-

Buletin Ekonomika Pembangunan
https://journal.trunojoyo.ac.id/bep
Vol. 7 No. 1 February 2026, hal 153-166

E-ISSN: 2807-4998 (online)

The Impact of Human Capital, Technology, and Government Consumption on Economic Growth in Regencies and Cities in East Java Province from 2015 – 2024

Nadifa Auni Mayra[1], Nurul Subkhania[2]*
[1,2]Economic Development, Economic and Business Faculty of Universitas Trunodjoyo Madura
Email: nurul.subkhania@trunojoyo.ac.id
DOI: https://10.21107/bep.v7i1.34330

ABSTRACT
This research examines the impact of human capital, technology, and government consumption on economic growth across districts and cities in East Java Province between 2015 and 2024. Economic growth serves as an indicator of regional development success and community welfare (Todaro & Smith, 2015). In this study, technology is proxied by the level of internet usage at the district and city levels. The research applies the framework of endogenous growth theory using regional data (Romer, 1994). A panel data regression approach is employed, incorporating Chow, Hausman, and Lagrange Multiplier tests. Data were obtained from the Central Statistics Agency. The findings show that both human capital and technology have a positive and statistically significant influence on economic growth. Meanwhile, government consumption contributes positively but not significantly. The study concludes that enhancing the quality of human resources and advancing technological capabilities are key drivers of regional economic growth.

Keywords: *Human capital, technology, government spending, economic growth, panel data*

INTRODUCTION

Economic growth is a key indicator for assessing the success of a region's development. Increased economic growth reflects an increase in the production of goods and services, which impacts the well-being of the community. According to Todaro & Smith (2015), economic growth is a crucial prerequisite for improving people's standard of living. Furthermore, Mankiw (2019) states that economic growth reflects a region's ability to manage resources efficiently. East Java Province, as one of the centers of economic activity in Indonesia, makes a significant contribution to the national economy; however, it still faces disparities in growth among its districts and cities. These disparities indicate differences in resource utilization and the quality of development across regions (Arsyad, 2016).

Economic growth reflects an increase in production capacity and the well-being of the population in a given region. Economic growth serves as a key indicator of development success because it demonstrates a region's ability to increase output and community income (Libraningrum, 2023). Modern economic growth theory explains that economic growth is influenced by the quality of human capital, technological advancements, and government policies as the primary factors driving economic productivity and efficiency (Romer, 1990).

East Java Province has experienced fluctuating economic growth due to the pandemic and regional economic recovery. Human capital enhances labor productivity through education *(Rasnino et al., 2022*). Technology boosts economic efficiency through internet usage (Wahab *et al., 2025*). Government consumption influences economic growth through public spending (Padli *et al., 2020*). However, economic growth in East Java still faces various challenges, such as inter-regional disparities, differences in the quality of human resources, and the uneven adoption of technology. These conditions indicate that economic growth is determined not only by economic activity but also by the structural factors that underpin it.

Table 1. Economic Growth Rates for Regencies and Cities in East Java Province, 2015–2024

	[Seri 2010] Pertumbuhan Ekonomi Menurut Kabupaten/Kota (Persen)									
Kabupaten/Kota Se Jawa Timur	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Kabupaten Pacitan	5.1	5.21	4.98	5.47	5.08	-1.84	2.49	5.54	4.46	4.34
Kabupaten Ponorogo	5.25	5.29	5.1	5.27	5.01	-0.9	3.19	3.24	5.14	4.74
Kabupaten Trenggalek	5.03	5.00	5.02	5.03	5.08	-2.17	3.65	4.52	4.92	4.71
Kabupaten Tulungagung	4.99	5.02	5.08	5.21	5.32	-3.09	3.53	5.22	4.91	4.86
Kabupaten Blitar	5.06	5.08	5.07	5.1	5.12	-2.29	3.02	5.2	4.45	4.44
Kabupaten Kediri	4.88	5.02	4.9	5.07	5.06	-2.41	3.06	4.9	4.53	4.95
Kabupaten Malang	5.27	5.3	5.43	5.55	5.49	-2.68	3.12	5.13	5	4.96
Kabupaten Lumajang	4.62	4.7	5.05	5	4.61	-2.79	3.14	4.43	5	4.52
Kabupaten Jember	5.36	5.23	5.11	5.02	5.51	-2.98	4	4.53	4.93	4.86
Kabupaten Banyuwangi	6.01	5.38	5.45	5.84	5.55	-3.58	4.09	4.43	5.03	4.68
Kabupaten Bondowoso	4.95	4.97	5.03	5.08	5.3	-1.36	3.49	3.51	4.62	4.87
Kabupaten Situbondo	4.86	5	5.07	5.46	5.44	-2.33	3.26	4.39	4.9	4.81
Kabupaten Probolinggo	4.76	4.77	4.46	4.47	4.56	-2.12	3.35	4.52	4.73	4.82
Kabupaten Pasuruan	5.38	5.44	5.72	5.73	5.83	-2.03	4.34	5.32	5.21	5.34
Kabupaten Sidoarjo	5.24	5.51	5.8	6.01	5.99	-3.69	4.21	7.53	6.16	5.54
Kabupaten Mojokerto	5.65	5.49	5.73	5.88	5.81	-1.11	4.12	5.82	5.15	5.29
Kabupaten Jombang	5.36	5.4	5.36	5.29	5.1	-1.98	3.24	5.37	5.04	5.15
Kabupaten Nganjuk	5.18	5.29	5.26	5.38	5.36	-1.71	3.61	4.84	5.4	4.93
Kabupaten Madiun	5.26	5.27	5.42	5.1	5.42	-0.12	3.32	4.32	5.12	4.68
Kabupaten Magetan	5.17	5.31	5.09	5.21	5.04	-1.64	3.04	3.89	4.47	4.79
Kabupaten Ngawi	5.08	5.21	5.07	5.21	5.05	-1.69	2.55	3.19	4.49	4.64
Kabupaten Bojonegoro	17.42	21.95	10.25	4.39	6.34	-0.4	-5.54	-6.16	2.47	1.67
Kabupaten Tuban	4.89	4.9	4.98	5.15	5.14	-5.85	3	8.88	4.37	3.86
Kabupaten Lamongan	5.77	5.86	5.5	5.44	5.43	-2.65	3.43	5.56	4.28	4.81
Kabupaten Gresik	6.61	5.49	5.83	5.81	5.42	-3.68	3.79	7.38	4.62	4.79
Kabupaten Bangkalan	-2.66	0.66	3.53	4.22	1.03	-5.59	-2.07	-1.12	1.2	1.94
Kabupaten Sampang	2.08	6.17	4.69	4.11	1.85	-0.29	0.22	2.31	2.56	1.71
Kabupaten Pamekasan	5.32	5.35	5.04	5.46	4.92	-2.54	3.41	4.66	4.96	4.88
Kabupaten Sumenep	1.27	2.58	2.86	3.63	0.14	-1.13	2.61	3.11	5.35	3.77
Kota Kediri	5.36	5.54	5.14	5.43	5.47	-6.25	2.5	3.96	1.92	3.43
Kota Blitar	5.68	5.76	5.78	5.82	5.84	-2.28	4.28	5.22	5.29	5.33
Kota Malang	5.61	5.61	5.69	5.72	5.73	-2.26	4.21	6.32	6.07	5.41
Kota Probolinggo	5.86	5.88	5.88	5.93	5.94	-3.64	4.06	6.12	6.04	5.15
Kota Pasuruan	5.53	5.46	5.47	5.54	5.56	-4.33	3.64	6.22	5.65	5.45
Kota Mojokerto	5.74	5.77	5.65	5.8	5.65	-3.69	3.65	5.56	2.79	5.32
Kota Madiun	6.15	5.9	5.93	5.96	5.69	-5.34	4.79	5.52	5.8	5.73
Kota Surabaya	5.97	6	6.13	6.19	6.09	-4.85	4.29	6.51	5.7	5.76
Kota Batu	6.69	6.61	6.56	6.5	6.51	-6.46	4.04	6.18	6.2	5.04

East Java experienced a positive trend from 2015 to 2019, with an average growth rate above 5 percent. However, there was a sharp contraction in 2020 as a result of the COVID-19 pandemic, during which all regions recorded

Buletin Ekonomika Pembangunan
https://journal.trunojoyo.ac.id/bep
Vol. 7 No. 1 February 2026, hal 153-166

E-ISSN: 2807-4998 (online)

negative growth, except for Bojonegoro Regency, which managed to remain at -0.4 percent; in other periods, growth slowed. These fluctuations indicate that regional economic growth remains unstable and is influenced by various factors. This situation suggests that the roles of human capital, technology, and government spending are crucial in driving more stable and sustainable economic growth.

Disparities in capacity among regions to manage resources and utilize technology also contribute to differences in economic growth rates, necessitating more targeted and inclusive policies to strengthen regional economic resilience against external shocks. Regional economic development is influenced by various factors, one of which is human capital. Schultz (1961) emphasized that investment in education is a form of productive investment capable of improving the quality of the workforce. Becker (1993) also states that education and training will increase individual productivity.

In his endogenous growth theory, Lucas (1988) explains that the accumulation of knowledge and skills is a key factor in driving long-term economic growth. High levels of human capital can foster innovation and improve production efficiency (TitleBarro & Sala-i-Martin, 2004). Empirically, an increase in average years of schooling has been shown to have a positive effect on economic growth, as supported by research by Hanushek & Woessmann (2012) which indicates that the quality of education has a strong correlation with economic growth.

Human capital plays a role in boosting labor productivity through improved education and skills (Rasnino *et al., 2022*). Improving the quality of human resources not only impacts individuals' ability to work but also contributes to enhancing regional competitiveness and fostering innovation in economic activities. Technology plays a role in improving economic efficiency through digitalization and the use of the internet Technology plays a role in improving economic efficiency through digitalization and the use of the internet (Wahab *et al., 2025*) The use of technology enables faster production processes, broader access to information, and the creation of new economic opportunities across various sectors.

Government consumption plays a role in stimulating aggregate demand through public spending. Meanwhile, government consumption plays a role in stimulating aggregate demand through public spending (Hutagaol *et al., 2024*) These three factors are key determinants in modern economic growth theory. Government spending, particularly in the infrastructure and public services sectors, can generate a multiplier effect that drives broader economic growth. These three factors are not only interrelated but also serve as key determinants in modern economic growth theory, as they influence both the supply and demand sides of the economy.

Previous research has shown mixed findings regarding the effects of human capital, technology, and government consumption on economic growth. Some studies have found that human capital and government consumption have a significant positive effect, while the results for technology have been inconsistent (Barro & Sala-i-Martin, 2004). Other studies suggest that technology can have a negative impact if not accompanied by improvements in labor quality (Acemoglu & Restrepo, 2020). These differing results indicate a research gap that warrants further investigation, particularly at the district/city level, where economic characteristics vary. These differing results highlight a research gap.

This study formulates the following research questions: (1) Does human capital influence economic growth? (2) Does technology influence economic growth? (3) Does government consumption influence economic growth? This study aims to analyze the effects of these three variables. This study provides an empirical contribution to the analysis of regional economic growth and tests the endogenous growth theory at the district/city level. This study provides a theoretical contribution to endogenous growth theory and an empirical contribution to regional analysis.

This study employs panel data regression to combine cross-sectional and time-series data, thereby improving the accuracy of estimates and capturing the dynamics of change over time and across regions (Wooldridge, 2010). The findings of this study are expected to provide policy implications for local governments in improving the quality of human resources, promoting the productive use of technology, and enhancing the effectiveness of government spending in supporting sustainable economic growth.

RESEARCH METHODOLOGY

This study employs a quantitative approach using panel data analysis. Panel data combines time-series and cross-sectional data, thereby increasing the number of observations and yielding more efficient estimates (Suryawan, 2023). This study utilizes secondary data from 2015 to 2024 covering all regencies and cities in East Java Province, thereby forming a balanced panel data structure.

Research data from the Central Statistics Agency covering economic growth, average years of schooling, internet users, and government spending. The dependent variable in this study is economic growth, measured by Regional Gross Domestic Product (RGDP). The independent variables include human capital, proxied by average years of schooling; technology, proxied by the number of internet users; and government consumption, measured by government spending. The selection of variables is based on endogenous growth theory, which emphasizes the role of human capital and technology in economic growth *(Romer, 1994).* The research model is written as follows:

$$RGDP_{it} = \beta_0 + \beta_1 EDU_{it} + \beta_2 INTERNET_{it} + \beta_3 GOV_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad \ldots.1)$$

I = cross-section unit (e.g.: province, district/city, or country), with $i = 1,2,\ldots,N$
t*= period of time (e.g. years), with* $t = 1,2,\ldots,T$
$RGDP_{it}$*= Regional GDP in the year* it
EDU_{it}*= Average length of school in the district of the year* it
$INTERNET_{it}$*= Number of internet users in the year* it
GOV_{it}*= Local government expenditure for the year* it
β_0*= Constanta (intercept)*
μ_i*= Individual specific effects (capturing the unique characteristics of each region that are constant over time, e.g., geographical, cultural, or natural resources)*
λ_t*= Time-specific effects (capturing macro shocks that affect all regions simultaneously, e.g., economic or national policy crises)*
ε_{it}*= Assumed stochastic term error* $i.i.d$

Based on the theoretical framework and research objectives, the hypotheses

proposed in this study are as follows:
H1: Human capital, measured by average years of schooling, has a positive and significant effect on economic growth in districts/cities in East Java Province.
H2: Technology, as measured by internet usage, has a positive and significant effect on economic growth in districts/cities in East Java Province.
H3: Government consumption has a positive and significant effect on economic growth in districts/cities in East Java Province.

The model explains that economic growth is influenced by human capital, technology, and government spending.

The analytical approach was conducted in several stages. First, the study estimated the model using the Common Effects Model (CEM) as the baseline model. Second, the study estimated the Fixed Effects Model (FEM) to capture individual heterogeneity. Third, the study estimated the Random Effects Model (REM) as an alternative random effects approach. Next, the study determines the best model using the Chow test to compare CEM and FEM, the Hausman test to choose between FEM and REM, and the Lagrange Multiplier test to compare CEM and REM (Suryawan, 2023).

After the best model was identified, the study conducted tests of classical assumptions, including tests for multicollinearity, heteroscedasticity, and autocorrelation, to ensure the model's validity. The final stage of the analysis involved hypothesis testing using the t-test to examine the partial effects and the F-test to examine the simultaneous effects of the independent variables on the dependent variable (Afiftah *et al.,* 2019).

RESULTS AND DISCUSSION

Descriptive analysis was conducted to provide an initial overview of the characteristics of the research data. Through this analysis, the general conditions of each variable including human capital, technology, government spending, and economic growth at the district/city level can be identified. The results of this analysis serve as a foundation for understanding data patterns before further analysis is conducted. The human capital variable, proxied by average years of schooling, shows a stable trend, while the technology variable, proxied by the number of internet users, has shown consistent growth. This indicates the advancement of digitalization in the region, although its impact on economic growth still requires further testing.

The results of the Descriptive Analysis test extended in cross-section for the model are shown in Table 2.

\

Table 2. Results of the Descriptive Statistic

	X1	X2	X3	Y
Mean	7.904053	48.15139	1.144711	4.098842
Median	7.670000	48.45000	2.170000	5.040000
Maximum	12.11000	87.02000	8.180000	21.95000
Minimum	3.650000	8.750000	-9.870000	-6.460000
Std. Dev.	1.663385	20.53442	4.042378	2.983734
Skewness	0.251051	-0.046629	-1.082248	-0.829760
Kurtosis	2.467131	1.960815	3.286216	9.279999
Jarque-Bera	8.487568	17.23620	75.47685	668.0463
Probability	0.014353	0.000181	0.000000	0.000000
Sum	3003.540	18297.53	434.9900	1557.560
Sum Sq. Dev.	1048.636	159810.1	6193.170	3374.112
Observations	380	380	380	380

The results of this analysis serve as a foundation for understanding data patterns prior to further analysis. The results of the descriptive analysis indicate that the economic growth variables of districts and cities in East Java Province during the study period exhibit considerable variation. The average economic growth was 4.10%, with a minimum value of -6.46% and a maximum of 21.95%. This reflects significant economic dynamics resulting from the pressures of the COVID-19 pandemic and the subsequent economic recovery process. The government consumption variable also showed considerable fluctuations, indicating changes in local fiscal policy in response to economic conditions.

Next, the selection of the panel data regression model was conducted using the Chow test and the Lagrange Multiplier (LM) test. The results of the Chow test showed a p-value of 0.4806 (> 0.05), indicating that the common-effects model is more appropriate than the fixed-effects model. The LM test results also showed a probability of 0.2165 (> 0.05), indicating that the common-effects model is more appropriate than the random-effects model.

Chow Test

The Chow test is employed to determine the most appropriate estimation model between the Common Effect Model (CEM) and the Fixed Effect Model (FEM). The hypotheses are formulated as follows:

H_0: The Common Effect Model (CEM) is the appropriate model.
H_1: The Fixed Effect Model (FEM) is the appropriate model.

Decision rule:
H_0 is not rejected if the probability value (p-value) of the F-statistic is greater than the significance level (α = 0.05), indicating that the Common Effect Model (CEM) is preferred.
On the other hand, H_0 is rejected if the p-value of the F-statistic is less than α (0.05), suggesting that the Fixed Effect Model (FEM) is more suitable.

Buletin Ekonomika Pembangunan
https://journal.trunojoyo.ac.id/bep
Vol. 7 No. 1 February 2026, hal 153-166

E-ISSN: 2807-4998 (online)

Table 3. Chow Test Results

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

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.930367	(37,339)	0.5892
Cross-section Chi-square	36.751047	37	0.4806

The Chow test was used to determine whether the fixed-effects model is superior to the common-effects model. The test results showed a p-value of 0.4806 (> 0.05), indicating that there is no significant difference among individuals (regencies/cities). Therefore, the common-effects model is more appropriate than the fixed-effects model.

Lagrange Multiplier (LM) Test

The Lagrange Multiplier (LM) test is applied to choose between the Common Effect Model (CEM) and the Random Effect Model (REM). The hypotheses are formulated as follows:
H_0: The Common Effect Model (CEM) is the appropriate model.
H_1: The Random Effect Model (REM) is the appropriate model.
Decision rule:
H_0 is not rejected if the probability value (p-value) is greater than the significance level ($\alpha = 0.05$), indicating that the Common Effect Model (CEM) is preferable.
However, H_0 is rejected if the p-value is less than α (0.05), suggesting that the Random Effect Model (REM) is more suitable.

Table 4. LM Test Results

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	1.527332 (0.2165)	2297.389 (0.0000)	2298.916 (0.0000)
Honda	-1.235853 (0.8917)	47.93109 (0.0000)	33.01852 (0.0000)
King-Wu	-1.235853 (0.8917)	47.93109 (0.0000)	42.44056 (0.0000)
Standardized Honda	-1.054095 (0.8541)	57.31484 (0.0000)	32.02985 (0.0000)
Standardized King-Wu	-1.054095 (0.8541)	57.31484 (0.0000)	45.42730 (0.0000)
Gourieroux, et al.	–	–	2297.389 (0.0000)

The Lagrange Multiplier test was used to compare the random-effects model with the fixed-effects model. The test results showed a p-value of 0.2165 (> 0.05), indicating that the random-effects model is not superior to the fixed-effects model. Therefore, the fixed-effects model remains the chosen mode.

Multicollinearity test

The multicollinearity test is conducted to examine whether there is a high

correlation among the independent variables in the regression model. A good regression model should not exhibit strong correlations between explanatory variables, as this condition can distort the estimation results.

Decision criteria:

Multicollinearity is considered to be present if the correlation coefficient between independent variables exceeds 0.80. Additionally, the Variance Inflation Factor (VIF) can be used as an indicator, where a VIF value greater than 10 suggests a serious multicollinearity problem. Conversely, if the correlation is below 0.80 and the VIF values are less than 10, the model is considered free from multicollinearity.

Table5. Result of Multicollinearity Test

	X1	X2	X3
RLS	1.000000	0.689670	0.084138
INTRNT	0.689670	1.000000	0.218832
GC	0.084138	0.218832	1.000000

The multicollinearity test aims to determine whether there is a high correlation among the independent variables. The results show that all correlation coefficients are below 0.8. This indicates that there is no multicollinearity, so the independent variables can be used together in the regression model.

Heteroskedasticity Test

The heteroskedasticity test aims to determine whether the variance of the error terms is constant across all observations in the regression model. A good model should satisfy the assumption of homoskedasticity, meaning that the variance of the residuals remains constant.

Decision criteria:

If the probability value (p-value) of the test is greater than the significance level (α = 0.05), it indicates that there is no heteroskedasticity problem in the model. On the other hand, if the p-value is less than α (0.05), it suggests the presence of heteroskedasticity.

Buletin Ekonomika Pembangunan
https://journal.trunojoyo.ac.id/bep
Vol. 7 No. 1 February 2026, hal 153-166

E-ISSN: 2807-4998 (online)

Table 6. Heteroscedasticities the Results

Dependent Variable: ABS_RES
Method: Panel Least Squares
Date: 05/13/25 Time: 08:10
Sample: 2015 2024
Periods included: 10
Cross-sections included: 38
Total panel (balanced) observations: 380

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.178600	0.415583	5.242279	0.0000
X1	-0.133337	0.068951	-1.933776	0.0539
X2	0.017318	0.005704	3.036239	0.0026
X3	-0.228713	0.021056	-10.86232	0.0000

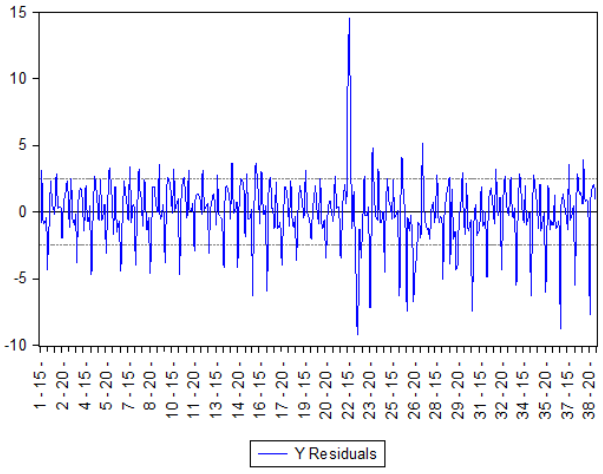
A heteroscedasticity test is used to determine whether there is heteroscedasticity in the model. The test results indicate that the model does not exhibit heteroscedasticity, meaning that the residual variance is constant and the model is suitable for further analysis.

Residual Plot Analysis

Residual plot analysis is used to visually evaluate whether the regression model satisfies the classical assumptions, particularly regarding homoskedasticity and model specification. The residuals are plotted against the predicted values or independent variables to identify any systematic patterns.
Decision criteria:

If the residuals are randomly scattered around zero without forming a clear pattern, it indicates that the model meets the assumption of homoskedasticity and is properlyspecified.
However, if the residuals display a systematic pattern, such as a funnel shape or curvature, it suggests the presence of heteroskedasticity or model misspecification.

Residual Plot



The coefficient of determination is used to measure a model's ability to explain the dependent variable. An R^2 value of 0.295799 indicates that 29.57% of the variation in economic growth can be explained by human capital, technology, and government consumption. The remainder is explained by other variables outside the model

Table 7. Results of the Panel Data Regression Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.142317	0.649040	1.760011	0.0792
X1	0.794492	0.107685	7.377897	0.0000
X2	-0.077158	0.008908	-8.661614	0.0000
X3	0.342504	0.032884	10.41560	0.0000
R-squared	0.295799	Mean dependent var		4.098842
Adjusted R-squared	0.290181	S.D. dependent var		2.983734
S.E. of regression	2.513819	Akaike info criterion		4.691954
Sum squared resid	2376.052	Schwarz criterion		4.733429
Log likelihood	-887.4712	Hannan-Quinn criter.		4.708412
F-statistic	52.64627	Durbin-Watson stat		1.649601
Prob(F-statistic)	0.000000			

In part, the human capital variable has a positive and significant impact on economic growth, with a p-value of t-statistic 0.0000 less than 5% significance level. The technology variable has a negative and significant effect on economic growth, with a p-value of 0.0000. The government consumption variable has a positive and significant effect on economic growth, with a p-value of 0.0000

Discussion

The Influence of Average Years of Schooling (AYS) on Economic Growth

The analysis proves that the Average Years of Schooling (AYS) has a positive and significant influence on economic growth in East Java Province. This finding confirms that improvements in education quality, as reflected in the population's educational attainment, fundamentally enhance the productive capacity of the labor force. Workers with higher educational attainment not only possess better technical skills but also demonstrate stronger adaptability and innovation capabilities in response to the dynamics of the modern labor market.

Theoretically, this finding offers strong support for the endogenous growth theory pioneered by Paul Romer. Within this framework, human capital and knowledge are positioned as the primary engines of long-term growth. Improvements in education quality foster knowledge spillover effects that permeate all levels of society, while simultaneously strengthening the region's capacity to absorb and develop new technologies.

These results are also consistent with recent empirical studies (Sitorus et al., 2024), which emphasize the importance of investment in education and health as a foundation for enhancing human resource productivity, particularly in facing the demographic dividend. In the specific context of East Java—which is undergoing a structural transformation from primary to secondary and tertiary sectors—increasing AYS serves as a strategic prerequisite. Regencies and cities with higher AYS are proven to be more capable of attracting investment, developing knowledge-based industries, and generating local innovations. Furthermore, this relationship is bidirectional, forming a virtuous cycle: economic growth increases regional income, which is then reallocated to improve access to

Buletin Ekonomika Pembangunan
https://journal.trunojoyo.ac.id/bep
Vol. 7 No. 1 February 2026, hal 153-166

E-ISSN: 2807-4998 (online)

and the quality of education, thereby sustainably strengthening economic competitiveness.

The Influence of Internet Users on Economic Growth

Contrary to general expectations, the number of internet users actually exhibits a significant negative influence on economic growth in East Java. This paradoxical phenomenon indicates that high internet penetration rates do not automatically drive economic productivity if their utilization is not directed toward value-added activities.

This finding aligns with the research by Wardhanie et al. (2019), which reveals that the adoption of digital technology among MSME actors in East Java remains remarkably low, with the majority of business actors not yet utilizing marketplaces or e-commerce as marketing channels. In other words, the internet functions more as a medium for information consumption and entertainment than as a productive tool. Uneven digital literacy and a lack of socialization regarding the digital economy limit society's capacity to undergo digital transformation, causing increased access to fail in driving economic efficiency.

From the perspective of digital economic theory, the internet only provides a positive contribution if it is used to reduce transaction costs, integrate supply chains, and expand market access. Otherwise, excessive internet access without a productive direction can generate crowding-out effects, such as reduced labor force participation in the real sector or increased passive consumption. Interregional ICT infrastructure disparities further exacerbate this condition, where access availability is not matched by supporting ecosystems such as digital finance and technology-based entrepreneurship training. Therefore, future policies must shift from merely expanding access toward improving the quality of utilization, through strengthening digital literacy, incubating e-commerce-based businesses, and developing an integrated creative economy.

The Influence of Government Consumption on Economic Growth

Government consumption is proven to have a positive and significant influence on economic growth in East Java Province. This indicates that regional expenditure—whether through spending on goods and services or capital expenditure—plays an effective role as a catalyst for aggregate demand and a driver of regional economic activity.

This finding is consistent with the Keynesian perspective, where government fiscal intervention is capable of stimulating economic circulation through the multiplier effect. Productive spending, such as the construction of physical infrastructure, the improvement of educational services, and the strengthening of healthcare systems, not only creates short-term employment but also enhances production capacity and regional competitiveness in the long run. Adequate infrastructure reduces logistics costs and expands the market reach of MSMEs, while improvements in the quality of education and health directly strengthen the quality of human capital.

These results are reinforced by the study of Abdillah & Primitasari (2023), which concluded that government spending in the education, health, and infrastructure sectors simultaneously provides a positive boost to economic growth. However, in practice, the effectiveness of fiscal policy depends heavily on the quality of budget governance and the composition of expenditure. Spending focused on productive activities is proven to have a far greater impact compared to routine and consumptive spending. Therefore, in addition to increasing budget

allocations, local governments must continue to promote bureaucratic reform and fiscal transparency to ensure that every rupiah of public spending yields maximum and inclusive economic benefits for all regions in East Java.

CONCLUSION

This study concludes that human capital development, digital infrastructure utilization, and government fiscal policy collectively exert significant yet varied influences on economic growth in East Java Province. The empirical findings confirm that Average Years of Schooling (AYS) and government consumption serve as positive and substantial drivers of regional economic expansion, whereas the number of internet users demonstrates a counterintuitive negative effect.

First, the positive influence of AYS validates the endogenous growth theory, affirming that investments in education fundamentally enhance labor productivity, foster innovation, and generate knowledge spillovers. In the context of East Java's ongoing structural transformation toward secondary and tertiary sectors, improving educational attainment emerges as a strategic prerequisite for attracting investment, developing knowledge-based industries, and sustaining long-term competitiveness. Moreover, the bidirectional nature of this relationship establishes a virtuous cycle, wherein economic growth generates fiscal capacity for further educational investment.

Second, the negative influence of internet users highlights a critical policy paradox. High penetration rates do not automatically translate into economic dividends, as the utilization of digital technology remains predominantly consumptive rather than productive. Low digital literacy, limited adoption of e-commerce among MSMEs, and inadequate supporting ecosystems impede the transformative potential of the digital economy. This finding underscores the urgent need for policies that prioritize quality of usage over mere quantity of access, focusing on digital skills training, business incubation, and the development of integrated digital infrastructure.

Third, the positive contribution of government consumption reinforces the Keynesian perspective, wherein fiscal intervention stimulates aggregate demand and generates multiplier effects. Productive spending on physical infrastructure, education, and healthcare not only drives short-term economic activity but also enhances long-term productive capacity and regional competitiveness. However, the effectiveness of such spending remains contingent upon the quality of budget governance, expenditure composition, and institutional transparency.

In light of these findings, policymakers in East Java should adopt a comprehensive and integrated approach. Efforts must focus on sustainably raising educational standards, reforming digital policies to bridge the gap between access and productive application, and enhancing fiscal governance to ensure that public expenditures yield maximum inclusive benefits. Addressing these strategic dimensions will be essential for achieving resilient, inclusive, and sustainable economic growth across all regions of East Java Province.

REFERENCES

Acemoglu, & Restrepo. (2020). Robots and jobs: Evidence from US labor markets. *Journal of Political Economy*, *128*(6), 2188–2244. https://doi.org/10.1086/705716

Arsyad. (2016). *Ekonomi Pembangunan (Edisi 5)*. https://opac.perpusnas.go.id/DetailOpac.aspx?id=1130837

Becker. (1993). *Human capital: A theoretical and empirical analysis with special reference to education (3rd ed.).* (U. of C. Press (ed.)).

Hanushek, & Woessmann. (2012). Do better schools lead to more growth? Cognitive skills, economic outcomes, and causation. *Journal of Economic Growth*, *17*(4), 267–321. https://doi.org/10.1007/s10887-012-9081-x

Hutagaol, Siregar, & Manurung. (2024). Pengaruh pengeluaran pemerintah terhadap pertumbuhan ekonomi melalui pendekatan permintaan agregat di Indonesia. *Jurnal Ekonomi Pembangunan*, *25*(1), 45–58. https://doi.org/10.1234/jep.v25i1.2024

Libraningrum. (2023). Analisis pertumbuhan ekonomi sebagai indikator keberhasilan pembangunan daerah. *Ekonomi Pembangunan*, *21*(2), 123–135. https://doi.org/10.1234/jep.v21i2.5678

Lucas. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, *22*(1), 3–42. https://doi.org/10.1016/0304-3932(88)90168-7

Mankiw, N. G. (2019). *Macroeconomics (10th ed.)*. Worth Publishers. https://www.macmillanlearning.com/college/us/product/Macroeconomics/p/1319105998

Padli, Hailuddin, & Wahyunadi. (2020). Pengaruh pengeluaran konsumsi rumah tangga, investasi swasta dan belanja langsung pemerintah daerah terhadap pertumbuhan ekonomi. *UNIKOM*. https://doi.org/10.34010/miu.v17i2.3181

Rasnino, Nuryadin, & Suharsih, S. (2022). Pengaruh angka harapan hidup, rata-rata lama sekolah dan konsumsi rumah tangga terhadap pertumbuhan ekonomi di kabupaten/kota Provinsi Lampung 2014–2019. *Jurnal Impresi Indonesia*, *1*(3), 191–200. https://doi.org/10.36418/jii.v1i3.29

Romer. (1990). Endogenous technological change. *Journal of Political Economy*, *98*(5), S71–S102. https://doi.org/10.1086/261725

Schultz. (1961). Investment in human capital. *The American Economic Review*, *51*(1), 1–17. https://www.jstor.org/stable/1818907

Barro, Robert J. & Xavier Sala-i-Martin. (2004). *Economic growth (2nd ed.). MIT Press.*

Todaro, & Smith. (2015). *Economic Development (12th ed.)*. Pearson. https://www.pearson.com/en-us/subject-catalog/p/economic-development/P200000003189

Wahab, Suprayitno, Susanto, & Rusgianto. (2025). Pengaruh literasi keuangan dan pendapatan per kapita terhadap konsumsi rumah tangga di Indonesia. *Jurnal Ekonomika Dan Bisnis Islam*, *8*(2), 20–35. https://doi.org/10.26740/jekobi.v8n2.p20-35