Impact of Economic Growth and Quality of Human Resources on Unemployment: Central Sulawesi Case Study 2016-2020

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A B S T R A K

Penelitian ini bertujuan untuk mengetahui pengaruh pertumbuhan ekonomi dan kualitas sumber daya manusia terhadap tingkat pengangguran terbuka di Provinsi Sulawesi Tengah. Penggunaan regresi data panel sangat penting untuk mengetahui besarnya pengaruh variabel pertumbuhan ekonomi dan kualitas sumber daya manusia terhadap tingkat pengangguran terbuka di Provinsi Sulawesi Tengah untuk digunakan sebagai dasar analisis. Hasil penelitian menunjukkan bahwa pertumbuhan ekonomi yang tinggi dan peningkatan Indeks Pembangunan Manusia (IPM) di Provinsi Sulawesi Tengah tidak mengurangi tingkat pengangguran terbuka di Provinsi Sulawesi Tengah. Berdasarkan hasil data panel regresi, kondisi ini menunjukkan bahwa pertumbuhan ekonomi berpengaruh positif namun tidak signifikan terhadap pengangguran karena klasifikasi bidang usaha pertambangan dan penggalian masih mendukung pertumbuhan ekonomi. Kualitas sumber daya manusia (H.R.) berpengaruh negatif namun tidak signifikan terhadap tingkat pengangguran terbuka di Sulawesi Tengah pada periode 2010-2020 karena peningkatan kualitas sumber daya manusia belum merata di daerah-daerah di Provinsi Sulawesi Tengah, terutama di daerah-daerah yang mengandalkan kegiatan pertambangan dan penggalian yang menerima lebih banyak tenaga kerja dari luar Provinsi Sulawesi Tengah. Penelitian ini masih perlu dilanjutkan dengan mempertimbangkan variabel upah dan jam kerja dalam model penelitian.

A B S T R A C T

This study aims to determine the effect of economic growth and the quality of human resources on the open unemployment rate in Central Sulawesi Province. The use of panel data regression is essential to find the magnitude of the influence of economic growth variables and the quality of human resources on the open unemployment rate in Central Sulawesi Province to be used as a basis for analysis. The results showed that high economic growth and the increase in the Human Development Index (HDI) in Central Sulawesi Province have not reduced the open unemployment rate in Central Sulawesi Province. Based on the results of regression panel data, this condition shows that economic growth has a positive but insignificant effect on unemployment because the classification of mining and quarrying business fields still supports economic growth. The quality of human resources (H.R.) has a negative but not significant effect on the open unemployment rate in Central Sulawesi in the 2010-2020 period because the improvement in the quality of human resources has not been evenly distributed in areas in Central Sulawesi Province, especially in the regions that rely on mining and quarrying activities that receive more workers from outside Central Sulawesi Province. This research still needs to be continued by considering the variables of wages and working hours in the research model.

1. INTRODUCTION

Indonesia is still in economic development and is included in the category of developing countries. Economic development is an effort to increase per capita income in a country to create a prosperous society fairly and equitably. If the economic growth of its people is high enough, then the government can successfully develop (Ferreira et al., 2020; Hassan et al., 2020; Jacobs et al., 2020). Development is also defined as economic growth; in measuring the level of economic growth, what is measured is the country's level of productivity each year (Ferreira et al., 2020; Lawanson & Umar, 2019;

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Sugiyanto & Yolanda, 2020). Economic growth means that there is activity in the economy that can increase the production of goods and services produced by the community and followed by an increase in community prosperity, which can be seen from the Gross Regional Domestic Income (Alkhawaldeh et al., 2020; Jakovljevic et al., 2020; Zhu et al., 2021). Economic growth can be seen in increasing a country or region's Gross Regional Domestic Product (GDP). If a region's GDP grows, the region's growth can be said to increase. Economic activities achieved by a part can be seen through GDP in a specific time (W. Liu et al., 2021; Varona & Gonzales, 2021; Zhao et al., 2022).

Data published by the Central Bureau of Statistics of Central Sulawesi Province shows that the increase in the growth rate of GRDP in Central Sulawesi Province has fluctuated. In 2016, the GDP growth rate was 9.94 percent, then decreased in 2017 by 7.10 percent, and in the following year experienced a significant increase, namely in 2018 by 20.6 percent. Then, data from BPS in 2019 stated that the GDP growth rate decreased by 8.83 percent; in 2020, the GDP growth rate decreased by 4.86 percent. Human resources are a significant factor in economic reform, namely how to create quality and competitive human resources in global competition. Human development in a region is seen from the Human Development Index (HDI) (Azam et al., 2023; Imeokparia et al., 2023; Sadath & Acharya, 2021). HDI is a composite index consisting of two areas of human development, namely the physical and non-physical qualities of the population. HDI consists of three indicators: health, education level, and economics. The life expectancy rate is seen from the physical quality of a person, and non-physical quality is seen from the average length of time the population takes education and illiteracy rates (Barrozo et al., 2020; Emara & Mohamed, 2023; Viddy et al., 2019; A. Wijaya et al., 2021). Improving the quality of life of human resources in general is reflected in increasing labor productivity carried out through increasing abilities or skills, discipline, productive work ethic, creative and innovative attitudes, and fostering a healthy living environment work environment to spur work performance (L. Lin et al., 2021; Moreno et al., 2021; Safwadi, 2020). The state of the regional economy also influences the quality of human resources in Central Sulawesi. If the economy in a region declines, it will impact the decline of health facilities and education, and the quality of education and health will affect the people living in the area. It is considered that the economy can affect the Human Development Index in a region (Angrist et al., 2021; Dörffel & Schuhmann, 2022; García-Tizón Larroca et al., 2020).

BPS data shows that from 2016 to 2020, the province of Central Sulawesi experienced fluctuations in the unemployment rate. In 2016, it was 3.29 percent. The highest unemployment rate was in Sigi Regency at 5.74 percent, North Morowali at 5.43 percent, and Palu City at 8.32 percent, and in 2017, it increased by 3.81 percent with the highest unemployment rate in Sigi Regency and Palu City. In 2018, it decreased by 3.37 percent. In 2018, the unemployment rate in Central Sulawesi tended to be stable; in 2019, it decreased by 3.11 percent. The unemployment rate 2019 is declining, although the decline is not significant. In 2020, it increased by 3.77 percent due to the soaring unemployment rate in several regencies/cities in Central Sulawesi Province, including Morowali Regency by 5.21 percent, North Morowali Regency by 5.16 percent, and Palu City, which jumped to 8.38 percent. Conditions: In 2020, economic growth weakened by 4.86 percent and the open unemployment rate by 3.77 percent, but the Human Development Index continued to increase yearly. However, the available unemployment rate is increasing every year.

The high unemployment rate does not affect the Human Development Index. If the Human Development Index increases, the Open Unemployment Rate decreases. Economic growth in Central Sulawesi Province is increasing, but the unemployment rate is still high in 13 regencies/cities. The government has tried to create jobs but has not effectively absorbed more workers. Therefore, this study aims to uncover: (a) The joint influence of economic growth and the quality of human resources on the unemployment rate in Central Sulawesi; (b) The partial effect of economic growth and the quality of human resources on the unemployment rate in Central Sulawesi. To achieve the study's objectives, researchers will collect economic data and data related to human resources in Central Sulawesi Province. These data will be analyzed using statistical methods to identify the relationship between economic growth, the quality of human capital, and the unemployment rate. The study results are expected to provide a better understanding of the factors affecting the unemployment rate in Central Sulawesi. Thus, the government and other stakeholders can take more appropriate steps in formulating economic policies and human resource development to reduce the unemployment rate in the region. This research has significant relevance in the economic development and welfare of the people of Central Sulawesi, as high unemployment rates can be an obstacle to achieving sustainable economic growth and improving the quality of life of its population.

2. METHODS

Research Model

The data analysis method used in this study combines cross-section (cross-sectoral observation) and time *series (*time series). The estimation of the regression model by combining all data is formulated as follows (Ha, 2020; Rahmawati et al., 2020; Tanjung et al., 2021).

$$Y = \beta\_o + \beta\_1 X\_1 + \beta\_2 X\_2 + \dots\dots\dots \beta\_n + X\_n + \varepsilon\_it \qquad (1)$$

Then formulated into this study into:

$$TPT = \beta\_o + \beta\_1 \; [\![PE]\!]\_1 + \beta\_2 \; [\![KSDM]\!]\_2 + \varepsilon\_it \qquad (2)$$

Information:
TPT   : Open Unemployment Rate
PE   : Economic Growth
KSDM   : Quality of Human Resources
β_0 : Constant
β_{1+} β_2 : Regression Coefficient
ε_{it} : *Error term*

Panel Data Regression Model

Panel data is divided into two, namely, the balanced panel and the unbalanced panel. A balanced panel occurs if the length of time for each cross-section unit is the same. An unbalanced panel appears if the length of time is not the same for each cross-section. Panel data method analysis is divided into several approaches, namely: Pooled Leats Square Model (least squares method), Fixed Effect Model (fixed eek approach), and Random Effect Model.

The *pooled least square* method combines *time series* and *cross-section data.* So, it can be said that this model uses the OLS (*Ordinary Least Square*) method or the least squares technique (Endri et al., 2020; Herawati & Angger, 2018; L. I. Wijaya et al., 2022). The equation of this model is as follows:

$$[\![TPT]\!]\_it = \beta\_o + \beta\_1it \; [\![PE]\!]\_it + \beta\_2it \; [\![KSDM]\!]\_it + \varepsilon\_it \qquad (3)$$

Information:
TPT   : Open unemployment rate
PE   : Economic Growth
KSDM   : Quality of Human Resources
β_0 : Constant
β_{1+} β_2 : Regression Coefficient
ε : Error Term
i   : Cross Section
t   : Time Series

The *fixed effect* model estimates panel data using *dummy* variables to capture *intercept* differences between variables (McGuire et al., 2021; Minh et al., 2020; Tanjung et al., 2021). The equation is as follows:

$$[\![TPT]\!]\_it = \alpha\_1 + \alpha\_1 D\_1i + \beta\_1it \; [\![PE]\!]\_it \; [\![+ \beta]\!]\_2it \; [\![KSDM]\!]\_it + \varepsilon\_it \quad (4)$$

Information:
TPT   : Open unemployment rate
PE   : Economic Growth
KSDM   : Quality of Human Resources
α : Intercept (constant)
D_i : Dummy variable
β_{1+} β_2 : Regression Coefficient
ε : Error Term
i   : Cross Section
t   : Time series

The *random effect* model is a residual possibility of interconnection between time and the individual. In the *random effect*, it is assumed that each individual has differences in interception. So, there are two residual components: individual and overall residuals (Alghifari et al., 2022; Herawati & Angger, 2018; Ly et al., 2020). Each error term accommodates the intercept differences of this model. The equation can be formulated as follows:

$$\llbracket TPT \rrbracket\_it = \beta\_1it \ \llbracket PE \rrbracket\_it + \beta\_2it \ \llbracket KSDM \rrbracket\_it + \varepsilon\_it + V\_it \qquad \textbf{(5)}$$
$$V\_it = \ C\_i + d\_t + \ \varepsilon\_it \qquad \textbf{(6)}$$

Information
TPT   : Open unemployment rate
PE   : Economic Growth
KSDM   : Quality of Human Resources
$\beta_{1+}\beta_2$: Regression Coefficient
E   : Error Term
i   : Cross Section
t   : Time Series
C_i : Constant dependent on i
d_t : Constant dependent on t

Three techniques can be used in discussing panel data regression model estimation techniques: the common effect model, fixed effect model, and random effect model. The question arises regarding which technique should be chosen for panel data regression. The common effect model is more straightforward than the other two (Schwingshackl et al., 2022; Sunaryo et al., 2020). Only by combining time series and cross-section data obtained without looking at differences between time and individuals can the common effect method be used to estimate panel data models (Grigore et al., 2022; L. I. Wijaya et al., 2022). The fixed effect model technique estimates panel data using dummy variables to capture intercept differences (Hernández-Vásquez et al., 2022; Zhu et al., 2021). The definition of fixed effect is based on the difference in intercept between individual units, but the intercept is the same between time (time-invariant) (García-Tizón Larroca et al., 2020; Rahmawati et al., 2020). The random effect method will estimate panel data in which interference variables may be interrelated over time and between (Kumar-M et al., 2020; Schwingshackl et al., 2022; Zhang et al., 2022).

To determine the panel data regression model, test which model is best. The selection of the model is carried out using the Chow test, Hausman test, and Lagrange multiplier (L.M.) test, where the three tests choose which one is the best among the common effect model, fixed effect model, or random effect model to use (Alghifari et al., 2022; Herawati & Angger, 2018; Tanjung et al., 2021). The F test in panel data regression analysis tests the model's overall significance by assessing whether at least one independent variable contributes significantly to the dependent variable. If the F-statistic value exceeds the critical value or the p-value is smaller than the established significance level, then the model is considered significant. This test is essential for validating the effectiveness of regression models in statistical research (Berndt et al., 2021; Handoko et al., 2019; Silva et al., 2020; Tangngisalu et al., 2020). The t-test in the context of panel data regression is an important step to evaluate the individual significance of each independent variable in the model. In panel data regression, where data is collected from various subjects (e.g., individuals, companies, countries) over time, the t-test helps determine whether the coefficients of an independent variable are statistically different from zero. This process is carried out by comparing the t-statistical value generated from the regression model estimation with the critical value of the t-distribution. Suppose the absolute value of the t-statistic is greater than the critical value at a given level of significance (e.g., 0.05 or 0.01). In that case, the independent variable significantly contributes to the dependent variable (Aslam et al., 2020; K. Khan et al., 2020; Olson et al., 2021; Wang et al., 2022).

The multicollinearity test is a test used to determine the presence or absence of linear relationships between independent variables in panel data regression (Deng & Liu, 2022; Ismaeel et al., 2021; Leitão et al., 2022; Meister et al., 2023). The linear relationship that occurs between independent variables in a regression is an indicator of multicollinearity Heteroscedasticity testing occurs when *the error* or residual model under study does not have a constant variance from one observation to another. Heteroscedasticity exists in regression models because the estimates obtained are inefficient (Amar et al., 2022; Bastos et al., 2023). Detecting heteroskedasticity problems can be done with several tests, including *the Glacier Test*. *Glesjer's* test first simulates its absolute residual to see the problem with *Glesjer's* calculation of the probability value of each independent variable. If the probability value is smaller than 5

percent, it can be said that there is a heteroscedasticity problem. Conversely, if the probability value is more than 5 percent, it can be said that in this study, there is no heteroscedasticity problem. Heteroskedasticity testing was performed with *Glesjer* as follows:

$$\varepsilon\_it = \beta\_1xi + v\_t \qquad (7)$$

The instruments in regression analysis that a panel in this study using EViews software provide a comprehensive and efficient approach in processing and analyzing data involving time dimensions and across subjects, such as data from various countries, companies, or individuals throughout a specific time (Benlaria et al., 2023; Doktoralina & Nisha, 2019). EViews allows researchers to easily input panel data, organize its structure, and perform various analyses, including panel data regression model estimation. This software offers a wide selection of estimation methods, such as Fixed Effects, Random Effects, and Least Squares Dummy Variable (LSDV), which allows researchers to choose the method that best suits the nature of the data and research objectives. In addition, EViews also provides tools to perform statistical tests such as the Hausman test, which helps select the correct model between Fixed Effect and Random Effect. The ability to perform diagnostic tests and multicollinearity also helps validate model assumptions (Tjandrasa et al., 2020; Zbuchea et al., 2019). With its user-friendly interface and easy-to-interpret analysis output, EViews is a popular choice among researchers to perform effective and accurate panel data analysis.

3. RESULTS AND DISCUSSIONS

Results

The decisions drawn from the test results of panel data regression models performed for the Lagrange multiplier, Chow Test, and Hausman Test are presented as follows:

Table 1. Model Test Results

Panel Model Test Description	Model	Prob.	Selected Model
Lagrange multiplier	CEM/REM	0.0077	REM
Chow Test	CEM/FEM	0.0000	FEM
Hausman Test	REM/FEM	0.0032	FEM

Source: Processed Data from E-views 10

Table 1 shows that the decision model used is a fixed effect model because the Chow and Hausman tests choose the same model, namely *the fixed effect model*. Based on the results of panel data regression analysis using E-views 10, the fixed effect model is obtained as follows:

$$TPT = 18.28776 + 0,000046 \, PE - 0.218151 \, KSDM + \varepsilon \qquad (8)$$

This result shows that if the independent variable is considered constant, the TPT variable will increase by 18.28776. This equation also shows the relationship between P.E. and H.R. variables with TPT variables. The economic growth variable will cause an increase in the open unemployment rate of 4.60E-05, assuming other variables are considered constant. If economic growth increases by 1 percent, the open unemployment rate will increase by 4.60E-05 percent. The human resources variable has a decreasing impact on the open unemployment rate of -0.218151, assuming other variables are considered constant, meaning that if human resources experience an increase of 1 percent, the open unemployment rate decreases by -0.21811 percent.

Table 2. F Test Results

F-Statistik	Prob (F-Statistik)
7.598452	0.000000

Source: Processed Data from E-views 10

The results of the analysis show that simultaneously (test F) in Table 2, the variables of economic growth and the quality of human resources have an effect and are significant on the open unemployment rate (p-value < 5 percent), namely the F-Statistic probability of 0.000000 < 0.05.

Table 3. Test Results t

Variable	Coefficient	Std. Error	t-Statistik	Prob.
C	18.28776	9.803000	1.865526	0.0680
PE	4.60E-05	0.009696	0.004743	0.9962
SDM	-0.218151	0.144446	-1.510258	0.1373

Source: Processed Data from E-views 10

Based on Table 3, partially the economic growth variable has a probability of 0.9962 > 0.05, meaning that the economic growth variable has a positive and insignificant influence on the open unemployment rate variable. The variable of human resource quality has a probability of 0.1373 > 0.05, meaning that the variable of human resource quality has a negative and insignificant influence on the variable of the open unemployment rate.

Table 4. Multicollinearity Test

Variable	PE	SDM
PE	1.000000	0.132811
SDM	0.132811	1.000000

Source: Processed Data from E-views 10

The tested model has a VIF value of > 10.00, so the selected regression model has a multicollinearity problem. Based on Table 4, no number exceeds 10.00, so it can be interpreted that this model is free from multicollinearity problems.

Table 5. Heteroskedasticity Test

Variable	Coefficient	Std. Error	t-Statistik	Pro.
C	8.386350	4.626058	1.812850	0.0759
PE	-0.002865	0.004576	-0.625550	0.5345
SDM	-0.114603	0.068165	-1.681275	0.0989

Source: Processed Data from E-views 10

The results of the heteroskedasticity test as presented in Table 5 using *fixed effect* model estimation through *glacier* tests were carried out to determine the problem of heteroskedasticity. Glacier test: if a variable has a probability value of < 0.05, there is a heteroskedasticity problem. The results of the heterokedastistas test in this study show that the probability value of economic growth variables is 0.5345 > 0.05 and human resource quality variables 0.0989 > 0.05, so it can be concluded that there is no heteroscedasticity problem in this research model.

Discussion
Open Unemployment Rate in Central Sulawesi Province
The development of the open unemployment rate in Central Sulawesi Province is still relatively high. Central Sulawesi has a population of 1.635.109 people, with a total unemployment rate of 59.381 or 3.77 percent in 2020. Based on data published by the central statistics agency, there are two regencies and one city that have the highest unemployment rate in Central Sulawesi, namely North Morowali at 5.16 percent, Morowali at 5.21 percent, and Palu City at 8.38 percent. The unemployment rate in Central Sulawesi is still relatively high because the number of the labor force is not proportional to the number of available jobs. High unemployment can lead to reduced welfare due to the absence of public income. The results of this study show that the variables of population growth rate, labor force, education, and government spending significantly affect the open unemployment rate simultaneously. Partially, the rate of economic growth, education, and government spending has a negative and significant effect on the open unemployment rate (Kuroishi et al., 2022; Tang et al., 2022; Yi et al., 2022).

Economic Growth and Human Index on the Number of Poor People has no significant effect (Al-Eitan et al., 2022; Mamman & Sohag, 2023; Susilastuti, 2018). HDI directly and negatively affects the poverty rate (Al-Eitan et al., 2022; Mamman & Sohag, 2023). In contrast, economic growth does not significantly reduce poverty (Kyara et al., 2022; Shah et al., 2022). Then, it also appears that unemployment positively affects the poverty rate. Economic growth variables have a positive but insignificant effect on poverty rates (T. Chen et al., 2022; Sun et al., 2020; Yameogo & Omojolaibi, 2021).

An educational institution cannot guarantee a reduction in unemployment. Education cannot guarantee a person a job (Benda et al., 2018; Murtin & Robin, 2018). Unemployment is also said to be the condition of people who want to work but have not found a job due to lack of employment or other factors beyond their ability to get a job (Amar et al., 2022; Antipova, 2021; X. Liu & Li, 2022). Being unemployed is not someone's desire, but someone is forced to be unemployed because of a situation. Here are some causes of unemployment: (a) The population is relatively large while employment opportunities are relatively low (Bai et al., 2022; Pedersen et al., 2022; Sanchez Rico et al., 2023); (b) Relatively low education and skills (Civaner et al., 2022; Kuzior, 2022; Olutuase et al., 2023); (c) Increasingly advanced technology has not been matched by human capabilities (Islam et al., 2022; Kolade & Owoseni, 2022; Peitzmeier et al., 2022); (d) Entrepreneurs who always want to pursue profits by making savings such as the application of rationalization (Huang et al., 2022; Nziku & Henry, 2020; Soto-Simeone & Kautonen, 2021).

Measuring the unemployment rate in a region can be obtained from two approaches, namely, the labor force approach and labor utilization. Unemployment can be distinguished into several types: (a) Frictional or transitional unemployment is a type of unemployment that can be caused by changes in employment conditions that occur along with economic developments that occur (Owusu Ansah et al., 2021); (b) Structural unemployment is unemployment that occurs due to changes in the structure of the labor market and causes a mismatch between the demand and supply of labor (Aranda Jiménez et al., 2022; Kuzior, 2022; Owusu Ansah et al., 2021); (c) Natural unemployment occurs due to full employment or unemployment where the expected inflation is equal to the actual level of employment (Amor, 2023; D'Amuri et al., 2022; Trasca et al., 2019); (d) Cyclical unemployment is a type of cyclical unemployment due to a decrease in economic activity or due to less effective aggregate demand in the economy than aggregate supply (Bechný, 2019; Bušs & Grüning, 2023; El Yahyaoui & Amine, 2023).

Unemployment will always exist in an economy for several reasons. The second is the rigidity of wages. Three things cause the rigidity of wages: the existence of minimum wages, the collective bargaining power of trade unions, and efficiency wages (Ezquerra et al., 2023).

The Effect of Economic Growth and the Quality of Human Resources Simultaneously on the Open Unemployment Rate

The data processing results show that the variables of economic growth and the quality of human resources have a positive and significant influence on the open unemployment rate. The coefficient of determination (R2) test results also show that the two independent variables considerably influence the open unemployment rate, which is 68 percent. This shows that the variables of economic growth and the quality of human resources play an essential role in supporting changes in the variable of the open unemployment rate. Increasing quality and highly competitive human resources in global competition and increasing economic growth can reduce unemployment. The results of this study are in line with research which says that economic growth and the quality of human resources have a significant effect on the open unemployment rate (Alrakhman et al., 2022; Samarah, 2021; Warsame et al., 2022; Yob et al., 2022). Economic growth is said to be successful if the influencing factors can be fulfilled as factors that affect the economic growth of a society or country is capital accumulation, including all new investments in the form of land (land), fiscal equipment, and human resources (human resources), in addition to population growth and technological advances (Fratila et al., 2021; Shah et al., 2022; Zhao et al., 2022).

Economic growth is an effort made by the government in economic policy aimed at improving public welfare, expanding employment opportunities, and leveling income distribution. It is supported by strategies to improve the quality of human resources in Indonesia. The success of economic development in a region is seen from the significant contribution of the GRDP sector (Grigore et al., 2022; Mamman & Sohag, 2023; Ogunjobi et al., 2021). Economic growth is the development of economic activity in a country that produces goods and services that increase people's welfare in the long run (Fan & Liu, 2022; Jacobs et al., 2020; W. Liu et al., 2021). Economic growth is also seen as a macroeconomic problem in the long run. A country's ability to produce goods and services will increase from one period to another. This ability is due to production factors that continue to increase (Alrakhman et al., 2022; Amor, 2023; Mahon, 2019). According to Harrod Domar's theory, every economy must reserve some national income to increase or replace capital goods to spur economic growth. New investment is needed, a net addition to reserves or capital stock (Alrakhman et al., 2022; Ojo et al., 2020; Skare et al., 2021).

The Solow-Swan theory says that economic growth depends on the availability of factors of production consisting of population, labor, capital accumulation, and technological progress. This view of the theory is based on the assumption underlying classical economics, namely the economy at the level of full employment and the level of full utilization of the factors of production, meaning that economic growth will continue to develop but depends on the addition of population, labor, capital accumulation, and technological progress (Y. Chen et al., 2021; N. A. Khan et al., 2021; Thach, 2020).

The Effect of Economic Growth on the Open Unemployment Rate

The classical theory says that the relationship between economic growth and unemployment is negative. Namely, rapid and high economic growth can reduce unemployment in a region. Any increase in economic growth is expected to absorb labor to reduce unemployment (Bajrami et al., 2022; Janáková Sujová et al., 2023; Sisodia et al., 2021; Widarni & Bawono, 2023). The results showed that the economic growth variable had a positive and insignificant influence on the open unemployment rate in Central Sulawesi Province with a coefficient value of 0.00004.6, showing that if the economic growth variable increased by 1 percent, the open unemployment rate increased by 0.00004.6 percent.

This research does not align with the theory that if economic growth increases, the unemployment rate decreases. It is insignificant because Central Sulawesi experiences uneven economic growth in every sector. As a result, not all people are absorbed by the available sectors. The GRDP sector that absorbs a lot of labor is the mining sector and the processing industry. The unemployment rate in Central Sulawesi fluctuated steadily every year. Still, it soared high in 2020 due to the entry of the Covid-19 outbreak in Indonesia, which had an impact on the economy of Central Sulawesi and resulted in seven sectors experiencing minus growth, namely the agriculture, forestry, and fisheries sector by -1.34 percent, the construction sector by -8.47 percent, the large trade sector, and retail: car and motorcycle repairs by -6.15 percent, transportation, and trade sector by -33.12 percent, accommodation, and food and drink provision sector by -11.05 percent, education services sector by -1.63 percent and other sectors by -0.04 in this sector the non-absorption of community labor in Central Sulawesi which resulted in the unemployment rate continuing to increase.

The Effect of Human Resource Quality on Open Unemployment Rate

Unemployment causes the level of prosperity of the community to be not maximal, while the purpose of development is to create prosperity and welfare of the community. If unemployment is high, people's income will decrease so that people's purchasing power decreases, while education and health, which are basic needs to improve the quality of human resources, also cannot be fulfilled (Farooq et al., 2019; Rąb-Kettler & Lehnervp, 2019; Rees et al., 2021). The results of the analysis show that the variable quality of human resources has a negative and insignificant influence on the open unemployment rate in Central Sulawesi Province with a coefficient value of -0.218151 percent, meaning that if the variable quality of human resources increases by 1 percent, the variable open unemployment rate decreases by 0.218151.

Central Sulawesi's HDI data shows that every year, it has increased, but the unemployment rate has also increased. Central Sulawesi is an area where the quality level of human resources is quite good and increases yearly. Central Sulawesi's most significant GDP contribution comes from the mining, quarrying, and processing industries, which absorb a lot of labor. Based on data from the Central Agency for Unemployment Statistics in Central Sulawesi, dominated by vocational graduates in quality, these graduates have their respective skills. Still, they cannot be absorbed in the world of work. Central Sulawesi's economic growth weakened due to the low contribution of the agriculture, forestry, and fisheries sectors. Even to the minus number, this sector caused the non-absorption of human resources and caused the unemployment rate to increase. Human resources are essential assets in a country. Human resources require significant attention from various parties so that their potential can be maximized in achieving the goals of an organization in improving a country's economy (Ariyani et al., 2021; Awaah et al., 2021; Pham, 2020). The quality of human resources is the distribution of work efforts or services in the production process. Human resources describe the quality of work effort a person gives to produce goods and services within a certain period. Human resources also concern someone who can work to provide services or work efforts. Being able to work means carrying out activities that have economic value. Namely, these activities produce goods and services to meet the community's needs. Physically, the ability to work is measured by age. That is, working-age people are considered capable of working (Ariana et al., 2020; Dodd et al., 2021; C.-Y. Lin et al., 2020).

Human resources, in addition to natural resources and capital, are factors that can affect the regional economy. Human development has four critical elements, such as increasing productivity, securing employment opportunities, sustainable development, and human empowerment through improved education and health contained in the Human Development Index (Ambrósio et al., 2021; Azam et al., 2021; Chien, 2023). Human development in terms of national and regional contexts can spur economic growth. A development policy that is not balanced with improving the quality of human resources will impact the development process. Improving the quality of human resources is beneficial for reducing disparities between regions, which is a problem for the majority of developing countries, especially in highly densely populated countries (Kusworo, 2023; Safuri et al., 2022; Wardana et al., 2022).

4. CONCLUSION

This study aims to analyze the Effect of Economic Growth and Human Resource Quality on the Open Unemployment Rate in Central Sulawesi Province in 2016-2020. This study used the panel data method. The model used in this study is the fixed effect model after going through the model test stage. The results of this study show that: (a) Simultaneously, the variables of economic growth and the quality of human resources have a positive and significant influence on the open unemployment rate in Central Sulawesi Province in 2016-2020; (b) Partially, economic growth variables have a positive and insignificant influence on the open unemployment rate in Central Sulawesi Province in 2016-2020 and partially v variable the quality of human resources has a negative and insignificant influence on the open unemployment rate in Central Sulawesi Province in 2016-2020. Further research can review the influence of several variables such as education level, poverty, population growth, and the use of longer observation years to support better results. Future research could take several steps to deepen understanding of unemployment dynamics. First, adding variables such as education level, poverty, and population growth is expected to provide a more comprehensive picture of the factors affecting unemployment. Second, using observational data over extended periods will help identify long-term trends. Third, comparative studies with other provinces in Indonesia can provide a broader perspective on the influence of the same variable in different environments. Fourth, further explore the influence of human resource quality, especially aspects of skills, job training, and educational relevance. Fifth, explore other analysis methods to see differences in results or interpretation of data. Finally, an analysis of government policies in Central Sulawesi related to unemployment and human resource development will be conducted to assess their effectiveness and provide more targeted recommendations. This research is expected to significantly contribute to unemployment reduction strategies and improve the quality of human resources.

5. ACKNOWLEDGE

6. REFERENCES

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