Determinants of Indonesia's Regional Economic Growth During The Era of Regional Autonomy

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Information Articles	Abstract
	Economic growth is one measure of the success of a region, as seen by the increasing amount of Gross Regional Domestic Product (GRDP) produced from time to time. The urgency of this study is that the determinants of regional economic growth have not included many exogenous variables in the model, especially non-economic variables. The results for estimating the economic growth model do not reflect the actual conditions of regional economic growth, so strategies for encouraging sustainable regional economic growth cannot be realized. This research aims to know and analyze the determinants of regional economic growth in 34 provinces in Indonesia. The approach used in this study is a quantitative method with static and dynamic panel data regression in the 2015-2022 timeframe. The best way to interpret this study is the two-step system GMM model. The findings of this study conclude that fiscal decentralization, capital expenditure, democracy index, happiness index, and internet access positively impact economic growth. Recommendations for this research include increasing regional self-reliance by exploring tax potential for development, providing space for freedom for the community, increasing people's living standards to make them happier, and encouraging infrastructure development so that investors are willing to invest in growing people's employment opportunities.

INTRODUCTION

The background in this research was triggered by demands for regional autonomy, which requires regions to manage provincial finances independently by increasing tax potential to encourage regional economic growth. Economic growth is one of the indicators used to measure the level of financial success of a region with an increasing standard of living (Mankiw, 2020). Figure 1 shows Indonesia's economic growth rate fluctuates from 2015 to 2022. This phenomenon is caused by economic and non-economic factors, including political encouragement (Fahira, 2021). This is the basis for researchers to study the determinants of economic growth in terms of economic and non-economic variables.

Figure 1. Progress Of Economic Growth In Indonesia
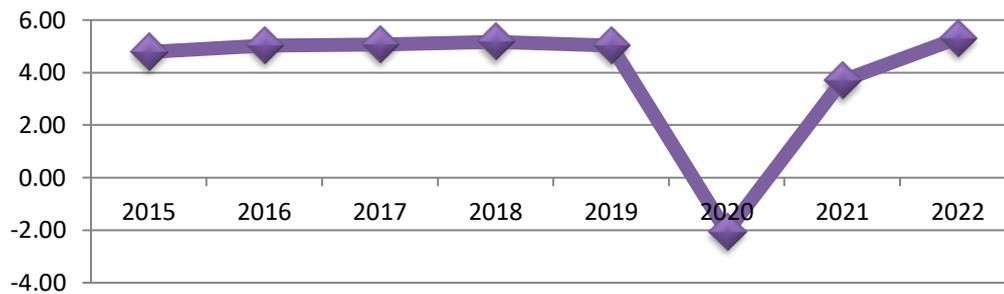
Source: BPS (2023)

The first determinant of economic growth in this research is fiscal decentralization. Fiscal decentralization is a proxy for a region's regional independence level as measured by the local own-source revenue (PAD) ratio to regional revenue (Halim, 2001). The higher the degree of fiscal decentralization, the lower the level of regional dependence on the transfer of funds from the center because they can independently manage provincial revenues for government spending so that economic growth increases (Halim & Damayanti, 2007). Arif and Ahmad (2018) explained that fiscal decentralization is a relevant policy in improving macroeconomic performance, particularly in promoting economic growth and improving the quality of government institutions. Setiawan and Aritenang (2019) state that fiscal decentralization can encourage economic growth by reducing regional economic disparities. Budgetary decentralization can finance local government spending by increasing the revenue base of the tax and controlling political stability (Jin & Rider, 2020). According to Delen et al. (2019), Improving the quality of regional economic growth can be realized if the provincial government can review the use of expenditure allocations used for the public interest so that the triple track strategy (pro-poor, pro-job, pro-growth) can be implemented appropriately.

Administratively, the territory of Indonesia is divided into three parts: eastern Indonesia, central Indonesia, and eastern Indonesia. According to Table 1, the western part of Indonesia is divided into 19 provinces. In general, economic growth experienced fluctuating rates from 2015 to 2021. In 2015, the Province of Central Kalimantan had the Province of Aceh with the highest growth of 7.01 percent and the lowest at -0.73 percent. However, in 2020, all Provinces experienced minus growth due to the COVID-19 pandemic. The Riau Islands Province had the lowest growth rate of -3.8 percent. Central Kalimantan Province has the highest growth compared to other Provinces, with an average growth of 5.06 percent. The province with a downward trend with the lowest average growth is Riau Province at 2.13 percent (BPS, 2023c).

Table 1. Economic Growth 19 Province in the Western Region of Indonesia

Province	2015	2016	2017	2018	2019	2020	2021	2022
Aceh	-0.73	3.29	4.18	4.61	4.14	-0.37	2.79	4.21
North Sumatra	5.10	5.18	5.12	5.18	5.22	-1.07	2.61	4.73
West Sumatra	5.53	5.27	5.30	5.14	5.01	-1.62	3.29	4.36
Riau	0.22	2.18	2.66	2.35	2.81	-1.13	3.36	4.55
Jambi	4.21	4.37	4.60	4.69	4.35	-0.44	3.69	5.13
South Sumatra	4.42	5.04	5.51	6.01	5.69	-0.11	3.58	5.23
Bengkulu	5.13	5.28	4.98	4.97	4.94	-0.02	3.27	4.31
Lampung	5.13	5.14	5.16	5.23	5.26	-1.67	2.77	4.28
Bangka Belitung Islands	4.08	4.10	4.47	4.45	3.32	-2.30	5.05	4.40
Riau Islands	6.02	4.98	1.98	4.47	4.83	-3.80	3.43	5.09
Notable Capital Region of Jakarta	5.91	5.87	6.20	6.11	5.82	-2.39	3.56	5.25
West Java	5.05	5.66	5.33	5.65	5.02	-2.52	3.74	5.45
Central Java	5.47	5.25	5.26	5.30	5.36	-2.65	3.33	5.31
Special Region of Yogyakarta	4.95	5.05	5.26	6.20	6.59	-2.68	5.58	5.15
East Java	5.44	5.57	5.46	5.47	5.53	-2.33	3.56	5.34
Banten	5.45	5.28	5.75	5.77	5.26	-3.39	4.49	5.03
West Kalimantan	4.88	5.20	5.17	5.07	5.09	-1.82	4.80	5.07
Central Kalimantan	7.01	6.35	6.73	5.61	6.12	-1.41	3.59	6.45
South Kalimantan	3.82	4.40	5.28	5.08	4.09	-1.82	3.48	5.11

Source: BPS (2023c)

Figure 2 shows the development of economic growth in the central part of Indonesia in 11 provinces from 2015 to 2022. Economic growth in this region has varied growth rates from time to time. In 2015, West Nusa Tenggara had a high 21.76 percent growth in 2016. The lowest economic growth in 2017 – 2019 was owned by the province of East Nusa Tenggara at 0.09, -4.50, and 3.90, respectively. The decline in growth was due to decreased activities in the mining and quarrying sectors, including copper and the agriculture and forestry sectors. However, in 2020, almost all provinces experienced minus economic growth, except for Central Sulawesi, 4.86 percent. Bali province was one of the regions with the lowest economic growth in 2021, amounting to -2.46, due to restrictions on mobility, especially foreign tourists who wanted to vacation in the Bali region (BPS, 2022b). In 2022, all provinces in the central Indonesia region will experience increased growth due to economic recovery. On average, the province of Central Sulawesi has the highest growth compared to other provinces, with the highest growth in 2018 of 20.60 percent. This is because Central Sulawesi has abundant resource potential in the mining sector, agriculture sector, plantation sector, energy security, and tourism sector, which is an opportunity for investors to get more significant returns (BPS, 2023c).

Figure 2. Economic Growth 11 Province in Central Region of Indonesia
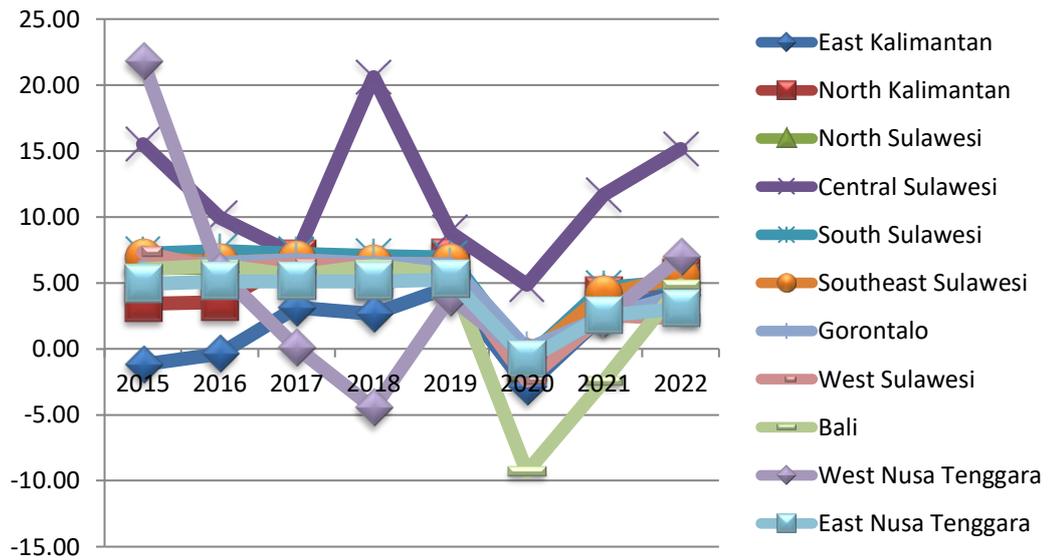
Source: BPS (2023c)

Figure 3 shows the development of economic growth in the eastern Indonesian region from 2015 to 2022. The economic growth of the provinces in this region increases from 2015 to 2018. However, in 2019, all provinces experienced a decline in growth, especially the province of Papua, which experienced the lowest growth compared to other regions of -15.74 percent due to decreased mining production in Freeport (BPS, 2022b). In 2020, North Maluku Province had the highest growth of 22.94 percent due to the region's high contribution of the mining and manufacturing sectors, which impacted increasing trade activity in the area (BPS, 2023c).

Figure 3. Economic Growth 4 Province in the Eastern Region of Indonesia
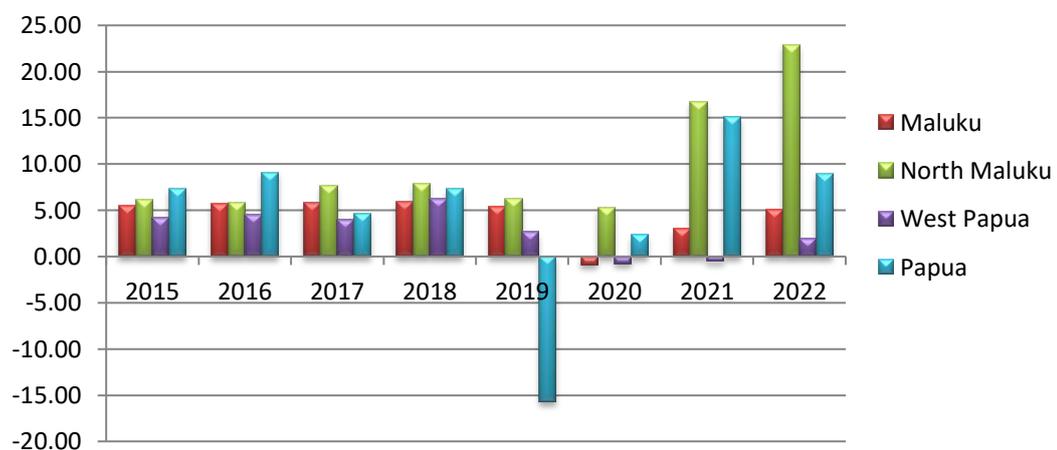
Source: BPS (2023c)

The subsequent determinant of economic growth in this research is capital spending. Capital spending plays a vital role in determining the magnitude of economic growth by increasing spending on infrastructure and social services to meet people's basic needs (Joy et al., 2021). According to Muzdalifah and Siregar (2018), Capital spending has a positive impact on economic growth. The positive relationship between capital spending and economic growth can be achieved by

increasing investment spending on health, education, and human capital (Waweru, 2021).

Furthermore, according to studies by Nairobi et al. (2021), democracy positively impacts economic growth in the long term. Improvement of the democratic system is needed by strengthening the social norms that apply in society, such as reducing corrupt behavior in politics and money politics to buy and sell positions. Jamil et al. (2022) added that democracy would benefit from increasing economic growth by providing freedom of political rights and strengthening institutional quality. Sima (2023) concluded that countries with strong democratic structural foundations grow faster than countries with autocratic government systems. A weak democratic system will exacerbate future economic growth if there is no improvement in the institutional system, high corruption, and social and political instability. The prerequisite for a strong democracy is an institutional system with high economic growth (Iskandar & Subekan, 2020).

Figure 4. Progress Of Democracy Index In Indonesia
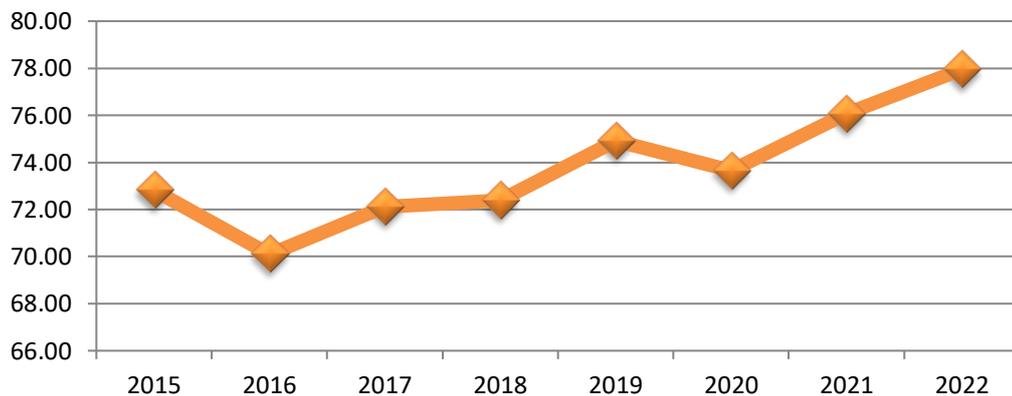
Source: BPS (2023a)

The democracy index in Indonesia is calculated based on aspects of freedom, equality, and elements of the capacity of democratic institutions (BPS, 2022a). According to information from Figure 4, Indonesia's democracy index in 2015 was 72.82 and decreased by 70.09 in 2016. From 2017 to 2019, Indonesia's democracy index has increased. However, in 2020, it reduced by 73.66. However, it experienced an increase in 2022 and 2022, amounting to 76.08 and 77.95, respectively. In general, Indonesia's democracy index is in the moderate category because the average achievement value for the democracy index is 73.75 or between 60 and 80.

According to Junaenah (2015), the provincial government in Indonesia needs to intervene in the freedom of political rights, avoid and anticipate parties that violate and usurp civil rights, and cooperate with other institutions, including social elites, in formulating a better democratic system. A emphasized that the condition of democracy in Indonesia is determined by the extent to which the state can meet the needs of citizens and the extent to which citizens have state manners so that they can express their demands in a civilized manner, without violence, and without violating human rights. Therefore, civil liberties must be accompanied by good democratic institutions (Rauf et al., 2010).

Information and Communication Technology (ICT) is an essential indicator in the digitalization era. For this reason, ICT infrastructure is needed in the form of adequate internet access to facilitate people's economic activities. The research results of Thoyibah Sugiharti (2022) concluded that individual internet use has a positive effect on economic growth. Raeskyesa and Lukas (2019) stated that the government needs to implement investment policies in the field of human capital to take advantage of the potential of ICT so that economic growth increases. According to studies by Myovella et al. (2020), internet use significantly impacts economic growth.

The level of happiness can be measured by three dimensions: personal and social life satisfaction, feelings of life, and meaning of life. However, the measurement of the happiness index in Indonesia was adapted through the OECD framework and adjusted to the social conditions of society in Indonesia subjectively by looking at several determinants, namely regional classification, gender, marital status, age group, status in the household, number of household assistants, and education (2021a). According to studies, Rasiah et al. (2019) concluded that happiness has a beneficial impact on increasing economic growth. Stevenson (2021) states that countries with excess happiness experience slower per capita GDP growth in the long run. This is because excessive happiness can lead to relative poverty, which opens up space for individuals to commit crimes, child exploitation, corruption, and a weak education system. If people are satisfied with the conditions of happiness in their country, then the government needs to encourage policies to increase GDP to make people happy.

The first novelty in this study is that researchers want to see the determinants of economic growth in 34 provinces in Indonesia in 2015-2022, not only adding economic variables, which include regional finance (degree of fiscal decentralization) and regional investment (capital expenditure) but also including non-economic variables namely institutional factors (democracy index), aspects psychological (happiness index), digital information and communication technology (percentage of households accessing the internet). Furthermore, the second novelty in this study includes solving the problem using static panel regression by adding dynamic panel regression (GMM) in the econometric model.

RESEARCH METHODS

This study uses econometric analysis with a quantitative method of panel data regression. Panel data regression was used in this study by selecting the best estimation results between the regular and dynamic panel models. The ordinary panel model places more emphasis on selecting common effect, fixed effect, and random effect models. The three models were selected based on model selection using the Chow test (choosing between common effect and fixed effect) and the Hausman test (choosing between random effect and fixed effect). The static panel, data regression model, still includes classic assumption violations to show that the estimates used are valid.

Adding a dynamic panel model or abbreviated Generalized Method of Moments (GMM) model introduced by Arellano Bond is a novelty in this study because the GMM model has advantages in overcoming the problem of biased criteria and invalid and inconsistent parameters. In addition, the GMM model can overcome classical assumption problems such as heteroscedasticity and

autocorrelation problems. Several tests were carried out to test the specifications of the GMM model, namely Sargan, Hansen, and AR, to show that the processed data is valid and robust. The fundamental difference between the GMM Model and the static Panel Model is the addition of the dependent variable lag in the structural equation.

Information to analyze this research with secondary data published by the Indonesian Central Bureau of Statistics (BPS) from 2015 to 2020 in 34 provinces in Indonesia. This study uses panel data because the data in this study combines 34 provinces in Indonesia and seven-time periods (2015-2022). The dependent variable in this study is GRDP growth. The independent variables include (1) Capital Expenditure as a government investment proxy; (2) Fiscal Decentralization as measured by the ratio of local own-source revenue (PAD) to regional revenues (Halim & Damayanti, 2007); (3) the Democracy Index which measures the freedom of civil citizens' rights to express opinions; politics and freedom in democratic institutions; (4) The Happiness Index measures personal and social life satisfaction aspects, moods, and the meaning of life; (5) Internet access is measured by the percentage of households that have access to the internet in the last three months, both in urban and rural areas. Capital spending and fiscal decentralization data are sourced from BPS (2018, 2019). Furthermore, the happiness index data comes from BPS (2021a). Then, internet access data is retrieved from BPS, the democracy index is sourced from Indonesia's democracy index data by province, and economic growth is taken from a publication of BPS (2020b, 2022b).

The equation model in this study uses two equations, namely the static panel model (Equation 1) and the dynamic panel model (Equation 2), which can be formulated as follows:

$$PDRB_{it} = \beta_0 + \beta_1 BM_{it} + \beta_2 DDF_{it} + \beta_3 DEM_{it} + \beta_4 HI\_num_{it} + \beta_5 INT\_num_{it} + \varepsilon_{it} \ldots\ldots\ldots(1)$$

$$PDRB_{it} = \delta_0 + \delta_1 PDRB_{it-1} + \delta_2 BM_{it} + \delta_3 DDF_{it} + \delta_4 DEM_{it} + \delta_5 HI\_num_{it} +$$
$$\delta_6 INT\_num_{it} + \lambda_i + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

Information: $PDRB_{it}$ = economic growth; $PDRB_{t-1}$ = lag of economic growth; BM_{it} = capital expenditure; DDF_{it} = degree of fiscal decentralization; DEM_{it} = democracy index; HI_num_{it} = happiness index; INT_num_{it} = Internet access; λ_i = unobserved individual specific effects between provinces and time; ε_{it} = error term panel data

RESULT AND DISCUSSION

Before carrying out the panel data regression estimation test, we perform the panel data stationarity test on all the variables in this study. The goal is to increase the power of the test by using a large number of samples. Most panel data have data characteristics that have a high level of volatility, resulting in variables with an average and variance that are not constant. The panel data used in this study is classified as a short panel because of cross-section (N) > Time Series (T).

This study's panel data stationarity test consisted of 3: Levin-Lin-Chu, Harris-Tzavalis, and Hadri LM. The results of the unit root test for all variables can be seen in Table 2. The results show that only the GDRP growth variable is not stationary in the Levin-Lin-Chu test. The stationary test with the Harris-Tzavalis test shows that only the fiscal decentralization variable is not stationary. Meanwhile, the stationary

test with the Hadri LM test shows that all variables are stationary. Thus, the data used in this study can be continued for estimating panel data regression because the variables already have strength in testing and produce a constant average and variance.

Table 2. Panel Unit Root Test All Variables

Variables	Levin-Lin-Chu	Harris-Tzavalis	Hadri LM
GDRP Growth (PDRB)	-1.2071 (0.1137)	-0.3179 (0.000)*	4.976 (0.0000)*
Capital Expenditure (BM)	-40.8083 (0.0000)*	-0.2131 (0.000)*	4.6492 (0.0000)*
Fiscal Decentralization (DDF)	-42.7006 (0.0000)*	-0.0037 (0.2172)	5.8355 (0.0000)*
Democracy Index (DEM)	-51.6592 (0.0000)*	-0.3700 (0.000)*	4.0405 (0.0000)*
Happiness Index (HI_num)	-1.0e+02 (0.000)*	-0.1345 (0.01)**	7.3566 (0.0000)*
Internet Access (INT_num)	-13.7417 (0.0000)*	-0.0390 (0.1154)	9.2024 (0.0000)*

The estimation results for the static panel model can be seen in Table 3. The test results for the panel data regression model consist of 3 stages: the standard effect model, the random effect model, and the fixed effect model. The LM test chooses between the standard and random effect models. The results of the LM test show that the model chosen is a random effect model because the p-value is 0.0653 <10%. Because of the random effect model selected, we can continue the Hausman test by choosing between the random and fixed effect models. The results of the Hausman test show that the p-value is 0.000 <1% (Ho is rejected), which indicates that the best model selected in the static panel regression model is the random effect model.

Table 3. Estimation Result of Regional Economic Growth Model (Static Panel)

Variables	Common Effect	Random Effect	Fixed Effect
Capital Expenditure (BM)	0.19050 (0.837)	0.40014 (0.698)	3.99981 (0.062)**
Fiscal Decentralization (DDF)	4.22111 (0.041)**	4.39483 (0.060)**	11.18155 (0.202)
Democracy Index (DEM)	0.05347 (0.246)	0.04924 (0.326)	-0.00416 (0.956)
Happiness Index (HI_num)	0.19740 (0.160)	0.17980 (0.227)	0.01684 (0.933)
Internet Access (INT_num)	-0.15224 (0.000)*	0.15851 (0.000)*	-0.15162 (0.000)*
LM Test	2.28 (0.0653)**		
Hausman Test	0.00 (0.999)		
Heteroskedasticity Test	722.04 (0.000)		
Autocorrelation Test	0.036 (0.8514)		
Multicollinearity Test	1.66 (0.60240)		

The model equation 1 can be substituted for the model equation 3 by entering the coefficients in the random effects model as follows:

$$PDRB_{it} = -11.7178 + 0.4001\ BM_{it} + 4.3948\ DDF_{it} + 0.0492\ DEM_{it}$$
$$+\ 0.1798\ HI\_num_{it} + 0.1585\ INT\_num_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\ (3)$$

According to the results of statistical calculations on the random effect model (equation 3), the variables of fiscal decentralization and internet access have a significant effect on economic growth. In contrast, other variables do not significantly impact economic growth. If fiscal decentralization increases by 1 percent, economic growth will increase by 4.3948. Then, if internet access increases, then growth will increase by 0.1585 percent.

The results of the classical assumption test in the static panel regression model in Table 3 show that in the static panel regression model, there is a heteroscedasticity problem because the chi-square p-value obtained is 0.000 <1%, so it can be concluded that the variance is not constant. However, the autocorrelation test indicates no serial correlation because the p-value is 0.8514 > 10%. Meanwhile, the multicollinearity test shows that the Variance Inflation Factor (VIF) is <10; the average VIF is 1.66. This indicates that there is no multicollinearity problem between the independent variables.

Table 4. Estimation Result of Regional Economic Growth Model (Dynamic Panel)

Variables	One-Step GMM	System Dynamic Two-Step GMM	Two-Step System GMM
Lag GDRP Growth (PDRB(-1))	0.07971 (0.591)	0.04292 (0.020)**	0.25132 (0.000)*
Capital Expenditure (BM)	3.68773 (0.213)	4.48433 (0.000)*	1.30434 (0.023)**
Fiscal Decentralization (DDF)	8.60327 (0.534)	3.03751 (0.259)	3.84357 (0.008)*
Democracy Index (DEM)	0.13305 (0.221)	0.12235 (0.035)**	0.11233 (0.006)*
Happiness Index (HI_num)	0.13046 (0.618)	0.03005 (0.697)	0.23178 (0.000)*
Internet Access (INT_num)	-0.21706 (0.000)*	-0.20297 (0.000)*	0.17070 (0.000)*
Sargan Test	70.42155 (0.000)*	31.50999 (0.0028)*	137.69 (0.000)*
Arellano-Bond Test		-0.40878 (0.6827)	0.19 (0.851)
Number of Groups	34	34	34
Number of Instruments	16	20	21

The estimation results of the dynamic panel model (GMM) in Table 4 are divided into 3: the one-step GMM model, the dynamic two-step GMM system model, and the two-step system GMM model. The test results on the GMM one-step model indicated that only the internet access variable had a significant effect. However, the results of the Sargan test show a p-value of 0.000 <1%, which indicates

that the GMM one-step model is invalid. From the results of the GMM dynamic two-step system model, the model is weak because the Sargan test shows a p-value of 0.0028 <1%, even though the AB test shows no autocorrelation.

The model equation 2 can be substituted for the model equation 4 by entering the coefficients in the Two-Step System GMM model as follows:

$$PDRB_{it} = -28.8347 + 0.2513\ PDRB_{it-1} + 1.3043\ BM_{it} + 3.8435\ DDF_{it} + 0.1123\ DEM_{it} + 0.2317\ HI\_num_{it} + 0.1707\ INT\_num_{it} + \lambda_i + \varepsilon_{it}\ .... (4)$$

Selection of the best model in the dynamic model (GMM) is the two-step system GMM model. The number of groups is greater than the number of instruments, namely 34 > 21. The results of the Hansen test show that the model is robust. Meanwhile, the AR test shows an AR(2) of 0.851, indicating no autoregulation and is consistent in the GMM model. Estimates in the GMM two-step system model indicate that the lag in economic growth (GRDP(-1)) has a significant effect on economic growth with a coefficient of 0.25132 with a p-value of 0.000 <1%. Economic growth grew in line with developments in economic growth in the previous period. High economic growth will increase economic activity in producing goods and services (Mankiw, 2020).

Capital expenditure (BM) significantly affects economic growth with a coefficient of 1.30434 with a p-value of 0.023 <5%. The higher the capital expenditure, the more the economic growth will increase. Capital expenditure can encourage economic growth by developing physical and non-physical infrastructure and foreign investment. Infrastructure development will facilitate the flow of goods and services from origin to destination. In addition, foreign investors are essential in investing in regions to encourage multipliers by opening new jobs, ultimately boosting GRDP output in the area. This research is in line with the study by Muzdalifah Siregar (2018), Joy et al. (2021), and Waweru (2021).

Capital expenditure (BM) positively and significantly affects economic growth (PDRB). This finding is based on Solow's neo-classical growth theory, which indicates that a country's output of goods and services is caused by the interaction of capital supplies in an economy. Utilization of capital stock gives rise to technology transfer to the country (Dowrick & Rogers, 2002).

The results of testing the fiscal decentralization (DDF) variable show a coefficient of 3.84357 with a p-value of 0.008 <1%. This indicates that fiscal decentralization significantly affects economic growth—an increase in the degree of budgetary decentralization by 1% increased economic growth of 3.84357. The high coefficient of fiscal decentralization indicates that the ratio of local own-source revenue (PAD) to regional revenue is an essential factor in determining the size of the economic growth rate in all provinces in Indonesia. The higher the PAD collected, the more budget will be issued for government spending on economic activities, ultimately encouraging economic growth. This study is based on the findings of Arif and Ahmad (2018) and Setiawan and Aritenang (2019). However, this study rejects the findings of Abdillah (2014), which stated that fiscal decentralization did not significantly affect economic growth in 38 districts/cities of East Java Province due to high indirect expenditure, which was not accompanied by investment to encourage economic growth.

Fiscal decentralization (DDF) has a significant positive effect on economic growth (PDRB). The results of this research align with the findings of Oates (1993), who states that fiscal decentralization will encourage efficiency by providing public goods so that growth will increase. Prud'homme (2003) added that public expenditure from tax revenues would be effective if regional governments implemented government programs to encourage economic growth.

The democracy index (DEM) variable has a p-value significance level of 0.006 for economic growth with a coefficient of 0.11233. This concludes that the democracy index significantly positively affects economic growth. The higher the democracy index, the economic growth will increase. The coefficient value of 0.11233 indicates that even though reforms have been going on for more than two decades, the democratic system in Indonesia is still not classified as a full democracy. This means that in the government system, there are still many violations in elections and limited freedom of the people; the media needs to be more objective in conveying information. This study is in line with the survey by Nairobi et al. (2021) and Jamil et al. (2022).

Democracy (DEM) has a significant positive effect on economic growth (PDRB). These findings align with the findings of Barro (1996), who concluded that democracy significantly affects economic growth by improving the quality of government through increasing the accumulation of physical capital, human capital, and technological assimilation. When a country's policies improve, maintaining property rights will boost economic growth (Barro, 2013).

The results of testing the happiness index variable (HI_num) show a coefficient of 0.23178 with a p-value of 0.000 <1%. This indicates that the happiness index has a significant effect on economic growth. An increase in the happiness index of 1% will encourage economic development of 0.23178. The happier people, the more economic growth. Indicators of happiness measured by life satisfaction, feelings, and the meaning of life are essential components in formulating government policies to encourage sustainable economic growth. This study aligns with the findings of Rasiah et al. (2019) and Stevenson (2021).

Internet access (INT_num) significantly affects economic growth with a coefficient of 0.17070 with a p-value of 0.000 <1%. Internet access by 1% will increase economic growth by 0.17070. Internet access is vital in driving economic growth in today's digital era. This is because economic activities become very easy with the ease and speed of Internet access. Buying and selling goods and services can be done online without coming to the place of purchase. Thus, economic activities become effective and efficient so that the financial turnover becomes faster with a cashless payment system rather than a cash payment system. This research aligns with the study of Myovella et al. (2020) and Thoyibah & Sugiharti (2022). However, this research rejects the findings of Abdillah (2023), who stated that internet use has no significant effect in 48 Asian countries.

Internet access (INT_num) has a significant positive effect on economic growth (PDRB). The results of this research are in line with the theory of Todaro and Smith (2020), which emphasizes that technological advances, in this case, internet access, have an essential role in encouraging productivity, creating innovation, cost, and time efficiency in various sectors, which in turn drives economic growth.

CONCLUSION

Based on the estimation results of the panel data regression model, it can be concluded that the model chosen is a dynamic panel model in the GMM two-step system model. This is due to the estimation calculations performed to produce a robust and consistent model compared to other models. The findings in this research are lag economic growth, capital expenditure, fiscal decentralization, democracy index, happiness index, and internet access have a significant positive relationship to economic growth.

The meaning of these findings includes;
1. The higher the independence of a region in optimizing the amount of local own-source revenue (PAD), the more economic growth will increase;
2. The higher capital expenditure investment in a region through, for example, infrastructure development will encourage smooth economic activity, and output will increase;
3. The higher the democracy index will encourage economic growth through a better democratic system;
4. The higher the happiness index, the more growth will increase;
5. Widespread internet access in society will encourage more efficient economic activities by utilizing e-commerce for business activities to increase growth.

This study has limitations; the available data can display only a few periods because several provinces experience data limitations. In addition, several new provinces were not included in this study because they had just experienced regional expansion, namely South Papua, Central Papua, Highlands Papua, and Southwest Papua.

The recommendations for this research include that the provincial government needs to
1. Increase regional independence by exploring regional economic potential by collecting taxes used for government expenditure so that, in the end, the GRDP will increase;
2. Increase the freedom of the people to express opinions and the freedom to choose candidates for regional heads to create an excellent democratic system;
3. Encouraging investors to invest in the regions by trimming the non-pro-business regulatory system;
4. Facilitate access to physical and non-physical infrastructure and effortless access to the internet so that economic activities can run more effectively and efficiently;
5. Increasing the standard of living of the middle and upper-income class can encourage people's happiness.

The advantage of this research is that besides including economic variables, it also has non-economic variables in the regional economic growth model. At least the results of this research can describe a strategy for how to encourage sustainable economic growth at the provincial level by considering non-economic aspects such as improving the democratic system and building a new Information Communication Technology (ICT) infrastructure network in all corners of the region to make it easier for people to access the internet.

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