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The Effect of Fiscal Independence and Economic Growth on Reducing Poverty and Unemployment in Indonesia

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ABSTRACT

Fiscal independence affects the revenue and expenditure patterns of a local government which in turn affects economic growth and can reduce poverty and unemployment. This study was conducted in 33 provinces in Indonesia using secondary data with a time span from 2013 to 2019. The model used is a dynamic simultaneous panel model with the SYS-GMM approach. Besides that, there is a need to develop fiscal independence index to obtain clearer conditions for fiscal independence. Revenue Sharing Fund variable that is not included in the calculation. Revenue Sharing Fund is a source of income that is already generated by a region. Readjustments are needed by including revenue sharing funds in the calculation. The newly developed fiscal independence index more clearly describes the condition. Riau, Lampung and South Sulawesi were included in the independence fiscal region category that was not previously. Fiscal independence has a significant effect and positive relationship with GRDP. Meanwhile, the reduced form results on poverty and unemployment show that GRDP has a significant negative effect on poverty and unemployment. Fiscally independent regions are better at reducing poverty and unemployment.

Keywords:
Fiscal Independence, Economic Growth, Poverty, Decentralization, Regional Revenue

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1. Introduction

The implementation of fiscal decentralization (Canavire-bacarreza et al., 2020; Cheng et al., 2021; Jiang et al., 2019) in Indonesia is now 22 years old because that move has began on 1 January 2001 at Reform Era. The policy was considered a bold move from a centralized to a decentralized government. The decentralization policy aims to maximize the role of local governments in regional development (Iek & Blesia, 2019; Sahabuddin et al., 2019). The implementation of the law was renewed into Law Number 23/2014 on Regional Government and Laws No.32 and 33 of 2004, which were then refined by Law Number 1/2022 with the same subject regarding the financial relationship between the central and regional governments.

The authority of local governments in managing finance and governance with reforms is expected to make the government more independent. Fiscal decentralization (Di et al., 2019; Qiao et al., 2019) is the effect of the implementation of regional autonomy policy. Fiscal decentralization aims to increase economic equity and avoid inequality between the central and local governments (Ulum et al., 2019; Wahyuningsih et al., 2019). The presence of fiscal decentralization has implications for wider regional authority in increasing regional economic growth (Gonschorek, 2021) and preventing inequality between regions in Indonesia (Lewis et al., 2020). In addition, the regions also not only carry out instructions from the central government (Sopaheluwakan et al., 2023), but the regions are also required to be able to develop creativity and innovation in optimizing their potential, and limiting central government function (Said et al., 2020; Surya et al., 2021).

The ability to increase regional revenue can encourage the achievement of fiscal independence (Surya et al., 2021) by increasing both old and new sources of Regional Original Revenue (PAD), applicable following existing provisions and maintaining the conditions and economic potential of the community. The largest contribution to the realization of PAD was contributed by Local Taxes of 85 percent and the rest by other PAD components such as regional retribution (Musviyanti et al., 2022), the results of regionally-owned companies, and other revenues. The data proves that during regional autonomy, there was an increase in PAD revenue for provincial governments throughout Indonesia, although it can be seen that PAD growth until 2020 has a downward trend, as reflected in Figure 1.

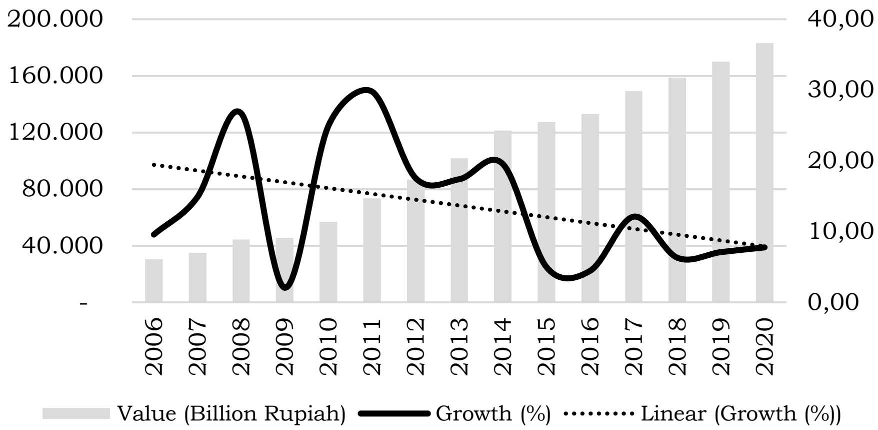


Figure 1: Realization of Regional Original Revenue 2006 - 2020 (PAD)

Regional fiscal independence can be measured through the fiscal independence index that has been reformulated by the Audit Board of The Republic of Indonesia (BPK) and also the development of the index by the author. The development carried out is to include revenue sharing funds (DBH) in the calculation of the Fiscal Independence Index, considering that revenue sharing funds is a source of income that is already generated by a region. Provinces in Indonesia in general, through BPK's calculation, are categorized towards independence (Amin & Isharyanto, 2022), while independent regions are only the provinces of Bali, East Kalimantan, South Kalimantan and Java Island except DI Yogyakarta. The eastern regions of Indonesia such as Maluku, North Maluku, West Papua since 2013 are still not independent.

Anomalies have been found between the fiscal independence index calculated by BPK and macroeconomic conditions, such as the regions of East Java and Central Java, although they are fiscally independent and economic growth is above 5 percent, poverty and open unemployment rates (Daitoh & Tarui, 2022) are quite high. This reflects that the implementation of regional autonomy (Ansolabehere & Puy, 2022; Filippetti, 2020) has not been able to encourage regional fiscal independence, which has implications for improving the macroeconomic conditions of a region. The policy of fiscal decentralization (Bojanic, 2018) reduces the fiscal space and intervention of the central government so that there are obstacles to increasing economic growth, which has implications for reducing poverty and unemployment on a national scale. Besides that, there is a need to develop fiscal independence index to obtain clearer conditions for fiscal independence.

2. Methods

The data used in this study is panel data, which is a combination of time series and cross-sectional data. The time series data used is annual data from 2013-2019 and cross-sectional data is 33 provinces in Indonesia. This study uses data obtained from the Central Statistics Agency (BPS) for each province, the Board of Audit Republic of Indonesia (BPK) related to Fiscal Independence Index data and the Directorate General of Fiscal Balance (DJPK) related to APBD realization. Endogenous variables in this study are Economic Growth, Number of Poor People and Number of Open Unemployment.

This study used descriptive and quantitative analysis approaches. Descriptive analysis is carried out to explore data mapping in seeing the development of fiscal independence characteristics in 33 Indonesian provinces with new calculations that have been described previously. The quantitative analysis used is in the form of dynamic panel data simultaneous equations. Some economic variables are dynamic, meaning that the value of a variable is influenced by the variable itself but is closely related to the past or the previous period. Therefore, a dynamic panel data model is needed.

One method used to measure fiscal independence is the Fiscal Independence Index (IKF) developed by Hunter (1977). However, there is a shortcoming of the index that is built, namely that the index value will be negative if non-PAD (DAU + DAK + Regional Loans + DBH) exceed total expenditures (Board of Audit, 2019). Thus, the Board of Audit tries to reformulate so that the calculation of the Fiscal Independence Index by Hunter (1977) can be adjusted to the structure of the APBD in Indonesia. While there is an author's development because DBH is a source of income that has been generated by a region. So it needs to be included in the calculation.

$$\mathrm{IKF} = 1 - \frac{TrGP + TrSP + PjD + DBH}{PAD + TrGP + TrSP + PjD + DBH}, Without\ DBH \tag{1}$$

$$\mathrm{IKF} = 1 - \frac{TrGP + TrSP + PjD}{PAD + TrGP + TrSP + PjD + DBH}, With\ DBH \tag{2}$$

Description,

IKF : Fiscal Independence Index
PAD : Regional Original Revenue
TrGP : General Purpose Transfer
TrSP : Special Purpose Transfer
PjD : Subnational Borrowing
DBH : Revenue Sharing Fund

Estimation is carried out in 2 stages, first estimating the endogenous variables through a reduced form using the SYS-GMM. Regarding the first stage of estimating the endogenous variable, namely economic growth through a reduced form. There are several ways to calculate economic growth. One of them is that changes in output can be seen from both the aggregate demand side and the aggregate supply side. The demand side is described by the local government expenditure variable, which is more detailed in the form of personnel expenditure, goods, and social assistance. Meanwhile, the supply side is represented by the variables of capital expenditure and labor, which are proxied in the form of formal and informal workers.

In the second stage, the model built refers to Shina's (2016) research both in terms of unemployment and poverty. However, in order to obtain the best analytical results, adjustments and modifications are needed to the variables of the model to be formed. estimating structural equations by substituting endogenous variables on the right side with endogenous variable estimates that have been obtained from the first stage using SYS GMM. Thus, the flow of the estimation series that has been carried out is called Two Stage Least Square Generelized Method of Moment Arellano Bond (2 SLS GMM-AB). The mode used in this study is as follows:

$$\boldsymbol{LnPDRBkap_{it}} = \alpha_0 + \alpha_1 lnPDRBkap_{it-1} + \alpha_2 lnBP_{it} + \alpha_3 lnBB_{it} + \alpha_4 lnBB\_DFM + \alpha_5 APMSMA_{it} + \alpha_6 LnFORM_{it} + \alpha_7 LnINFORM_{it} + u_{it} \quad \textbf{(3)}$$

$$\boldsymbol{LnAKt_{it}} = \gamma_0 + \gamma_1 lnAK_{it-1} + \gamma_2 lnPDRBkap_{it} + \gamma_3 lnPDRB\_DFM_{it} + \gamma_4 LnBS_{it} + \gamma_5 IG_{it} + u_{it} \quad \textbf{(4)}$$

$$\boldsymbol{LnJP_{it}} = \beta_0 + \beta_1 LnJP_{it-1} + \beta_2 lnPDRBkap_{it} + \beta_3 lnPDRB\_DFM_{it} + \beta_4 lnPMDN_{it} + \beta_5 lnPMA_{it} + \beta_6 lnUMP_{it} + u_{it} \quad \textbf{(5)}$$

Description,

$PDRBkap_{it}$	= Gross Regional Domestic Bruto per capita in province i at year t
$LnPDRBkap\_DFM_{it}$	= Interaction between GRDP per capita with fiscally independent province
$LnBB\_DFM_{it}$	= Interaction between Good Expenditure with fiscally independent province
$AngKemiskinan_{it}$	= Number of Poor People in province i at year t
JP_{it}	= Number of Unemployment in province i at year t
BP_{it}	= All of Employee Expenditure in province i at year t
BB_{it}	= All of Goods Expenditure in province i at year t
BS_{it}	= All of Soccial Assitance Expenditur di seluruh in province i at year t
IG_{it}	= Gini Indexin province i at year t
$APMSma_{it}$	= Pure Participation Rate Senior High School in province i at year t
$FORM_{it}$	= Number of Formal Worker in province i at year t
$INFORM_{it}$	= Number of Informal Worker in province i at year t
PMA_{it}	= Foreign Direct Investment in province i at year t t
$PMDN_{it}$	= Domestic Direct Investment in province i at year t t
UMP_{it}	= Minimum Wage in province i at year t
$\alpha_0, \beta_0, \gamma_0$	= Intercept
$\alpha_n, \beta_n, \gamma_n$	= Regression Coefficient
ε_{it}	= *Error Term*

Regarding the first stage of estimating the endogenous variable, namely economic growth through a reduced form **(3)**. It should be noted, in analyzing simultaneous equations, it is necessary to identify the model so that the appropriate estimation method is known to be used. In addition, the problem often faced in simultaneous equations is that the coefficients of the reduced form cannot identify the coefficients contained in the structural equation. The rules commonly used in determining the identification of simultaneous equation systems are known as order conditions. Meanwhile, the second stage of estimating structural equations **(4), (5)** by substituting endogenous variables on the right side of the equation obtained in the first stage.

Table 1. Order Rank Condition Rule

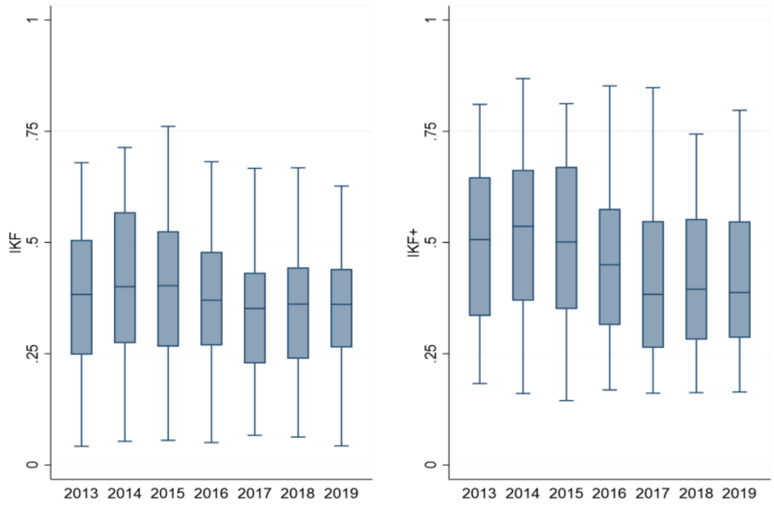
Condition	Identification	Model
(K-M) < (G-1)	*Under identified*	Structural equation cannot be estimated
(K-M) = (G-1)	*Just/exactly identified*	Indirect Least Square (ILS)
(K-M) > (G-1)	*Over identified*	Two Stage Least Square (2SLS)

Structural equations contain dummy variables. Where, D=1 is a fiscally independent province and D=0 is a province that is not fiscally independent.

3. Results

The new calculation show that there are differences in the condition of fiscal independence. DKI Jakarta Province from 2013 to 2019, through the calculation of the Supreme Audit Agency, was categorized as very fiscally independent. This condition was only recorded in 2015, then until 2019 DKI Jakarta Province was no longer categorized as very independent. Three provinces with new calculation adjustments were categorized as very independent in 2013 but continued to decline until 2019 only one province was categorized as very independent, namely DKI Jakarta Province.

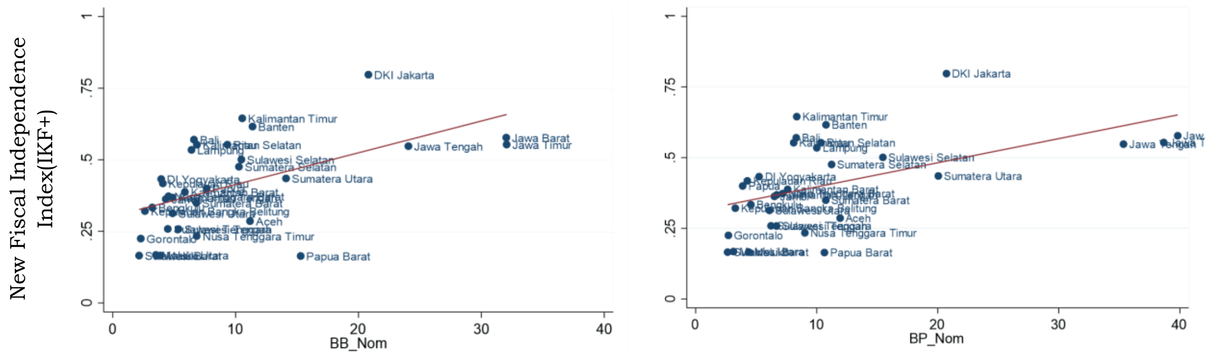
The condition of fiscal independence has shifted from the old calculation to the new calculation which is then reflected in Figure 2.



Without DBH With DBH

Figure 2: Boxplot of Indonesia's Fiscal Independence Index in 2019

Referring to the spending characteristics of each province according to fiscal independence. The more fiscally independent a region is, the higher its expenditure allocation. This can occur considering that independent regions have high additional revenue through PAD and DBH, so that the allocation of expenditure is much greater than in regions that are not fiscally independent. More clearly depicted in Figure 3.



Goods Expenditure (Trillion Rupiah) **Employee Expenditure (Trillion Rupiah)**

Figure 3: the relationship between expenditure characteristics and fiscal independence

Order Rank Condition Rule

This study uses two structural equations and one reduced equation. The reduced equation is done by regressing endogenous variables on all exogenous variables in the system. Model identification is the initial stage before estimating parameters with simultaneous equations. An equation in a simultaneous model is said to be identified if the equation has met the overidentified or just/exact identified condition. Meanwhile, under identified equations cannot be identified. Table 2 shows that both structural equations are over identified, so they can be estimated using simultaneous equations.

Table 2. Identification of Simultaneous Equations With Order Condition

Model Ln_PDRB per kapita - SYS GMM		
Variable	*Estimated Coefficients*	
	Short Run	Long Run
$LnPDRBkap_{t-1}$	0,8429***	-
APMsma	0,0136***	0,0861***
LnBP	0,0133**	0,0872**
LnBB	0,0067**	0,0412**
$LnBB\_D_{FM}$	0,0007***	0,0042***
LnInformal	0,0385***	0,2447***
LnFormal	0,0299***	0,1888***
Constanta	-0,1516	-
	AB Test	
AR (1)		0,0695
AR (2)		0,8941
	Sargan Test	
P-Value		0,0691

The Effect of Fiscal Independence on Increasing National Income (Economic Growth)

The results of the national income model specification test show that the best model used in the study is SYS-GMM. The model has certainly met the best model rules or criteria such as having an unbiased estimator, being consistent and valid instruments. Fiscal independence is the effect of the implementation of fiscal decentralization which is then expected to encourage regional economic growth (Díaz et al., 2020; Vasvári, 2020; Voznyak & Pelekhatyy, 2018). Decentralization of revenues and expenditures (Alexeev et al., 2019; Makreshanska-Mladenovska & Petrevski, 2019) is a way to increase efficiency in the public sector, encourage economic growth and reduce budget deficit (Ewetan et al., 2020; Melnyk et al., 2018; Nursini & Tawakkal, 2019).

The estimation results are in line with the economists' arguments described earlier. The results found that goods expenditure in fiscally independent regions continues to have a positive and significant influence on GRDP per capita. Every 1% increase in goods expenditure in fiscally independent regions results in an increase in GRDP per capita of 0.0074%, while every 1% increase in goods expenditure in regions that are not fiscally independent results in an increase in GRDP per capita of only 0.0067%, more clearly can be seen in the Table 2

Table 3. Estimation results of GRDP per capita model with SYS-GMM

Model Ln_AK- SYS GMM		
Variable	*Estimated Coefficients*	
	Short-Run	Long-Run
$LnAngKemis_{t-1}$	0,9447***	-
LnPDRBkap	-0,0504***	-0,9106***
LnBBS	-0,0040	-0,0722
Indeks Gini	0,5840***	10,5624***
LnPDRBkap_DFM	-0,0011**	-0,0197**
Constanta	0,6319**	-
	AB Test	
AR (1)		0,0016
AR (2)		0,3732
	Sargan Test	
P-Value		0,1818

Notes: D=1 is a fiscally independent province and D=0 is a province that is not fiscally independent. ***, **, * denote significance at the 1, 5, and 10% level respectively

Other factors that have a significant influence on Gross Regional Domestic Product (GRDP) per capita include the Pure Participation Rate (APM) of Senior High School (SMA), employee expenditure, informal and formal workers. The high school APM has a significant positive effect on GRDP in both the long and short term. The high school net enrollment rate even contributes more in the long term than in the short term. APM Rate of senior high school has a high elasticity value compared to several other factors. This means that education is an important factor in increasing the output of a region (Banerjee et al., 2021; Hofmarcher, 2021). Meanwhile, the existence of an educated society can strengthen a country in improving workers' skills, which can then increase productivity (Gibson et al., 2023; Yerrabati, 2022). Human capital foundations such as economics, education and health can boost the economic productivity of each individual (Doré & Teixeira, 2023; Ogundari & Awokuse, 2018; Sultana et al., 2022; X. Zhang & Wang, 2021; Y. Zhang et al., 2023). Countries with higher quality human capital are able to achieve higher long-term growth.

Another interesting result found in the study is that informal workers have a higher elasticity with GRDP than formal workers, even in the long run. This is because informal workers are more dominant than formal workers (Cooke et al., 2022; Ibrahim, 2021). The informal sector is often used as an input in the formal sector because it is able to provide goods and services and basic needs cheaply (Etim & Daramola, 2020; Traoré & Ouedraogo, 2021). The informal sector has contributed positively to local economic development in terms of output, income, employment and even sectoral linkages (Akuoko et al., 2021; Djidonou & Foster-McGregor, 2022).

The Effect of Fiscal Independence and Economic Growth in Reducing Poverty and Unemployment

Poverty alleviation in the regions requires program innovation (Nugroho et al., 2021). However, an increase in the GRDP of a province based on the estimation results can have an impact on poverty reduction. The elasticity value is the highest among several independent variables. The poverty index can be constructed in varied ways (Masset & García-Hombrados, 2021). In addition, economic growth is indeed an effective way to reduce poverty, but it all depends on the extent to which the poor are involved in the economic growth process. The pattern and pace of economic growth is important in reducing poverty. The resulting elasticity is much higher in areas that are fiscally independent. An increase in GRDP in a province that is fiscally independent by 1% means that the number of poor people in an independent province will decrease -0.0515% (-0.0504% - 0.0011%). If the GRDP in a fiscally independent province increases by 1%, the number of poor people in the independent province will decrease by -0.0515% (-0.0504% - 0.0011%). A 1% increase in GRDP in a region that is not fiscal independent will only reduce the number of poor people by -0.0504%. Once a region is fiscally independent, the reduction in poverty is much greater.

Previous study conclude that an increase in economic inequality would tend to lead to social inequality, which would then harm productivity and cause a slowdown in economic development. The results confirm that the Gini index (Joseph & Chakrabarti, 2022; Kim & Kim, 2019) as a proxy for inequality has a significant positive effect on the number of poor people in both the long and short term. The short-run and long-run relationship between inequality and poverty is in line with the view of several economists (see also Breunig & Majeed, 2020; Giannetti et al., 2023; Igawa & Managi, 2022; Kouadio & Gakpa, 2022) that a reduction in inequality today will lead to a reduction in poverty today and an acceleration of poverty alleviation in the future.

Table 4 is the estimation result of structural equation of unemployment. The results show that GRDP per capita has a negative and significant effect on the number of open unemployment but only in the short term. Previous study found the existence of a relationship in the long term, a relationship that is increasingly weakening given the dynamic regulatory process. More specifically, an increase in GRDP per capita in fiscally independent regions has a higher elasticity value. For every 1% increase, the number of open unemployment will decrease by -0.2219% (-0.2110%-0.0109%).

Table 4. Estimation results of structural model of Poverty with SYS-GMM

Model Ln_JP- SYS GMM		
Variable	*Estimated Coefficients*	
	Short-Run	Long-Run
$LnJP_{t-1}$	0,8715***	-
LnPDRBkap	-0,2110*	-16,415
LnPMA	-0,0180	-0,1398
LnPMDN	0,0828***	0,6446**
LnUMP	-0,2566***	-1,9960***
$LnPDRB\_D_{FM}$	-0,0109*	-0,0846***
Constanta	6,8204***	-
AB Test		
AR (1)		0,0044
AR (2)		0,3564
Sargan Test		
P-Value		0,4565

Notes: D=1 is a fiscally independent province and D=0 is a province that is not fiscally independent. ***, **, * denote significance at the 1, 5, and 10% level respectively

Social assistance expenditure does not have a significant effect on poverty. However, it can be seen in the table that social assistance expenditure has a negative effect, which means that if social assistance expenditure increases, the number of poor people will decrease. The results of this study found that social assistance spending has no effect on poverty.

Table 5. Estimation results of structural model of unemployment with SYS-GMM

Model Ln_AK- SYS GMM		
Variable	*Estimated Coefficients*	
	Short-Run	Long-Run
$LnAngKemis_{t-1}$	0,9447***	-
LnPDRBkap	-0,0504***	-0,9106***
LnBBS	-0,0040	-0,0722
Indeks Gini	0,5840***	10,5624***
LnPDRBkap_DFM	-0,0011**	-0,0197**
Constanta	0,6319**	-
AB Test		
AR (1)		0,0016
AR (2)		0,3732
Sargan Test		
P-Value		0,1818

Notes: D=1 is a fiscally independent province and D=0 is a province that is not fiscally independent. ***, **, * denote significance at the 1, 5, and 10% level respectively

Meanwhile, in regions that are not fiscally independent, the number of unemployment falls by -0.2110% for every 1% increase in GRDP per capita. The estimation result confirms Okun's Law which states that every 2 percent decrease in GDP, the unemployment rate will increase by 1 percent. Okun's law suggests that there is an important relationship between the output market and the labour market. An increase in output or economic growth will stimulate an increase in new employment, which in turn leads to the absorption of labour so that unemployment can be reduced.

It was also found that the Minimum Wage of Province (UMP) had a significant effect on the decline in unemployment. This contradicts the conventional theory that suggests an increase in minimum wage leads to an increase unemployment. An increase in the minimum wage does not give an effect on the decrease of labour, quite the opposite. There was no negative effect on employment when the minimum wage increased. The condition that occurs is the alignment of minimum wages from one city to another (Wages increase).

4. Discussion

The results explain that more fiscally independent a region is, the increase in GRDP per capita through the proxy of goods expenditure is much higher than in regions that are not fiscally independent, both in the short and long term. Goods expenditure has a positive and significant effect on GRDP per capita in both the long and short term. The estimation results confirmed Keynes' theory that spending on materials or goods can have a positive impact on the economy.

Unique results show that formal and informal worker have a significant effect for increasing GRDP per capita. Frequently, good labor conditions are characterized by an increase in formal workers. But through the results of this study, Informal workers have a higher elasticity to GRDP than formal workers, even in the long run. Formal workers are often used as inputs in the formal sector since they are able to provide cheap goods and services and basic needs.

High fiscal independence is characterized by good financial resources that can finance and create a program with appropriate poverty measures or characteristics in a region. Previous research found that the interaction of the dummy variable of fiscal independence with GRDP has a significant effect on poverty reduction in both the long and short term. The same results, Decentralization as measured by fiscal independence has a consistently significant negative relationship with poverty. Low poverty is found in municipalities or cities that are categorized as fiscally independent or local governments that are more capable of generating their own revenue.

Same condition on unemployment, that high fiscal independence can reduce number of unemployment but it only happens on short term not in the long term. On the other hand, to reduce the number of unemployment is with minimum wage policy. raising the wage ceiling will provide an additional boost to the economy through greater spending power of low-wage workers. And on the labor side, raising the minimum wage will increase worker productivity and reduce staff turnover, which reduces the cost of often recruiting and training new staff.

5. Conclusion

The new fiscal independence index by adding DBH to the calculation clearly provide a clear picture of the condition of regional independence in Indonesia. Fiscal independence in a region is able to encourage an increase in GRDP per capita which is greater than in regions that are not fiscally independent both in the short and long term. This can happen considering that areas that are independent have a high source of regional revenue (PAD and DBH) compared to those that are not fiscally independent. The interaction between fiscal independence and economic growth has a significant effect on reducing poverty and unemployment. Independent regions are better at reducing poverty and unemployment compared to regions that are not independent. The results of the study analysis have emphasized that the fiscal independence index should be reformulated so that the condition of fiscal independence can be well described and thereafter needs to be done consistently.

6. References

Akuoko, P. B., Aggrey, V., & Amoako-Arhen, A. (2021). Ghana's informal economic sector in the face of a pandemic. *Social Sciences & Humanities Open*, *3*(1), 100094. https://doi.org/10.1016/j.ssaho.2020.100094

Alexeev, M., Avxentyev, N., Mamedov, A., & Sinelnikov-Murylev, S. G. (2019). Fiscal Decentralization, Budget Discipline, and Local Finance Reform in Russia's Regions. *Public Finance Review*, *47*(4), 679–717. https://doi.org/10.1177/1091142118804245

Amin, R. I., & Isharyanto. (2022). Asymmetrical Sequential Decentralization: Resetting the Paradigm of Regional Autonomy. *Journal of Governance and Regulation*, *11*(4), 24–32. https://doi.org/10.22495/jgrv11i4art3

Ansolabehere, S., & Puy, M. S. (2022). Constitutions, federalism, and national integration. *European Economic Review*, *148*(April), 104225. https://doi.org/10.1016/j.euroecorev.2022.104225

Banerjee, R., Mishra, V., & Maruta, A. A. (2021). Energy poverty, health and education outcomes: Evidence from the developing world. *Energy Economics*, *101*(January), 105447. https://doi.org/10.1016/j.eneco.2021.105447

Bojanic, A. (2018). The Impact of Fiscal Decentralization on Accountability, Economic Freedom, and Political and Civil Liberties in the Americas. *Economies*, *6*(1), 8. https://doi.org/10.3390/economies6010008

Breunig, R., & Majeed, O. (2020). Inequality, poverty and economic growth. *International Economics*, *161*(September 2019), 83–99. https://doi.org/10.1016/j.inteco.2019.11.005

Canavire-bacarreza, G., Martinez-vazquez, J., & Yedgenov, B. (2020). Identifying and disentangling the impact of fiscal decentralization on economic growth q. *World Development*, *127*, 104742. https://doi.org/10.1016/j.worlddev.2019.104742

Cheng, Y., Awan, U., Ahmad, S., & Tan, Z. (2021). Technological Forecasting & Social Change How do technological innovation and fiscal decentralization affect the environment ? A story of the fourth industrial revolution and sustainable growth. *Technological Forecasting & Social Change*, *162*(August 2020), 120398. https://doi.org/10.1016/j.techfore.2020.120398

Cooke, E. F. A., Araar, A. K., Abrokwah, E., Acheampong, V., & Appiah, S. (2022). Simulations of Policy Responses and Interventions to Promote Inclusive Adaptation to and Recovery from the COVID-19 Crisis in Ghana. *International Journal of Microsimulation*, *15*(3), 61–88. https://doi.org/10.34196/ijm.00270

Daitoh, I., & Tarui, N. (2022). Open access renewable resources, urban unemployment, and the resolution of dual institutional failures. *Environment and Development Economics*, *27*(4), 316–332. https://doi.org/10.1017/S1355770X21000334

Di, C., Piacenza, M., Robone, S., & Turati, G. (2019). Regional Science and Urban Economics Does fi scal decentralization affect regional disparities in health ? Quasi-experimental evidence from Italy. *Regional Science and Urban Economics*, *78*(July), 103465. https://doi.org/10.1016/j.regsciurbeco.2019.103465

Díaz, R. D. S., Paternina-Arboleda, C. D., Martínez-Flores, J. L., & Jimenez-Barros, M. A. (2020). Economic order quantity for perishables with decreasing willingness to purchase during their life cycle. *Operations Research Perspectives*, *7*(January), 100146. https://doi.org/10.1016/j.orp.2020.100146

Djidonou, G. R., & Foster-McGregor, N. (2022). Stagnant manufacturing growth in India: The role of the informal economy. *Structural Change and Economic Dynamics*, *63*(June), 528–543. https://doi.org/10.1016/j.strueco.2022.07.007

Doré, N. I., & Teixeira, A. A. C. (2023). The role of human capital, structural change, and institutional quality on Brazil's economic growth over the last two hundred years (1822–2019). *Structural Change and Economic Dynamics*, *66*(September 2022), 1–12. https://doi.org/10.1016/j.strueco.2023.04.003

Etim, E., & Daramola, O. (2020). The informal sector and economic growth of South Africa and Nigeria: A comparative systematic review. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(4), 1–26. https://doi.org/10.3390/joitmc6040134

Ewetan, O. O., Osabohien, R., Matthew, O. A., Babajide, A. A., & Urhie, E. (2020). Fiscal federalism and accountability in Nigeria: an ARDL approach. *Journal of Money Laundering Control*, *24*(2), 359–371. https://doi.org/10.1108/JMLC-05-2020-0046

Filippetti, A. (2020). Does Diversity Undermine the Welfare State? Evidence from the Provision of Local Public Services in European Regions. *Kyklos*, *73*(1), 68–95. https://doi.org/10.1111/kykl.12217

Giannetti, B. F., Langa, E. S., Almeida, C. M. V. B., Agostinho, F., de Oliveira Neto, G. C., & Lombardi, G. V. (2023). Overcoming poverty traps in Mozambique: Quantifying inequalities among economic, social and environmental capitals. *Journal of Cleaner Production*, *383*(September 2022), 135266. https://doi.org/10.1016/j.jclepro.2022.135266

Gibson, J., Jiang, Y., & Susantono, B. (2023). Revisiting the role of secondary towns: How different types of urban growth relate to poverty in Indonesia. *World Development*, *169*, 106281. https://doi.org/10.1016/j.worlddev.2023.106281

Gonschorek, G. J. (2021). Subnational favoritism in development grant allocations: Empirical evidence from decentralized Indonesia. *World Development*, *139*, 105299. https://doi.org/10.1016/j.worlddev.2020.105299

Hofmarcher, T. (2021). The effect of education on poverty: A European perspective. *Economics of Education Review*, *83*(June 2020), 102124. https://doi.org/10.1016/j.econedurev.2021.102124

Ibrahim, S. (2021). The dynamics of the Egyptian social contract: How the political changes affected the poor. *World Development*, *138*, 105254. https://doi.org/10.1016/j.worlddev.2020.105254

Iek, M., & Blesia, J. U. (2019). Development inequalities in autonomous regions: A study pre-and post- special autonomy in Indonesia's most eastern provinces. *Journal of Asian Finance, Economics and Business*, *6*(1), 303–314. https://doi.org/10.13106/jafeb.2019.vol6.no1.303

Igawa, M., & Managi, S. (2022). Energy poverty and income inequality: An economic analysis of 37 countries. *Applied Energy*, *306*(PB), 118076. https://doi.org/10.1016/j.apenergy.2021.118076

Jiang, K., You, D., Merrill, R., & Li, Z. (2019). Implementation of a multi-agent environmental regulation strategy under Chinese fi scal decentralization : An evolutionary game theoretical approach. *Journal of Cleaner Production*, *214*, 902–915. https://doi.org/10.1016/j.jclepro.2018.12.252

Joseph, B., & Chakrabarti, B. K. (2022). Variation of Gini and Kolkata indices with saving propensity in the Kinetic Exchange model of wealth distribution: An analytical study. *Physica A: Statistical Mechanics and Its Applications*, *594*, 127051. https://doi.org/10.1016/j.physa.2022.127051

Kim, B., & Kim, J. (2019). Stochastic ordering of Gini indexes for multivariate elliptical risks. *Insurance: Mathematics and Economics*, *88*, 151–158. https://doi.org/10.1016/j.insmatheco.2019.07.002

Kouadio, H. K., & Gakpa, L. L. (2022). Do economic growth and institutional quality reduce poverty and inequality in West Africa? *Journal of Policy Modeling*, *44*(1), 41–63. https://doi.org/10.1016/j.jpolmod.2021.09.010

Lewis, B. D., Nguyen, H. T. M., & Hendrawan, A. (2020). Political accountability and public service delivery in decentralized Indonesia: Incumbency advantage and the performance of second term mayors. *European Journal of Political Economy*, *64*(March), 101910. https://doi.org/10.1016/j.ejpoleco.2020.101910

Makreshanska-Mladenovska, S., & Petrevski, G. (2019). Fiscal decentralisation and government size: Evidence from a panel of european countries. *Hacienda Publica Espanola*, *229*(2), 33–58. https://doi.org/10.7866/hpe-rpe.19.2.2

Masset, E., & García-Hombrados, J. (2021). Sensitivity matters. Comparing the use of multiple indicators and of a multidimensional poverty index in the evaluation of a poverty eradication program. *World Development*, *137*, 105162. https://doi.org/10.1016/j.worlddev.2020.105162

Melnyk, L., Sineviciene, L., Lyulyov, O., Pimonenko, T., & Dehtyarova, I. (2018). Fiscal decentralization and macroeconomic stability: The experience of Ukraine's economy. *Problems and Perspectives in Management*, *16*(1), 105–114. https://doi.org/10.21511/ppm.16(1).2018.10

Musviyanti, Khairin, F. N., Bone, H., Syakura, M. A., & Yudaruddin, R. (2022). Structure of local government budgets and local fiscal autonomy: Evidence from Indonesia. *Public and Municipal Finance*, *11*(1), 79–89. https://doi.org/10.21511/pmf.11(1).2022.07

Nugroho, A., Amir, H., Maududy, I., & Marlina, I. (2021). Poverty eradication programs in Indonesia: Progress, challenges and reforms. *Journal of Policy Modeling*, *43*(6), 1204–1224. https://doi.org/10.1016/j.jpolmod.2021.05.002

Nursini, N., & Tawakkal. (2019). Poverty alleviation in the contexof fiscal decentralization in Indonesia. *Economics and Sociology*, *12*(1), 270–285. https://doi.org/10.14254/2071-789X.2019/12-1/16

Ogundari, K., & Awokuse, T. (2018). Human capital contribution to economic growth in Sub-Saharan Africa: Does health status matter more than education? *Economic Analysis and Policy*, *58*, 131–140. https://doi.org/10.1016/j.eap.2018.02.001

Qiao, M., Ding, S., & Liu, Y. (2019). Fiscal decentralization and government size: The role of democracy. *European Journal of Political Economy*, *59*(April), 316–330. https://doi.org/10.1016/j.ejpoleco.2019.04.002

Sahabuddin, C., Muliaty, M., Farida, U., Hasbi, & Yusriadi, Y. (2019). Administration of post-reformation decentralization government. *International Journal of Recent Technology and Engineering*, *8*(3), 7631–7634. https://doi.org/10.35940/ijrte.C6182.098319

Said, M., Supriyono, B., Muluk, M. R. K., & Haryono, B. S. (2020). The trade-offs budget of archipelagic local government in indonesia. *Australasian Accounting, Business and Finance Journal*, *14*(1 Special Issue), 58–70. https://doi.org/10.14453/aabfj.v14i1.6

Sopaheluwakan, W. R. I., Fatem, S. M., Kutanegara, P. M., & Maryudi, A. (2023). Two-decade decentralization and recognition of customary forest rights: Cases from special autonomy policy in West Papua, Indonesia. *Forest Policy and Economics*, *151*(January), 102951. https://doi.org/10.1016/j.forpol.2023.102951

Sultana, T., Dey, S. R., & Tareque, M. (2022). Exploring the linkage between human capital and economic growth: A look at 141 developing and developed countries. *Economic Systems*, *46*(3), 101017. https://doi.org/10.1016/j.ecosys.2022.101017

Surya, B., Salim, A., Saleh, H., Abubakar, H., Suriani, S., Sose, A. T., & Kessi, A. M. P. (2021). Economic Growth Model and Renewable Energy Utilization: Perspective of Natural Resources Management and Sustainable Development of the Gowa Regency Region South Sulawesi, Indonesia. *International Journal of Energy Economics and Policy*, *11*(6), 68–90. https://doi.org/10.32479/ijeep.11676

Traoré, J. A., & Ouedraogo, I. M. (2021). Public policies promoting the informal sector: Effects on incomes, employment and growth in Burkina Faso. *Journal of Policy Modeling*, *43*(1), 56–75. https://doi.org/10.1016/j.jpolmod.2020.08.002

Ulum, A. S., Rohman, A., Harto, P., Ratmono, D., & Ghozali, I. (2019). The role of natural resources on moderating the relationship between fiscal decentralization and corruption: Evidence from Indonesia. *International Journal of Energy Economics and Policy*, *9*(1), 67–75. https://doi.org/10.32479/ijeep.7252

Vasvári, T. (2020). Hardening the budget constraint: Institutional reform in the financial management of Hungarian local governments. *Acta Oeconomica*, *70*(4), 571–592. https://doi.org/10.1556/032.2020.00037

Voznyak, H., & Pelekhatyy, A. (2018). Participatory budgeting as a tool for the implementation of the fiscal policy of regional development of Ukraine. *Economic Annals-XXI*, *167*(9–10), 53–56. https://doi.org/10.21003/ea.V167-11

Wahyuningsih, T., Bugis, M., & Bin-Tahir, S. Z. (2019). Analysis of the inequality on inter-regional and inter-time income distribution in Indonesia. *Journal of Social Sciences Research*, *5*(1), 1–8. https://doi.org/10.32861/jssr.51.1.8

Yerrabati, S. (2022). Does vulnerable employment alleviate poverty in developing countries? *Economic Modelling*, *116*(September 2021), 106043. https://doi.org/10.1016/j.econmod.2022.106043

Zhang, X., & Wang, X. (2021). Measures of human capital and the mechanics of economic growth. *China Economic Review*, *68*(December 2020), 101641. https://doi.org/10.1016/j.chieco.2021.101641

Zhang, Y., Kumar, S., Huang, X., & Yuan, Y. (2023). Human Capital Quality and the Regional Economic Growth: Evidence from China. *Journal of Asian Economics*, *86*(April 2022), 101593. https://doi.org/10.1016/j.asieco.2023.101593