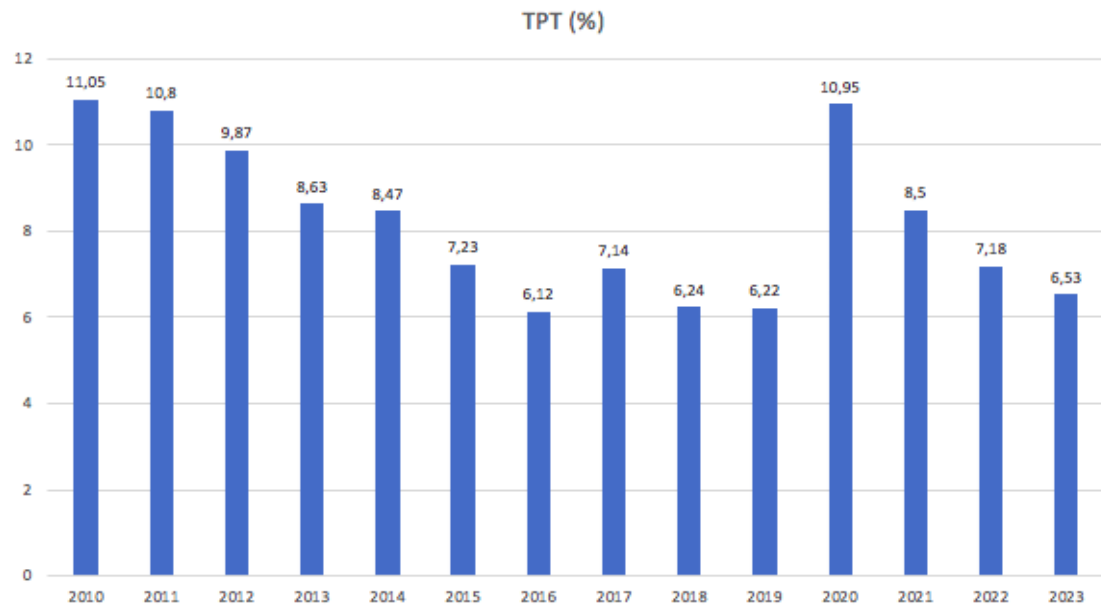


Figure 1. Percentage of Open Unemployment Rate of DKI Jakarta 2020-2023

Source: Central Bureau of Statistics (Data Processed), 2024

The demographic bonus phenomenon in DKI Jakarta was first identified from the results of the 2010 Population Census, which showed that 66% of Jakarta's population was in the productive age group. As the proportion of the productive age population increases, the population dependency rate, which measures the number of people who are considered unproductive or unproductive, also decreases. This creates a so-called “window of opportunity”, where an increase in the productive-age population can be a driving force for economic growth. However, if this demographic bonus is not managed well, it can lead to social problems such as increasing economic inequality and class conflict.

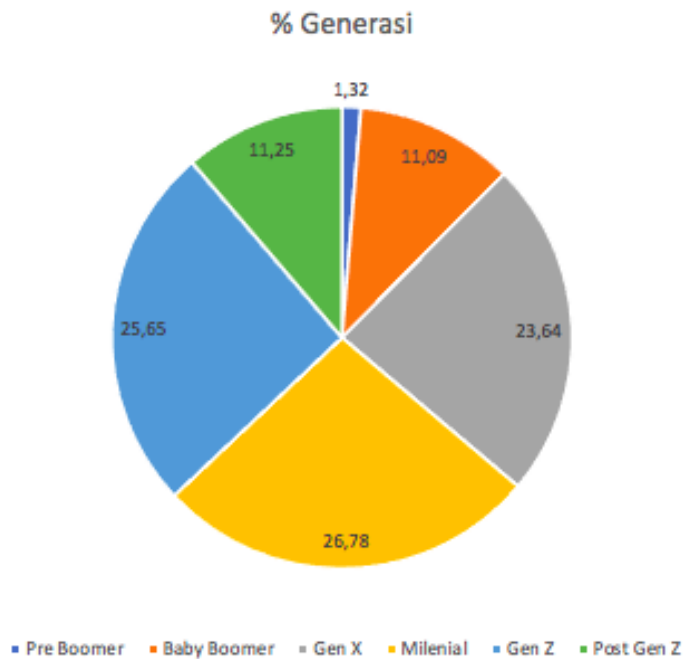


Figure 2. Age Percentage of DKI Jakarta Population by Generation

Sumber: Central Bureau of Statistics (Data Processed), 2020

The results of the 2020 Population Census show that the population of DKI Jakarta reached 10,562,088 people, with the millennial generation (born 1981-1996) dominating the population at 26.66%, followed by generation Z (born 1997-2012) at 25.36%. With this demographic bonus, the DKI Jakarta government is expected to be able to take advantage of this opportunity by preparing superior human resources. Currently, 70% of Jakarta's population is in the productive age group, while the dependency rate is at a level of 38.93%. This means that every 100 residents of productive age bear 39 residents who are not of productive age. The demographic bonus, according to Borjas (2008), can be a catalyst for improving people's welfare if managed well. The economic growth potential of an increase in the productive-age population can increase productivity and drive growth. The period 2015-2023 is an important time to examine labor absorption in DKI Jakarta because it includes the demographic bonus era, where the productive-age population increases significantly. In addition, this period also includes the implementation of various economic and labor policies that can be evaluated for their effectiveness in creating jobs. The impact of the COVID-19 pandemic, which caused major disruptions in the labor market, is also an important factor that needs to be taken into account.

LITERATURE REVIEW

Okun Law

Economic growth and employment can be linked through Okun's Law. This law states that a 1% decrease in the percentage of unemployment will stimulate the growth of the GDP level to increase by 2%. It can be concluded that if GRDP increases by 2%, it will reduce the unemployment rate by 1%. Okun's coefficient is one of the important elements that economists study when they analyze Okun's law. First, if the unemployment rate is a policy variable, Okun's coefficient can be considered as the economy's target amount to reduce the unemployment rate. Second, output forecasting is usually used to show the expected unemployment rate. Third, Okun's coefficient is very useful to determine when output is above or below its potential value.

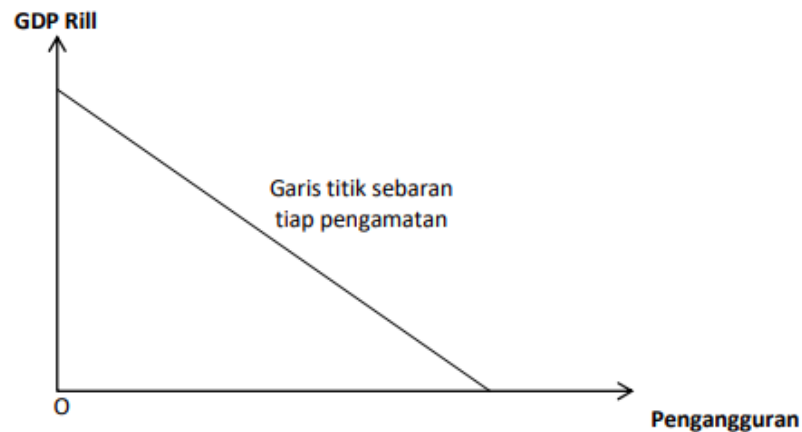


Figure 3. Okun Law

Source: Mankiw, 2007

Wage Fund Theory

According to the wage fund theory introduced by John Stuart Mill, the wage rate is influenced by the balance between the demand and supply of labor. The supply of labor is affected by the amount of capital available for wage payments by firms. As the population increases, the pressure on the wage rate tends to decrease due to an imbalance between the amount of labor available and the demand for labor. In this situation, the supply of labor exceeds the demand, thus increasing competition in the labor market and depressing the wage rate. This is due to the fact that the number of people seeking employment exceeds the number of available positions. As a result, companies tend to have greater bargaining power in setting wage rates, as they can choose from many candidates competing for the same job.

Solow – Swan Theory

Robert M. Solow (1970) and T.W. Swan (1956) built the neoclassical economic growth theory, which is based on the analysis of economic growth from a classical perspective. The Solow-Swan Neoclassical Growth Theory in employment focuses on the interaction between population growth, capital accumulation, technological progress, and output. According to the Solow-Swan model. One of the main differences between the Harrod-Domar model and the others is that the latter includes elements derived from technological progress.

Research Framework

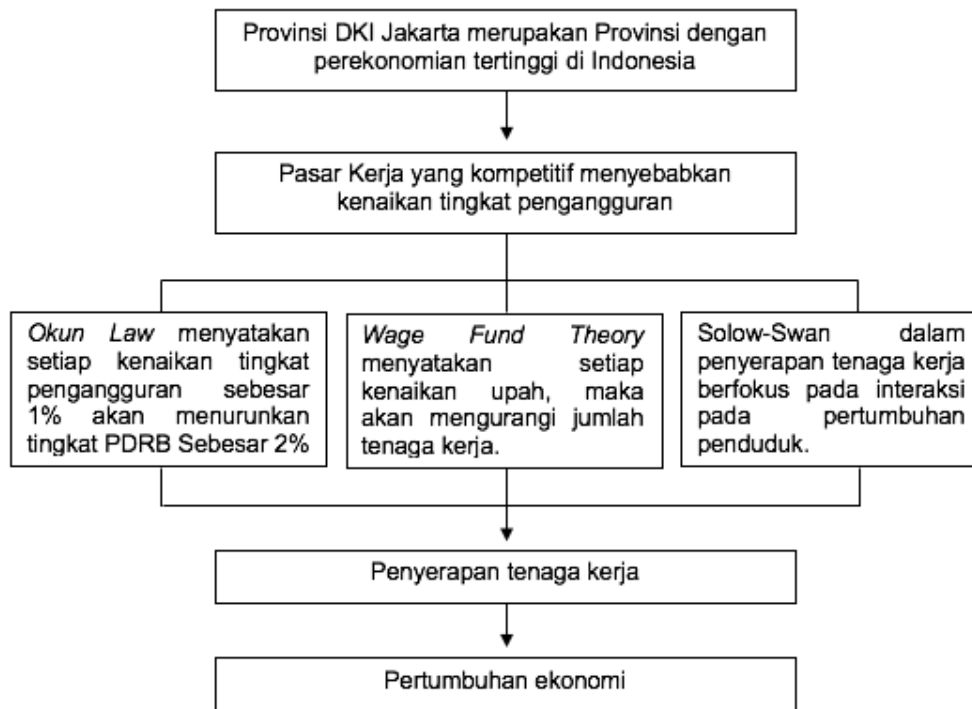


Figure 4. Research Framework
 Source: Mutmainah & Pratomo (2024)

Previous Research

The results of the study that concluded by Maryati et al. (2021) indicate that labor absorption in the city of West Sumatra has a positive influence by economic (GRDP) and demographic (HDI) variables on labor absorption in West Sumatra, the dependency ratio variable is only significant in some jobs which indicates that the potential of the demographic bonus is still not maximized and the wage variable has a negative impact. Hasanah & Armanda (2023) concluded that the dependency ratio has a negative and significant effect on employment opportunities; every 1 percent decrease in the dependency ratio will increase employment opportunities by 3.9 percent. On the other hand, the labor variable has a positive and significant effect on employment opportunities; an increase in the number of workers will increase employment opportunities by 3.9 percent.

Research Hypothesis

Based on the theories presented by previous experts and previous research that has been conducted, the hypothesis in this study is that the variable of economic growth has a positive effect on the absorption of labor in Special Region of Jakarta Province, meanwhile variables of average wage and dependency ration have a negative effect on the absorption of labor in Special Region of Jakarta Province.

RESEARCH METHOD

This study adopts a quantitative method that focuses on testing theories through the use of data analysis using statistical procedures. The focus of this analysis is mainly on the absorption of labor in Special Region of Jakarta Province from 2015 to 2023 by considering factors such as economic growth, average wage, and dependency ratio in the region. The research period during

2015-2023 was taken to maintain the relevance of the research to current conditions and to fill the research gap from previous studies.

Table 1. Operational Definition Table

Variables	Operational Definition	Unit	Source
Penyerapan Tenaga Kerja (Y)	Working-age population (above 15 years old and below 64 years old) who are working or have a job.	Person	Badan Pusat Statistik (BPS)
Economic Growth (X1)	Growth rate of GRDP at constant prices by sector.	Rupiah	Badan Pusat Statistik (BPS)
Average Wage (X2)	A value obtained by calculating the average wage received by workers in an economic sector.	Rupiah	Badan Pusat Statistik (BPS)
Dependency Ratio (X3)	The ratio of the total population aged 0-14 years, plus the total population aged 65 years and above compared to the total population aged 15-64 years (labor force).	Percentage	Badan Pusat Statistik (BPS)

Source: Personal Documentation (2024)

Data Types and Sources

The data used in this study is a type of quantitative data that refers to measurements in the form of a numerical scale or numbers. This quantitative data consists of two main types: time series data covering a 9-year period from 2015 to 2023 and cross-section data covering 4 different industries. This study uses secondary data sources collected through data sources from publications of several specific agencies, as well as literature studies, such as research journals and books.

Panel Data Regression Model

This study uses time series data for 9 years from 2015 to 2023, as well as cross-section data covering 4 different industries. Then, the model used is as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu_{it}$$

Where:

- Y : Number of workers
- X1 : Economic growth
- X2 : Average wage
- X3 : Dependency ratio

Analysis Method

The method used is multiple linear regression analysis using panel data. Then, the selection of the type of model to be used in panel data analysis is based on three tests, namely the chow test, the hausman test, and the lagrange multiplier test. Furthermore, a classical assumption test is carried out consisting of normality, multicollinearity, and heteroscedasticity tests.

RESULTS AND DISCUSSION

The findings in this study were obtained from the analysis of the impact of GRDP growth, average wage, and dependency ratio on the absorption of labor in Special Region of Jakarta Province using E-Views software.

Classical Assumption Test

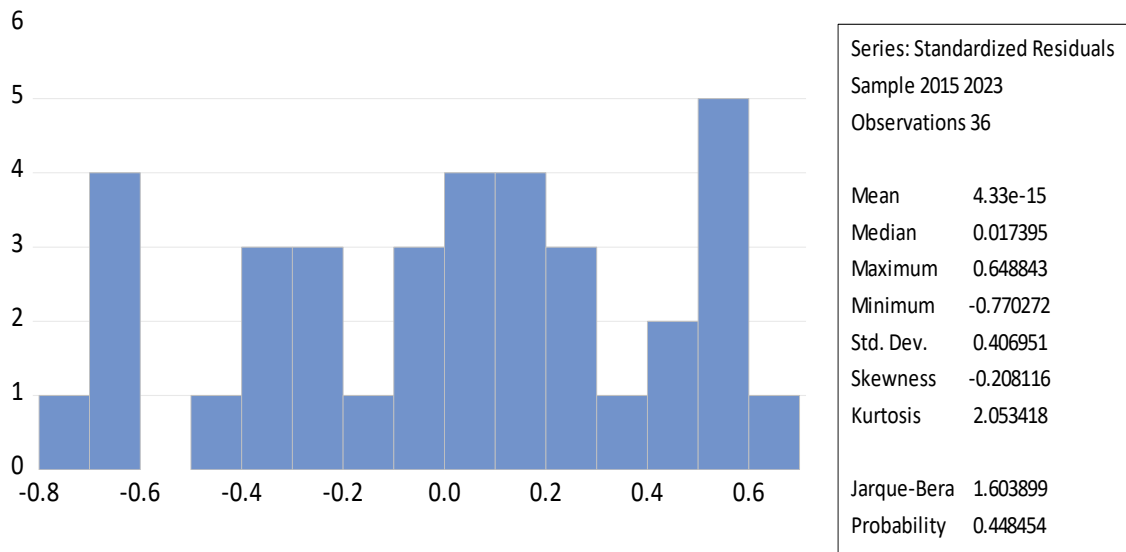


Figure 5. Normality Test Results

Source: Author (2024)

Based on figure 5, there are normality test results to see the distribution of data. To determine normally distributed data, it can be seen from the alpha level. The Jarque-Bera value determines the results of this test, if the Jarque-Bera value > 0.05, it can be concluded that the data used is normally distributed. The Jarque-Bera probability value in the figure above is 0.448454. So, it can be concluded, the data used in this study are normally distributed.

Table 2. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	116.1928	23092.99	NA
LOG(X1_PDRB_)	0.073181	5481.232	1.037191
LOG(X2_UPAH_SEKTOR_)	0.077439	3375.030	1.112821
LOG(X3_RK_)	8.599218	23406.42	1.130345

Source: Author (2024)

The multicollinearity test is carried out to test the existing regression model has a correlation between independent variables. If the results of the VIF value < 10 then no multicollinearity is detected or there is no correlation between the independent variables. Based on the test results in table 4.6, each of the variables has a VIF value < 10 which concludes that the model in this study does not experience multicollinearity problems.

Hypothesis Test Results

Hypothesis testing conducted in this study includes t-test (partial), F-test (simultaneous), and determination coefficient test (R²). The results of panel data regression estimation are based on the use of the best model in this study, namely REM which has been transformed with the following results:

Table 3. Results of the t-statistic test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.766851	12.01588	-0.646382	0.5226
LOG(X1_PDRB_)	2.031573	0.301554	6.737006	0.0000
LOG(X2_UPAH_SEKTOR_)	-1.724454	0.310202	-5.559131	0.0000
LOG(X3_RK_)	1.908011	3.268853	0.583694	0.5635

Source: Author (2024)

Based on the results of the t-test, partially the variable of economic growth has a significant positive effect, variable dependency ratio has a positive but not significant effect. Meanwhile, partially the average wage has a significant negative effect on the labor absorption.

Table 4. Results of the F Statistical Test

R-squared	0.734199	Mean dependent var	13.19659
Sum squared resid	5.796308	Durbin-Watson stat	0.222465

Source: Author (2024)

Based on the analysis results in the table above using Eviews software, the F-statistic value is 29.46362 and Prob (F-statistic) is 0.000000 with a significance level of 0.05 or 5 percent, it can be concluded that Prob (F-statistic) of 0.000000 < 0.05, so H₀ is rejected and H_a is accepted. This shows that all independent variables, namely GRDP (X1), provincial minimum wage (X2), and dependency ratio (X3) together have a significant effect on employment.

Table 6. Results of the Determination Coefficient Test

R-squared	0.734199	Mean dependent var	13.19659
Sum squared resid	5.796308	Durbin-Watson stat	0.222465

Source: Author (2024)

Based on the test results using the random effect model in the table above, it can be seen that the R-square value is 0.734199. This shows that the large percentage of variation in labor absorption in DKI Jakarta province can be explained by the variation of the four independent variables, namely GRDP, provincial minimum wage, and dependency ratio of 73.4 percent, while the remaining 26.6 percent can be explained by other factors outside the model in this study.

Discussion

The Impact of Economic Growth on Labor Absorption

The GRDP variable has a positive and significant effect on labor absorption in DKI Jakarta province. This is indicated by the results of the GRDP value variable (X1) which has a probability value of $0.0000 < 0.05$, this shows that the GRDP value has a positive and significant effect on labor absorption with a coefficient value of 2.031573. This means that a 1 percent increase in GRDP value will increase labor absorption in the business field sector in DKI Jakarta Province by 2.03 percent. This research is in line with research by and the theory used in this variable, namely *Okun Law* that the value of GRDP has a positive and significant effect on labor absorption in DKI Jakarta Province. The value of GRDP affects labor absorption because GRDP is an important indicator to determine the economic conditions in a region in a certain period. GRDP is basically the amount of added value generated by all business units in a certain area, or is the total value of final goods and services (net) produced by all economic units. With the increase in GRDP, it will affect the increase in labor demand because these capital goods require human labor to operate them.

The Impact of Average Wage on Labor Absorption

The sectoral average wage variable has a negative and significant effect on labor absorption in DKI Jakarta province. This is indicated by the results of the sectoral average wage variable which has a probability value of $0.0000 < 0.05$ with a coefficient value of -1.724454, this shows that the sectoral average wage value has a negative and significant effect on labor absorption with a coefficient value of -1.724454. That is, every 1 percent increase in the sectoral average wage value will reduce labor absorption in DKI Jakarta Province by -1.7 percent. By decreasing the average wage in each sector, it will cause an increase in labor absorption in DKI Jakarta Province. The results of this study are in accordance with the hypothesis that the sectoral average wage value variable has a negative and significant effect on labor absorption in DKI Jakarta Province. This research is in line with the research by and the theory used in this variable, namely the *wage fund theory* that the value of GRDP has a negative effect on employment in DKI Jakarta Province. Wages have a negative influence on employment because an increase in the minimum wage can increase the company's operating costs. Companies facing higher costs will tend to reduce the amount of labor they use to compensate for the increased costs.

The Impact of Dependency Ratio on Labor Absorption

Based on the value of the dependency ratio variable results (X3) has a probability value of $0.583694 > 0.05$ with a coefficient value of 1.908011, this shows that the dependency ratio value has a positive and insignificant effect on labor absorption. That is, every 1 percent increase in the dependency ratio value will increase employment in DKI Jakarta Province by 1.9 percent. Research conducted by Hasanah and Armanda (2021) which states that the dependency ratio has a negative and significant effect on employment opportunities in Aceh Province. Based on the terror as conveyed by Panggabean (2020) where if the dependency ratio is high, the community's economy can be disrupted because people need to spend more to meet their needs. Conversely, if the dependency ratio is low, the economic growth of the community tends to increase because most of the community's income can be allocated for investment and savings. However, the reality is that not all people of productive age are able to support the unproductive population, as not all of them have jobs or income. In addition, in reality, people who work or have income must also bear the burden of people who do not work, including themselves. As a result, all their economic activities will be related to the number of dependents they have. Dependency on working people indicates the potential to increase employment rates among the working-age population, for example by delaying early retirement. This is reinforced by the results of Rahmawati and Bendesa's research (2023) which is in line with the results of this study, the study states that the effect of dependency ratio on employment opportunities has a positive and insignificant effect. This can be caused by an increase in the population that is not the labor force. Productive age does not reflect that all those who enter this category want to find or get a job.

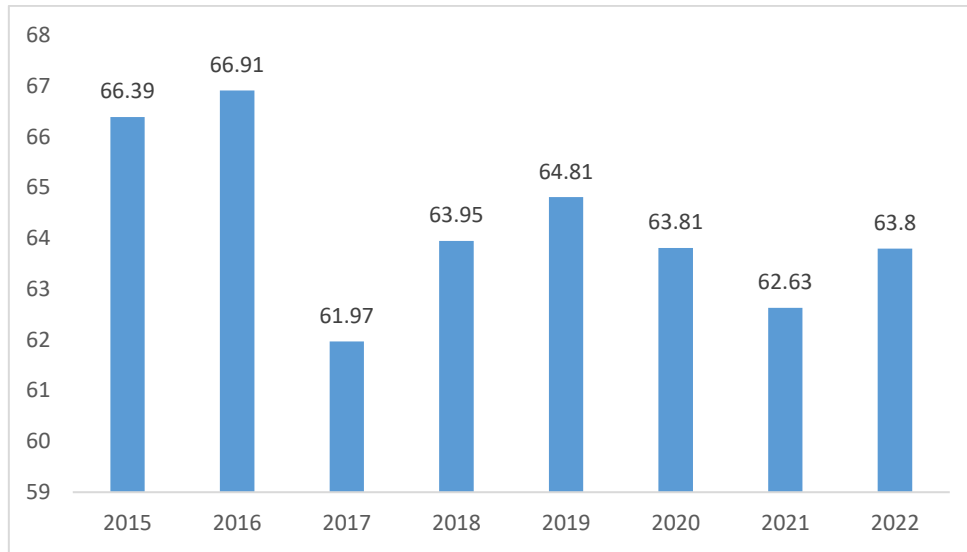


Figure 5. Labor Force Participation Rate in DKI Jakarta

Source: Central Bureau of Statistics (Data Processed), 2024

As is currently happening in DKI Jakarta Province, the value of the Labor Force Participation Rate (TPAK) based on data from the Central Statistics Agency (BPS) from 2015 to 2022 has the highest figure in 2016 at 66.91% and the lowest in 2021 at 62.63%. This downward trend in TPAK may indicate various dynamics in the labor market, including changes in the number of individuals entering or leaving the labor force, as well as the level of economic activity in the region. Despite fluctuations, this downward trend indicates that fewer working-age residents were actively engaged in the labor market during the period. Based on data from the Central Bureau of Statistics (BPS), the Labor Force Participation Rate (TPAK) for women tends to decline. This is also in line with research conducted by Pratomo (2017), which shows that female labor participation in Indonesia is influenced by their marital status. Women who are married (or have been married) tend to be less active in the labor market compared to single women. Especially for women who have children or other dependents, they often choose to stay at home or take care of the household rather than work. This phenomenon suggests that greater domestic responsibilities affect married women's participation rate in the labor market.

CONCLUSION AND SUGGESTIONS

Conclusion

The conclusions that can be drawn from this research are:

1. The results of this study show that the GRDP variable has a positive and significant influence on labor absorption in DKI Jakarta Province, which means that the higher the GRDP generated by each type of business field, the higher the labor absorption rate in DKI Jakarta Province.
2. The sectoral average wage variable has a negative influence on labor absorption in DKI Jakarta Province, which can be concluded as the higher the average wage, the lower the labor absorption rate in DKI Jakarta Province. Conversely, the higher the labor supply will reduce the average wage level.
3. The dependency ratio variable has a positive and insignificant influence on labor absorption in DKI Jakarta Province. This result is not in line with the initial hypothesis of the study. This can happen because the productive age group does not all have jobs or are looking for work. This is reinforced by data on the Labor Force Participation Rate (TPAK) of DKI Jakarta Province.

Suggestion

The suggestion that can be drawn from this research are:

1. To increase employment in DKI Jakarta Province, it is necessary to diversify the economy by providing incentives to sectors that are developing or have the potential to grow, as well as increasing investment in infrastructure to create a conducive environment for new businesses.
2. Providing subsidies or incentives to companies that employ a lot of workers can reduce the wage burden and motivate companies to absorb more workers. In addition, implement tax policies that support job creation, such as tax reductions for companies that increase the number of workers.
3. To overcome the effect of the dependency ratio, it is necessary to develop programs that increase labor force participation, especially for productive age groups that are not yet working or are looking for work. Encouraging entrepreneurship through training programs, access to capital, and coaching can create new jobs.

IMPLICATIONS

The implication of this study is that economic growth, average wage, and dependency ratio play an important role in labor absorption especially in DKI Jakarta. The government needs to focus on certain economic sectors that can increase the labor absorption that can lead to the economic growth.

LIMITATIONS

The limitations of this study are the use of limited secondary data from the period 2015-2023, and not considering other external factors such as human development index. Some indicators may also not fully describe the actual quality.

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