

## The Impact of Government Spending on Economic Output Provinces In Indonesia

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### ABSTRACT

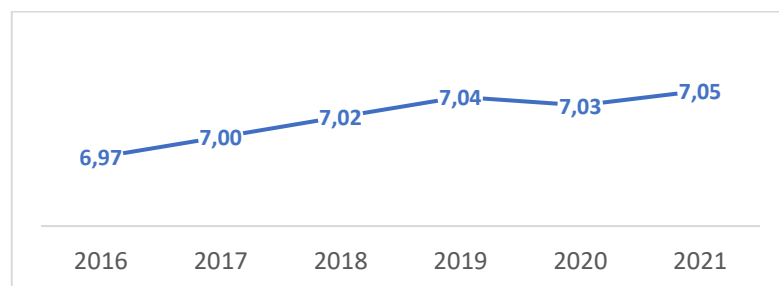
The purpose of this study is to analyze the impact of government spending on provincial economic output in Indonesia. GRDP is used as a proxy for economic output growth. The object research is the provinces in Indonesia (33 provinces) with the research period 2016-2021. The research method used is Generalized Least Square (GLS). The results showed that the variables of unemployment, government spending on social protection, mean of year's schooling (MYR) and labor had a significant effect on output growth (GRDP), while education spending did not significantly affect output growth. Therefore, the central and regional governments make planning plans on an annual, medium-term and long-term basis with the intention that the role of the existing budget in government can produce targeted output, especially in the education sector.

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## Introduction

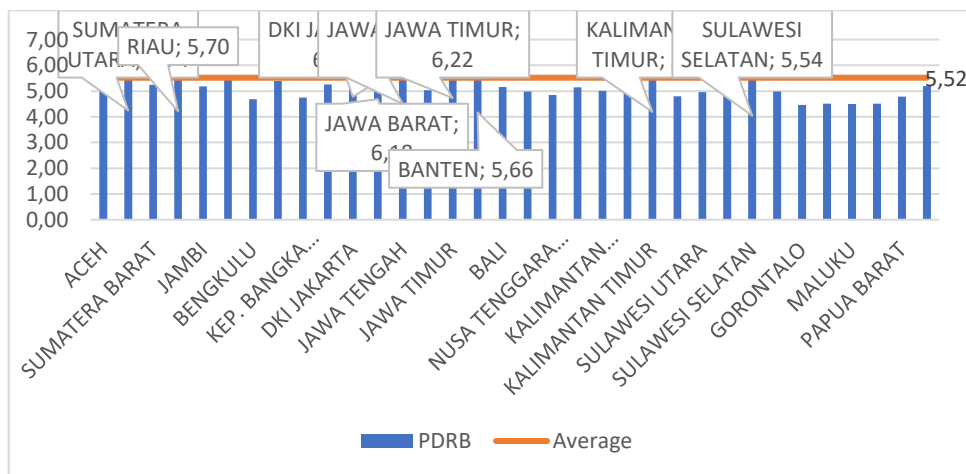
The success of regional development can be seen from the increase in economic output. The GRDP indicator is a reference for the success of regional development as seen from the development of the GRDP value every year. The positive growth of the GRDP value proves an increase in regional economic activities, the level of welfare and the quality of life of the community. GRDP growth is used as a measure of productive economic activity in an area. The growth of Indonesia's GRDP can be seen in the picture below. Based on figure 1, the development of GRDP for six years (2016-2021) shows positive results. The positive development of GRDP shows that the level of welfare and flow of goods and services have increased, only in 2020 it has decreased due to Covid 19. In general, the average GRDP growth is around 7% every year. The increase in the value of GRDP is inseparable from the growing economic activity of the region.



Source : BPS (2022)

**Figure 1.** Indonesia's GRDP for 2016-2021 (percent)

The positive development of the GRDP value is influenced by the contribution of GRDP in each region because the regions can manage the economy independently. Several provinces have contributed GRDP to the Indonesian economy as can be seen from the GRDP value above the average provincial value. Nine provinces can provide GRDP scores above the average Indonesian GRDP, namely North Sumatra, Riau, DKI, West Java, Central Java, East Java, Banten, East Kalimantan and South Sulawesi. Furthermore, from the 33 provinces, only 9 provinces can improve the Indonesian economy, while 24 provinces have not reached an output value (GRDP) above the average Indonesian GRDP. In general, it can be seen in figure 2, there are still many provinces that have not reached the GRDP value above the average value of Indonesia's GRDP, this can be seen in figure 2 there are differences in resources and economic performance in each region.

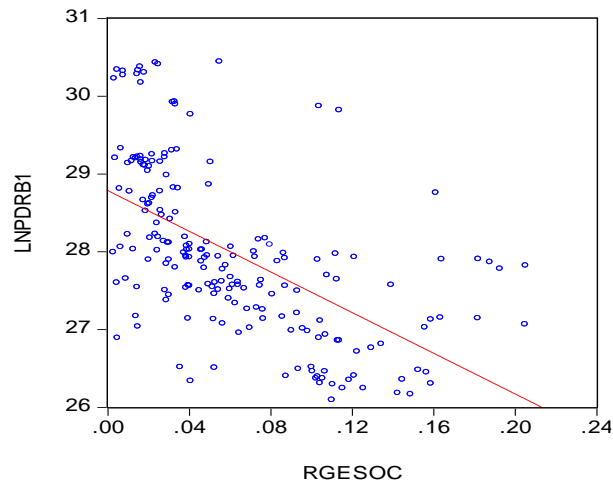


Source : BPS (2022)

**Figure 2.** GRDP Value on the Basis of Constant Prices of Provinces in Indonesia Year 2021 (percent)

The role of the government in increasing GRDP growth can be through pre-planned local government spending. The budget planning of local and central governments is aimed at meeting the GRDP growth targets in each region. The existence of Covid 19 has an impact on the high unemployment rate and people losing their jobs. Some government policies to revive regional economic activity through social protection programs. Social protection programs aim to protect the Indonesian population by reducing the vulnerable and poor population during shocks and the high cost of *living costs*. Social assistance programs will continue to be refined in integrated, targeted, more effective and efficient implementation in reducing poverty. The purpose of the social protection program is to overcome the problem of social vulnerability in each region. Efforts made from social protection programs by increasing and improving the capacity of the population in protecting from disasters and loss of income (Annex to Presidential Regulation No. 18 of 2020, RPJMN 2020-2024).

Some of the programs that have been carried out start from the Smart Indonesia Card (KIP), Children's Social Welfare Program (PKSA), Pre-Employment Card, School-Age Children's Mission Aiming Program, Family Hope Program (PKH), National Health Insurance (JKN), Social Food Assistance (BSP), Rice Program for Prosperous Families (Rastra), Non-Cash Food Assistance (BPNT), People's Business Credit (KUR), Working Age Business Assistance / Productive Joint Business Group (KUBE), MSME training, 3 kg electricity and gas energy subsidy, Employment BPJS, Elderly Assistance and Rehabilitation, Assistance for Uninhabitable Houses / Self-Help Housing Stimulant Assistance (RTLH / BSPS) and so on ([anggaran.kemenkeu.go.id](http://anggaran.kemenkeu.go.id)). Social protection programs can be run through government budgets. The government's budget for social protection is expected to affect the increase in regional GRDP. However, the social protection budget is negatively related to the growth of GRDP as seen from *the scatter plot* image below.



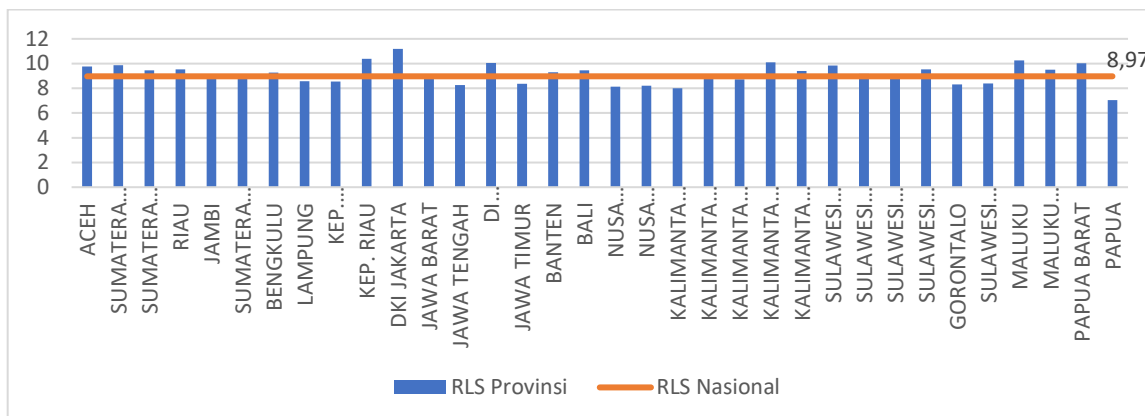
Source : BPS (2022)

**Figure 3** Scatter Plots Government Budget social protection with GRDP On The Basis Of Constant Prices Of Provinces In Indonesia In 2016-2021 (percent)

The social protection budget issued by the local government has not provided optimal results. This can be seen from figure 3 showing a negative relationship with GRDP growth. The budget targeted by the government cannot necessarily increase GRDP due to differences in the resources of each region in Indonesia. Then some regions have different constraints in managing budgets to achieve GRDP growth targets.

Then education contributes positively to the growth of GRDP which is seen from the increase in the average length of schooling (Teixeira & Queirós (2016). The average length of schooling (RLS) is the average number of years spent by residents aged 15 years and over to pursue all types of education that have been undergone (BPS, 2022). RLS is used as a measure of the government's success in improving the quality of human resources which is expected to contribute to the increase in output (GRDP). The condition of the RLS is a serious concern for the government because the RLS indicator is one of the determinants of increasing the Human Development Index (HDI). The research study of Son et al (2013) shows that education has a very strong influence on economic growth. The existence of a nine-year compulsory education program will show the government's success in improving human resources.

The compulsory education program shows how far the community has come in fulfilling formal education for nine years. From figure 4 shows the condition of the provincial RLS with the national. Provinces in Indonesia that have an RLS value exceeding the national RLS are only a few, only 18 provinces have exceeded the national RLS of 34 provinces (total provinces). So the provinces that have exceeded the 9-year compulsory education are 18 provinces, while the 24 provinces generally have not reached the 9-year compulsory education. In this case, there are still many regions that have not reached the target of the mandatory 9-year program. Low achievement in education will make it difficult to improve the quality of human resources, even though productive development inputs are inseparable from the high quality of human resources.

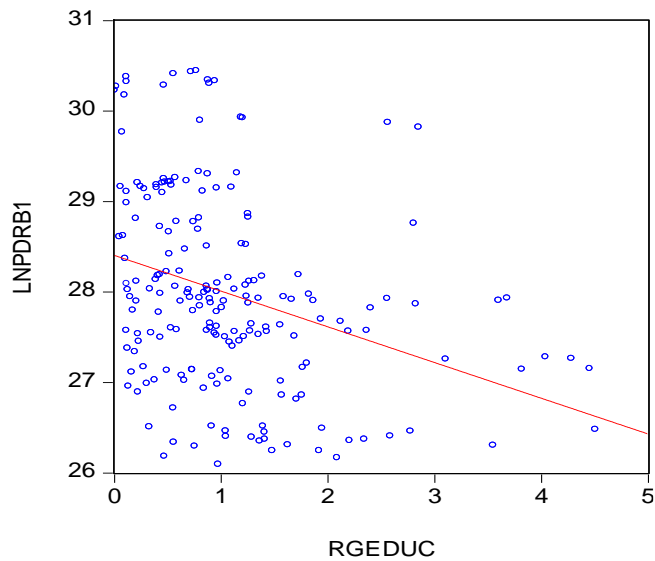


Source: BPS (processed)

**Figure 4** Provincial and National Average School Length (RLS) in 2021

Local governments to measure the success of education are seen from the development of RLS. The development of RLS will affect the quality of education which has an indirect impact on increasing the growth of GRDP. Quality education will be achieved if the community is able to develop technology, capacity so that it can create sustainable development (Todaro and Smith 2006). Therefore, educational programs implemented by the government can provide the ability of the community to absorb technology that can increase the capacity of human resources.

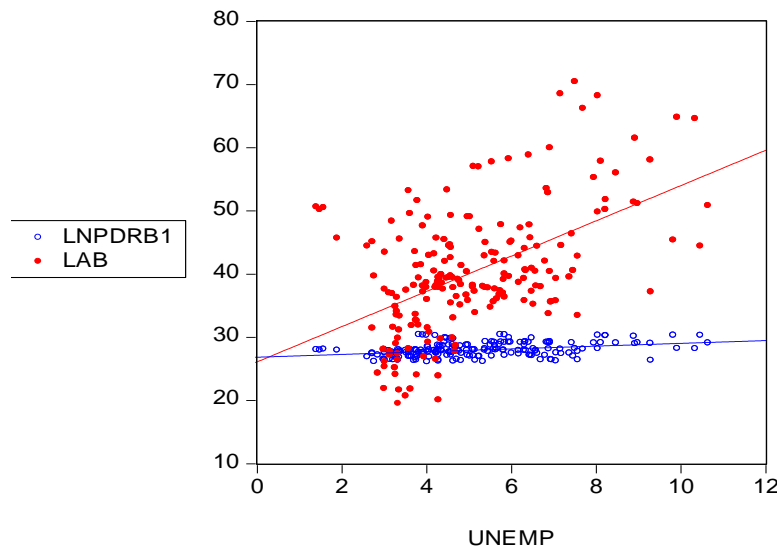
The government budget in the education sector is one part of increasing the value of GRDP through programs to improve the quality of human resources. Quality human resources become productive development inputs. Therefore, with the education sector budget, it is hoped that the education infrastructure will run well. The education budget is expected to meet government policies as stated in Law Number 12 of 2012 article 83. The education budget is run to build a better education system. Then the government expenditure in the education sector becomes an investment to increase people's productivity. Based on Law 12 of 2012, the government must issue 20 percent of the state budget for the construction of facilities and infrastructure in the field of education (Wahid 2012). However, the relationship between the education budget and GRDP growth seen in the figure 5 (*scatter plot*) below shows the opposite result. Government spending on education has not been able to directly increase the growth of GRDP. In improving quality human resources through the education budget, it has not been able to positively affect the increase in GRDP growth. According to (Akai and Sakata 2002) explained that the relationship between economic growth and fiscal decentralization will work well if fiscal decentralization contributes to economic growth. The positive contribution of fiscal decentralization can be achieved when the government is able to manage finances in accordance with the targets and achievements of economic growth. Some studies state that government spending may not necessarily directly affect the increase in the value of GRDP such as research from Teixeira & Queirós, (2016) which concluded that government spending negatively affects economic output. Furthermore, the results of research by Teixeira & Queirós, (2016) show that human capital is an important key in increasing economic output.



Source : BPS (2022)

**Figure 5** Scatter Plots Government Budgets in the Education Sector with GRDP On The Basis Of Constant Prices Of Provinces In Indonesia In 2016-2021 (percent)

One of the programs that is often carried out by local governments in achieving a productive society by expanding employment opportunities. When local governments want to expand employment, local governments need to explore the potential of regions to increase economic growth. Positive output growth is expected to encourage increased production so that people have the opportunity to get jobs. In addition, the greater the chances of people getting jobs, the more likely it is to increase output growth. Conversely, limited employment has an impact on increasing unemployment, which will hinder output growth.



Source: BPS (processed)

**Figure 6** Scatter plot of GRDP Growth with Labor and Unemployment in Indonesian Provinces in 2016-2021 (Percent)

Based on *the scatter plot* (figure 6), the workforce in Indonesian provinces contributes to increasing GRDP growth, while the unemployment rate has a similar relationship with GRDP growth. Provincial employment in Indonesia can increase output growth optimally but unemployment is positively correlated with output growth. This is a challenge for the central and local governments to increase the value of GRDP in Indonesia. The increase in the number of workers must be accompanied by the size of employment so that people have the opportunity to get a job. Then the government must be able to create the production of goods and services by relying on labor-intensive. In this case the government can make rules or laws against companies to provide job vacancies.

Some studies try to explain the factors that affect output growth (GRDP). Empirical studies that explain educational indicators can influence economic growth such as the research of Teixeira & Queirós (2016) show human capital can influence economic growth. Then the research of Son et al., n.d. (2013), that RLS can have a significant effect on economic growth. Empirical studies from Nedin et.al (2015) and Zaman & Imran, (2016) which state unemployment negatively affects economic growth. Furthermore, research from Purba & Budiono (2019), Krismajaya & Dewi (2019) and Zulfina et. al (2018), in increasing output growth where government spending plays an important role. Government budget planning in accordance with development targets will make it easier to increase output growth. Government spending is expected to provide infrastructure that is in accordance with the wishes of the community so that output growth can be achieved. The study of Ruhen et. al (2018) , Pambudi & Miyasto (2013), Barimbing & Karmini, (2015), Karmini (2015), and Bai et al., (2012) explained that labor affects significantly the growth of output. Empirical studies that explain unemployment can reduce output growth such as Omeje et al., (2019) & Iloabuchi, (2019), the results of his research show that high unemployment illustrates the lack of the quality of human resources and decreases economic growth.

## Research Methods

Quantitative descriptive research used in this study using secondary data. Secondary data in this study were sourced from the Central Statistics Agency, and the Directorate General of Financial Balance (DJPB) of the Ministry of Finance of the Republic of Indonesia. The *Generalized Least Square* data panel model is the model used in this study. The research period to be studied is six years (2016-2021). The object of this study is 33 provinces in Indonesia. The research variables to be studied include output growth (GRDP), unemployment (UNEMP), the ratio of government spending on social protection to economic output (PGESOC), the ratio of government spending in the field of education to economic output (PGEDUC), the average length of schooling (RLS), labor (LAB). This research variable refers to empirical studies of (Teixeira & Queirós (2016), Pasichnyi et al., (2019), Son et al. (2013), Purba & Budiono (2019), Krismajaya (2019) and Zulfina et al. (2018), (Mohi et al. 2022) modified for research needs. The similarities of this study are:

$$\text{LnPDRB}_{it} = \beta_0 + \beta_1 \text{Lnunemp}_{it} + \beta_2 \text{Pgesoc}_{it} + \beta_3 \text{Pgeduc}_{it} + \beta_4 \text{RLS}_{it} + \beta_5 \text{LnLab}_{it} + \mu_{it} \quad (1)$$

This research model will be carried out testing of Chow and Hausman. Chow tests are performed to determine the *most appropriate fixed effect or common effect* model used in estimating panel data. If the probability of  $\geq 0.05$  then  $H_0$  is accepted, meaning that the CEM (pool least square) model will be used and vice versa using the FEM (fixed effect model) approach. Chow's test results turned out to be using FEM, followed by Hausman testing. Hausman test to determine the right model is used in random effect (REM) or FEM models. The REM model can be used if the probability of chi-square  $\geq \alpha$  (0.05) and chi-square is below  $\alpha$  (0.05) then the FEM model will be used in this study. After obtaining the results of the study, statistical testing will be carried out (Test t & Test f) and classical assumptions (Multicollinearity, Autocorrelation and Heteroskedasticity). Multicholnearity to see the existence of linear relationships between free variables. The existence of multicholnearity can be seen from the large number of insignificant free variables with a very large coefficient of determination. Autocorrelation due to the OLS estimator does not produce a BLUE estimator, autocorrelation occurs in time series data. Autocorrelation symptoms show correlations between members observed over time. Heteroskedasticity test to see whether the residual of the formed model has a constant variance or not. The existence of heteroskedastistics can be seen from the results of the t test and the F test to be inaccurate. How to detect heteroskedasticity using the breusch-pagan and white heteroscedastic methods.

## Results and Discussions

The results of the study are partially explained between free and non-free variables. Before conducting the analysis, the Chow test and hausman test (see Table 1 & 2) were carried out, these two results showed a probability value below the confidence level, so the most suitable model in this study used a fixed effect model (FEM).

**Table 1.** Chow Test

Redundant Fixed Effects Tests  
Equation: EQ01  
Test cross-section fixed effects

Effects Test	Statistics	d.f.	Prob.
Cross-section F	2796.482621	(32,160)	0.0000
Cross-section Chi-square	1253.036298	32	0.0000

Source : author's calculation

**Tabel 2.** Hausman Test

Correlated Random Effects – Hausman Test  
Equation: EQ01  
Test cross-section random effects

Test Summary	Chi-Sq. Statistics	Chi-Sq. d.f.	Prob.
Cross-section random	36.877492	5	0.0000

Source : author's calculation

Meanwhile, multicollinearity testing in this study did not have a strong correlation between free variables so that there was no multicollinearity problem (Gujarati, 2012). Furthermore, the autocorrelation test has a probability value below the confidence level so that this study contains autocorrelation problems (see Table 3 and 4). Then this study did not have a heteroscedasticity problem because the probability value was above the confidence level see Table 5). Generalized Least Square (GLS) is the model used in this study. The GLS model is used to make corrections from classical assumptions such as multicollinearity, autocorrelation and heteroscedasticity.

**Tabel 3.** Multicollinearity Test

	PGEDUC	RLS	UNEMP	LNLAB
PGEDUC	1	0.039284	0.083606	0.072437
RLS	0.039284	1	0.451843	0.57011
UNEMP	0.083606	0.451843	1	0.504989
LNLAB	0.072437	0.57011	0.504989	1

Source : author's calculation



**Tabel 4.** Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistics	171.3777Prob. F(2,190)	0.0000
Obs*R-squared	127.3860Prob. Chi-Square(2)	0.0000

Source : author's calculation

**Tabel 5.** Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistics	1.544650Prob. F(5,192)	0.1778
Obs*R-squared	7.656612Prob. Chi-Square(5)	0.1762
Scaled explained SS	6.352231Prob. Chi-Square(5)	0.2734

The results of the regression of the GLS data panel in this study are found in Table 6. The variable unemployment rate negatively affects and significantly affects the growth of output. Any 1% increase in the unemployment rate will reduce output growth by 0.013%. The open unemployment rate has an influence on output growth according to research by Eze Onyebuchi et al. (2016) which shows a relationship between unemployment and output growth. The government immediately created jobs that matched the age conditions of the working population to provide employment opportunities so that a dense population could be absorbed in a labor force that was not classified as unemployed. Research study of Chima Chidi Iloabuchi (2019) there is a reverse relationship between the unemployment rate and economic growth. The higher the unemployment rate, the greater the economic growth, which can increase the poverty rate. In general, the poverty rate has increased due to low economic activities that can increase the unemployment rate. The use of efficient inputs will increase labor productivity, the government needs to pay attention to the condition of the population both in working age and non-working age so as to encourage job opportunities to reduce the unemployment rate. The number of people who are classified as dense in an area, the government must immediately improve the sectors that can be used as leading sectors so that people have the opportunity to work so that labor input runs efficiently. Theories that can explain the relationship between unemployment and output growth are the theory of Keynesian unemployment, the Marxist theory of unemployment, the theory of Unemployment of Okun, and the traditional neoclassical theory of growth. Study from Kemi&Dayo (2014) that the growth rate of gross domestic product in an economy leads to an increase in the employment rate and a decrease in unemployment. The study of Udu & Agu (2005)Udu & Agu (2005) cited in Kayode et al. (2014) describes unemployment as people who are able and willing to work at the prevailing wage level but cannot find work in a certain period of time. The onwachukwu study (2015) states that the unemployment rate is a very important determinant for the growth and development of a country. No country can claim to be thriving, even though it is experiencing high rates of unemployment, poverty, and income inequality. According to Tjptoherijanto & Remi (2001) the problem that often occurs is low wages and high unemployment rates, this is because the new workforce is greater than the development of employment. Therefore, the need for skills and expertise gained by prospective workers so that new workers can work in any country if employment in Indonesia is narrower. The most important thing is that the unemployment rate has not experienced a huge spike.

In this case, labor variables affect positively and significantly the growth of output. The value of the coefficient of labor is 0.180691, each increase of one percent of the workforce will increase the growth of output by 0.180691%. A population that is equipped with good quality will increase labor productivity which has an impact on output growth so that in the long run it becomes an economic driver. Several studies from Pambudi (2013), Barimbing (2015), Karmini (2015), and Bai et al., (2012) explained that labor can affect economic growth. The increase in the number of workers is expected to increase productivity in each sector of the economy. Labor as a development input is very important and plays a role in increasing output growth. According to Todaro & Smith (2006), increasing economic growth can be through improving the quality and quantity of labor. All activities carried out by business actors to produce goods will require labor. The trend of



regional production of goods and services in Indonesia is dominated by labor. This shows that business actors in Indonesia prioritize *intensive labor* which is supported by job opportunities.

**Table 6.** Regression Results

Variable	Coefficient	t-stat	Prob
C	15.685260	108.300	0.0000
UNEMP	-0.013426	-5.350	0.0000
PGESOC	0.000410	1.957	0.0521
RLS	0.296404	30.416	0.0000
LOG(LAB)	0.180691	6.174	0.0000
PGEDUC	0.000104	0.968	0.3344
R-squared	0.999675		
F-statistics	13305.85		
Prob(F-statistics)	0.0000		

Source : Eview's (Data Processing)

Furthermore, the RLS indicator as a proxy for the quality of human resources on the education side affects positively and significantly the growth of output. The 1-year RLS increase will increase output growth by 0.296404%. The RLS variable shows the government's instrument in producing the quality of the population through increasing productivity, this is because education will produce quality human resources who have knowledge, mastery of technology and high skills (Ruhén et.al, 2018). Ruhén's research study et.al (2018), that human resource investment will increase economic growth. Improving the quality of human resources through education will more quickly gain knowledge and understand new technologies that can encourage productivity so that it can encourage output growth through an educated workforce. Human capital can invest itself through education, health, creations that can create better development performance (Ruhén et.al. , 2018) . The average length of schooling is a form of educational achievement organized by the government for the community which is expected to increase output growth through an educated workforce. The government makes educational achievement targets through RLS to determine the contribution of RLS to an educated workforce that can increase economic output (Delgado et al., 2012). Study from Teixeira & Queirós (2016) the improvement of educated human resources through the education sector is the main requirement in determining economic growth and an important role for economic growth in transitional countries. Research from (Son et al. (2013), education factors became the strongest influence on economic growth. The study of Son et al. (2013) the existence of a positive relationship between education variables and GDP per capita and education variables shows the closest relationship in influencing economic growth.

Then the variable government expenditure in the field of social protection (PGESOC) has a significant influence on the growth of provincial output in Indonesia. The value of the coefficient of PGESOC is 0.000410, every increase in the PGESOC coefficient by 1% then the growth of output will increase by 0.000410%. Previous empirical research explained that social protection expenditures have a significant influence on output growth such as Stefan et.al's study (2016) the results of his research show that in addition to education and health expenditures, social protection government spending can have a significant influence on economic growth. The government's budget in social protection spending begins to reduce income inequality due to economic growth and interrelated inequality (Colecchia and Schreyer 2003). The increasing income inequality has made economic growth unstable in every region. Therefore, the government budget for social protection needs to map the condition of the population per income class so that the social protection budget is well realized in accordance with development goals. Mapping the population so that the social protection budget runs efficiently so as to achieve positive output growth in each region. Local governments play a major role in determining the condition of the population so that income inequality can be reduced and increase output growth. The government budget for social protection as a government investment to help in terms of per capita income. Government investment through social protection budgets to reduce inequality, poverty, increase per capita consumption, better access to nutrition, health and education, reduce child labor and reduce unemployment. The purpose of the social protection government budget is to reduce poverty and inequality and reduce conflicts between individuals so that political conditions become stable. Furthermore, social

protection spending to increase consumption expenditure to anticipate structural and climate changes, while access to nutrition, health and good education aims to create a reliable quality of human resources so that they have a quality workforce and reduce unemployment. The general objective of social protection spending is to enhance economic growth and human development (World Social protection-ILO, 2020).

Government spending on the education sector did not have a significant effect on output growth. The government's budget for education cannot directly affect because improving the quality of human resources to encourage output growth requires a fairly long process. Although the education budget is issued annually but the educational outcomes cannot be felt directly towards the growth of output. Education sector spending is a force in improving the economy. But the government spending on the education sector to provide an upskilling of the workforce is not simple. Research from Suwandaru et.al (2021) shows that the contribution of education to the economy is still a fairly complex problem, especially increasing the capacity of labor expertise. Study (Souto-Otero and Whitworth 2017) that education can take place well through increased per capita income. So even though the government expenditure in the education sector budgeted every year does not necessarily reach the education targets achieved so that human resources will develop slowly. The slow growth of the education sector has an impact on the inability to increase output growth (Nunes, 2003). Education can increase economic growth by evaluating the public spending management system so that it can contribute to economic growth (Serdyukov 2017). Based on the regression results where government spending in the education sector does not significantly affect output growth because it could be that the education budget planning and human development targets are not on target so that development inputs do not go well.

## Conclusion

The analysis of the research that has been explained can be concluded as follows. First, education expenditure does not significantly affect the growth of provincial output in Indonesia. Variables of unemployment, government spending on social protection, RLS and labor have a significant influence on output growth. Second, the RLS variable is the variable that most influences the increase in provincial output growth in Indonesia. Educational performance can be seen from the condition of RLS which can lift output growth. The role of RLS is one of the keys to the success of regional development in this study. However, RLS related to education expenditures can affect economic activity. In this study, the government's budget variable in the education sector did not significantly affect the growth of output so that it would affect the transmission of the RLS variable. Finally, the government budget planning prepared in each year does not necessarily directly affect the growth of output. Increasing human resources requires a fairly long process so that some budgets related to human capital such as education budgets may not affect the growth of output with a short period of time. Therefore, the central and local governments make planning plans on an annual, medium and long-term basis with the intention that the role of the existing budget in the government can produce targeted output. Meanwhile, for further research it is hoped that the data used can take into account the conditions of the COVID-19 pandemic that hit the education sector in Indonesia

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