Disclosure: Journal of Accounting and Finance
ISSN: 2797-0531 (p), 2807-7423 (e)
Website: http://journal.iaincurup.ac.id/index.php/disclosure
DOI: http://doi.org/10.29240/disclosure.v1i2.2861
Vol. 5, No. 2, 2025 | Pages: 143-162

The Role of Digital Marketing and ICT in Enhancing Regional Economic Growth: Evidence from East Java

Dina Utari[1], Danang Sofa Ma'arif[2], Akbar Mulia Ramadhan[3], Yeyen Novita[4]
[1,2,3] Universitas Islam Negeri Salatiga, Indonesia
[4] Diponegoro University, Indonesia
Correspondence: naatthr@gmail.com

Abstract

This study aims to analyze the role of digital productivity in driving economic growth in East Java Province during the period 2015–2024. The growth of information and communication technology (ICT) has made a significant contribution to the acceleration of the economy in the digital era, especially through the development of e-commerce and technology-based businesses. This study uses a mixed method, namely qualitative analysis with a netnography approach using NVivo software on netizens' comments on marketing themed YouTube content, as well as quantitative analysis with panel data from 38 districts/cities in East Java analyzed using EViews. The results of the qualitative analysis revealed that digital marketing strategies and technology adaptation are the main factors in increasing business productivity. Meanwhile, the results of the quantitative analysis show that the ICT development index, the number of workers, and the GDP significantly affect economic growth in East Java. These findings confirm that digital productivity is key to supporting sustainable economic growth in the modern era.

Keywords: Economic Growth; Digital Productivity; Information And Communication Technology; E-Commerce.

Introduction

The digital transformation has become a major driver in reshaping the global economy, including in developing countries such as Indonesia. The development of information and communication technology (ICT)

has not only changed consumption and production patterns, but also created new opportunities in the trade, services, and creative industries sectors. East Java, as one of the provinces with a large contribution to the national Gross Regional Domestic Product (GDP), has also experienced an acceleration of digitalization that affects the dynamics of its economic growth (Sudiantini et al., 2023).

Economic growth in Indonesia has been the government's main focus in recent decades. Improvements in information and communication technology, especially in the digital era, have played a significant role in changing the overall economic landscape. The digital revolution not only brings changes in the way we interact and communicate, but also triggers transformations in the structure and dynamics of a country's economy (Hollebeek & Macky, 2019). Economic growth is actually a long-term economic problem, this was conveyed by Simon Kuznets, a leading economist in the United States who once received a Nobel Prize, stating that he called the process of economic growth Modern Economic Growth. In this period, the world has experienced very real development developments compared to previous periods, starting from increasing technology and innovation in encouraging productivity and economic expansion as well as increasing trade and investment (Ramayani, 2013).

Economic growth is an important indicator of a country's welfare (Akita, 2010). In the Indonesian context, the development of the digital economy has become one of the main catalysts that shape the economic growth roadmap. Gross regional domestic product data shows that digital technology has an influence on economic acceleration (Abdillah, 2024). The use of digital technology in electronic commerce, for example, can help increase market access and expand distribution reach, thereby increasing sales volume and income (Cieślik & Parteka, 2021). In this case, based on technology, information and communication index data, the island of Java is the region with the highest technological progress and internet penetration in Indonesia, reaching 83.64% in 2024. Economic growth on the island of Java has experienced a significant increase which is influenced by various factors, one of which is the development of the industrial sector, as well as external factors, namely global economic

conditions. Based on data from the Central Statistics Agency for 2024, the economic growth of the island of Java by province is stated as follows:

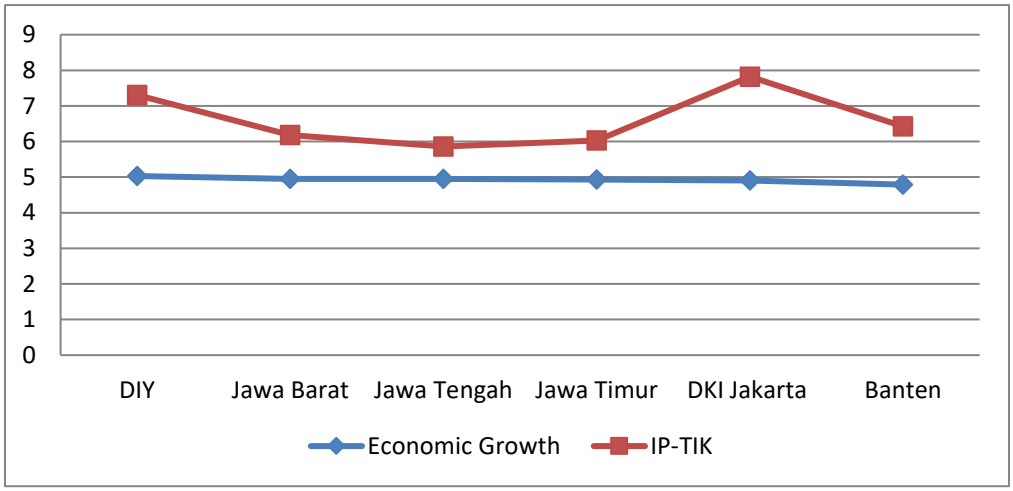

Figure 1. Java Island Economic Growth 2024
Source: Central Statistics Agency

Based on figure 1, it shows that the highest economic growth in 2024 is the Yogyakarta Special Region province with growth of 5.03% and the DKI Jakarta province with the highest technology, information and communication development index growth of 7.82%. However, in the last 10 years, East Java province has been the most stable province in terms of economic growth with an average growth of 4.35% compared to West Java province with an average of 4.31% and Central Java with an average of 4.26%. This cannot be separated from the existence of digital productivity in boosting economic growth. Digital technology is a very important factor in accelerating economic growth on the island of Java because the rapid growth of the internet in the world is expected to help foster people's creativity in order to increase income. This is also expected to increase people's creativity and increase people's income in various sectors, one of which is the business sector which can support the digital economy.

Rapid advances in technology and digitalization have created a digital economy characterized by high development of technology-based business and trade transactions (Rochmahwati, 2023). The digital

economy has become one of the main trends in the global economy. Along with globalization and increasing connectivity, the digital economy in Indonesia opens up new opportunities for sustainable growth (Dlodlo & Kalezhi, 2015). E-commerce, fintech and other technology industries have become important pillars that support the digital economic ecosystem. The growth of this sector not only creates new jobs but also gives people greater access to financial services, education and global markets. One of the opportunities that the business sector can undertake easily and efficiently in the era of modernization is doing business based on e-commerce (Filimonenko et al., 2021). E-commerce has indirectly changed people's habits from the traditional business era to more modern business, by maximizing digital productivity in increasing economic growth (Abro et al., 2014). Based on table 1, East Java province is the province with the most stable economic growth rate over the last 10 years. Based on data from the East Java Province Central Statistics Agency, the digital productivity of East Java province which is calculated based on GDRP, number of workers and the technology, information and communication development index is stated as follows:

Table 1 Digital Productivity

Year	GDRP at Constant Prices	Labor	IP-TIK	Productivity
2015	1.331.376.100.000	7.660.641	4,33	40137,26259
2016	1.405.563.500.000	7.621.793	4,34	42491,64961
2017	1.482.299.600.000	8.151.396	4,99	36442,10489
2018	1.563.441.800.000	8.468.470	5,07	36414,03509
2019	1.649.895.600.000	8.510.292	5,32	36441,84617
2020	1.611.392.600.000	8.685.459	5,59	33189,19987
2021	1.668.754.400.000	8.663.509	5,76	33440,75773
2022	1.757.874.900.000	8.901.137	5,85	33758,76991
2023	1.844.808.700.000	9.395.947	5,9	33278,11881
2024	1.935.810.200.000	9.836.905	6,03	32635,25305

Source: Central Statistics Agency

Based on table 1, it shows the level of digital productivity from the last 10 years which is calculated based on gross regional domestic product at constant prices, the number of workers employed as well as the technology, information and communication development index and is

calculated to influence economic growth in the province of East Java for the period 2015-2024.

MSMEs in Indonesia, including the agricultural and small trade sectors, are the backbone of the national economy and are included in the category of labor-intensive industries that absorb more than 97% of the national workforce. In East Java, MSMEs play a strategic role in supporting the regional economy, especially in rural and suburban areas that have limited access to formal markets and business capital (Afifudin et al., 2024). However, in the current era of digital transformation, MSMEs face challenges to continue to adapt to remain relevant and competitive. The use of information and communication technology (ICT), especially digital marketing, is an important solution to expand market reach, increase production efficiency, and accelerate business growth. With the entry of digitalization into the MSME and agriculture sectors, there has been a significant change in the way business actors manage business processes, market products, and build relationships with consumers. It also provides an opportunity for labor-intensive industry players to access global markets more efficiently without relying on large physical infrastructure. Digital transformation in the labor-intensive sector not only boosts productivity, but also drives inclusive and sustainable local economic growth. In this context, research on the relationship between digitalization and economic growth in East Java is very relevant to answer the needs of policies and economic development that favor the people's productive sector.

Therefore, it is important to understand how digital productivity which is reflected through the use of digital marketing and ICT plays a role in driving regional economic growth. This research not only fills the gap in the literature that is still limited to regional approaches with mixed methods, but also provides practical insights for policymakers and business actors in the digital economy era.

Literature Review

Regional Economic Growth

Regional economic growth reflects a region's ability to increase the production of goods and services in a sustainable manner. According to

Todaro and Smith, economic growth is not only determined by output expansion but also by the efficiency of resource utilization and technological innovation. In the endogenous growth theory, technological advancement and knowledge are internal factors that play a crucial role in driving long-term productivity.

In the context of Indonesia, the improvement of digital productivity has become a key driver of regional economic development. Based on data from the Central Statistics Agency, East Java Province recorded a stable average economic growth of 4.35% during the period 2015–2024, influenced by the digitalization of productive sectors and the increasing contribution of technology-based enterprises. This aligns with the findings of Giannakis & Bruggeman (2018) and Chen et al., (2021), who emphasized that productivity and innovation are the main determinants of sustainable economic growth. Therefore, strengthening technological capacity and enhancing digital literacy among regional communities are essential to foster inclusive and resilient economic growth.

Information and Communication Technology (ICT) in Economic Growth

The development of information and communication technology (ICT) plays a significant role in accelerating economic transformation. ICT improves efficiency, expands access to information, and creates new opportunities in trade and services. At the regional level, ICT serves as an important instrument for enhancing labor productivity and strengthening economic connectivity across regions.

According to BPS, Java Island has the highest ICT development index in Indonesia (83.64%), and East Java shows consistent economic growth along with the increasing utilization of ICT. ICT has been proven to positively influence economic growth through improved efficiency and broader digital market access. However, the digital divide between urban and rural areas remains a major challenge (World Bank, 2021).Strengthening digital infrastructure and improving ICT literacy at the local level are therefore strategic priorities to ensure that the benefits

of ICT are distributed more evenly and effectively in supporting an innovation-based economy.

Digital Marketing and Its Impact on Regional Economy

Digital marketing is a technology-based marketing strategy that plays a vital role in expanding market reach, increasing promotional efficiency, and enhancing the competitiveness of small and medium-sized enterprises (SMEs). Digital marketing includes promotional activities conducted through social media, e-commerce platforms, and digital content that can accelerate business growth. In the regional context, particularly in East Java, digital marketing has become an important component of improving digital productivity and supporting local economic growth.

Research by Hollebeek & Macky (2019) revealed that digital marketing enhances revenue, creativity, and innovation among business actors. The results of the netnographic analysis in this study also reinforce this view, showing that technology-based marketing strategies drive efficiency, productivity, and consumer engagement. Nevertheless, challenges such as low digital literacy and limited infrastructure still constrain the optimization of digital marketing benefits at the regional level. Therefore, public policy support through digital training programs and business mentoring is essential to expand the adoption of digital marketing technologies among SMEs.

Research Methods

Data Set

Research This research uses a mixed method of qualitative methods and quantitative methods. The qualitative method population in the study was all commenting on "Marketing" themed content on YouTube. The sampling technique in this study uses purposive sampling. Purposive sampling is a sampling technique using certain criteria (Schindler, 2014). The criteria used for sample selection is that the number of viewers of the content must be more than 200,000. The reason used in using these criteria is that, with many views on social media, of course the media is considered to have a good reputation (Sjoraida et al.,

2021). A breakdown of the number of views and comments for each video content is presented in the following table:

Table 2 Data Sample qualitative methods

NO	Title of Video	Source	Views	Total Comment
1	Kunci Marketing Berhasil di tahun 2024 | #TheMarketingPlaybook EP 01	@PurwadhikaTV	234,598	260
2	Trik Marketing yang SEMUA ORANG WAJIB TAU (Gw Sendiri Pake)	Raymond Chin	1,600,436	1,007
3	60 MENIT JAGO MARKETING 6.0‼ILMU MILIARAN DIKASIH GRATIS SAMA PENULIS BUKU MARKETING PHILIP KOTLER	kasisolusi	426,335	564

Source: Processed Data, 2025

With the sampling technique used, three contents were selected according to the predetermined criteria. The analysis was carried out with netizens' comments extracted with Nethlytic software. Meanwhile, the population used in the quantitative research method is districts and cities in the province of East Java, with 29 districts and 9 cities and a total population of 38 districts and cities. With a purposive sampling technique based on city district criteria that publishes complete data based on the time the research was conducted. With data collection techniques based on documentation methods that can be accessed through published reports (Creswell, 2017). The following are details of the sample data and sources used.

Tabel 3 Data Sample quantitative methods

No.	Data Type	Reg/City	Source
1.	Economic Growth of East Java Province	38	BPS East Java Province
2.	Gross Regional Domestic Product at Constant Prices	38	BPS East Java Province
3.	Number of Workers Employed	38	BPS East Java Province
4.	Technology, Information and Communication Development Index	38	BPS RI
5.	Digital Productivity	38	BPS East Java Province

Source: Processed In 2025

Based on the purposive sampling technique used, all city districts published complete data for the research period used, namely the period 2015 - 2024 so that the sample used in this research was 38 districts and cities of East Java province.

Methodology

Qualitative method data analysis using NVIVO software. The extracted data will be imported into NVIVO, a qualitative data analysis software. NVIVO will be used to organize, encode, and analyze data. The first step in data processing is data encoding. The data will be indexed using an open coding method to identify emerging themes and patterns. The coding will be done in several stages, including initial coding, axial coding, and selective coding. The next step is Thematic Analysis. Once the data is coded, the researcher will conduct a thematic analysis to identify and interpret the main themes related to the marketing grounds for increasing productivity.

Meanwhile, data analysis in quantitative research methods using software Eviews. This software is used to analyze statistics and provide forecasting. By tabulating the data via Microsoft Excel and importing the data into Eviews software. The first step is to carry out descriptive analysis to obtain a systematic picture of the characteristics of the population, after that a stationary test is carried out to determine whether the variables used have unit roots or not. Once the data is known to have no unit root, a regression model estimation analysis is carried out, by regressing the *common effect model*, *fixed effect model* and *random effect model*. After estimating the model, the next step is to determine which model is appropriate to use in research by conducting a model selection test. After selecting one of the three models, a classical assumption test was carried out to determine the normality of the data, a multicollinearity test, a heteroscedasticity test and an autocorrelation test. Next, statistical tests were carried out to determine the final results of the research in the form of a partial t test, coefficient of determination test, and simultaneous f test.

Result and Discussion

Results of qualitative studies

The results of this study show that many words often appear in comments processed through the word frequency feature in NVIVO. These results explain the reasons for marketing in influencing productivity through the comment column. The author took 3 videos containing news and educational content on social media that is often encountered, namely YouTube. The image below is an image containing words that are often discussed in the comments column and presented in word cloud form as a result of word frequency and word of cloud in NVIVO.

Figure 2. Word cloud

Source: From comments in Youtube video (Authors, 2024)

The trends that netizens discuss in the comment column are also presented in the form of a word-of-frequency table as below.

Table 4 Kata Frekuensi

NO	Video 1	Video 2	Video 3
1.	Marketing	Marketing	Marketing
2.	Knowledge	Knowledge	Digital
3.	Market	Solution	Knowledge
4.	Marketer	Market	Selling
5.	Bounce	Product	Rich
6.	Important	Technology	Email
7.	Bisnis	Branding	Adsense
8.	Product	Bounce	Affiliate
9.	Rich	Strategy	Remote
10.	Effective	Manajemen	Inspiration

Source: Processed In 2025

The coding results showed three categories of netizens' responses related to marketing reasons for increasing productivity. The coding was carried out by categorizing it into three types of responses: neutral, positive, and negatively charged comments regarding *Operational efficiency, individual and team productivity, creativity and innovation.*

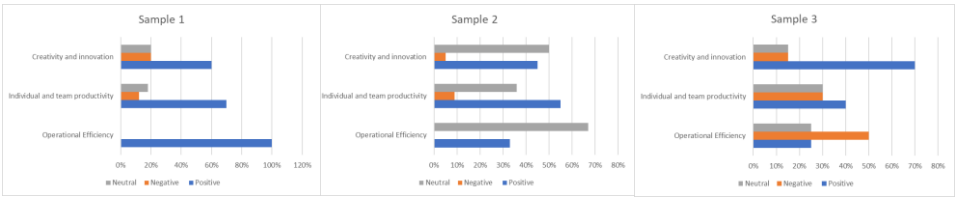

Figure 3. Centiment Audiens
Source: from comments in youtube video(Authors, 2025)

In Sample video one for the Operational Efficiency theme, all comments (100%) were positive, such as: *"Do You Mail is a super time-saving solution with automatic configuration of SPF, DKIM, and DMARC."* No neutral or negative comments were found. On the theme of Individual and Team Productivity, 70% of comments were positive, such as: *"Very helpful... so the spirit of learning marketing again in the era of Gen Z."* However, there were also 18% neutral comments and 12% negative, for example: *"Using AI to make smart consumers must feel like being lied to."* As for the theme of Creativity and Innovation, 60% of comments were positive such as: *"Nowadays marketing is very mandatory so you have to learn a lot,"* accompanied by 20% neutral comments and 20% negative, such as: *"Using AI for smart consumers must feel that KY is being lied to."* In general, comments show a positive response to the use of marketing technology, but concerns remain about the authenticity and impact of the use of AI.

For the second video sample, the sentiment analysis of comments related to the three main themes showed that for *Operational Efficiency*, sentiment tended to be positive (33%), for example : "Super easy to scale, and it is cost-effective too. If you have had troubles with deliverability, this tool is a must-try." With a neutral dominance (67%) and no negative comments, highlighting technical advantages such as ease of scale, cost-effectiveness, while neutral comments were generally questions or

responses mixed with personal experience. On the theme *of Individual and Team Productivity*, positive sentiment was more dominant (55%), appreciating content, the reliability of tools, and motivation to learn digital marketing, although there were negative comments (9%) that accused the content of being a scam or too focused on selling classes, while neutral comments (36%) contained reflections, requests for help, and expectations related to work or self-development. On the theme of creativity and innovation, the majority of comments were neutral (50%) and positive (45%), while negative comments were only 5%.

For the third video sample on the theme of Operational Efficiency, negative sentiment dominated with a percentage of 50%, followed by positive sentiment of 25% and neutral of 25%. Many negative comments criticized the hosting style, especially regarding the pieces of the speaker's talk that interfered with the smooth flow of information. On the other hand, positive comments give appreciation to tools that are considered efficient in improving email marketing performance.

On the theme of Individual and Team Productivity, 40% of comments were positive, 30% negative, and 30% neutral. Positive comments show praise for content that is considered useful and full of valuable information. However, some negative comments again criticized the host for talking too much, detracting from the quality of the speaker's listening experience.

Finally, on the theme of Creativity and Innovation, 70% of the comments showed positive sentiment, with only 15% of negative comments and 15% neutral. The majority of comments appreciated the in-depth and innovative discussion of the marketing topic, but there was little criticism regarding the hosting style that interrupted the speakers' conversations.

Results of quantitative studies

Based on data processing using Eviews software, the research results are presented in tables and graphs as follows :

Tabel 5. Statistic Deskriptive Result

	Y	**X1**
Mean	0.040988	36258.90
Median	0.050400	21233.69

Maximum	0.219500	327123.7
Minimum	-0.064600	13.01118
Std. Dev.	0.029837	45031.19
Skewness	-0.829760	3.972067
Kurtosis	9.279999	20.99812
Jarque-Bera	668.0463	6128.156
Probability	0.000000	0.000000
Sum	15.57560	13778380
Sum Sq. Dev.	0.337411	7.69E+11
Observations	380	380

Source: Secondary Data Processed 2025

Based on Table 5, it shows the maximum value used to determine the highest value limit and the minimum value used to determine the lowest value limit, as well as the average value and standard deviation with a total of 380 research observations. The Y variable has an average value of 0.04 with a maximum value of 0.21 and a minimum value of -0.06. The variable X1 has an average value of 36258.90 with a maximum value of 327123.7 and a minimum value of 13.01.

Tabel 6. Unit Root Test Result

ADF – Unit Root Test		***Level**		***1st difference**	
Variables	Method	Statistic	Prob.**	Statistic	Prob.**
Y	ADF – Fisher Chi-square	146.407 ***	0.0000	249.693 ***	0.0000
	ADF - ChoiZ-stat	-6.41128 ***	0.0000	-10.8910 ***	0.0000
X1	ADF – Fisher Chi-square	83.6079	0.2574	293.542 ***	0.0000
	ADF - ChoiZ-stat	-1.26801	0.1024	-11.8257 ***	0.0000

Source: Secondary Data Processed 2025

Based on Table 6, it shows that the independent variable has a unit root at the level with the decision that if the probability value is > 0.05 then there is a unit root which indicates that the data is not stationary at the level. So the first difference method was carried out and a probability value <0.05 was obtained, which states that the data is stationary at the first difference level.

Tabel 7. Panel Data Regression Result

Independen Variables	Description	CEM	FEM	REM
	Coef.	-0.000265	-0.000257	-0.000265
Constanta	*Statistic.*	-0.132492	-0.121338	-0.125490
	Prob.	0.8947	0.9035	0.9002
	Coef.	5.50E-07 *	5.59E-07 *	5.50E-07 *
D(X1)	*Statistic.*	2.223283	2.102489	2.105785
	Prob.	0.0269	0.0363	0.0360
Adj. R - Squared		0.011431	-0.101967	0.011431
Prob. (F-statistic)		0.026854	1.000000	0.026854
Notes :	*p < 0.05 ; **p < 0.01 ; *** p < 0.001			

Source: Secondary Data Processed 2025

Based on Table 7, it shows the estimation results of panel data regression models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Based on the three estimated models, the digital productivity variable (X1) has a positive and significant influence on economic growth in the province of East Java.

Tabel 8. Effect Testing Result

Model Effect Testing		Statistic	d.f	Prob.	Result
Chow Test	Cross-section Chi-square	2.263822	37	1.0000	CEM
Hausman Test	Cross-section random	0.035984	1	0.8495	REM
Lagrange Multiplier Test	Cross. Breusch-Pagan	18.91359		0.0000	REM

Source: Secondary Data Processed 2025

Based on Table 8, it shows the selection of the appropriate and best model estimation to be used in research. Based on the results of the Chow test, it is known that the cross-section chi-square value is 2.263822 with

a probability value of 1.0000 > 0.05, which shows that the common effect model is more appropriate to use compared to the fixed effect model. Based on the results of the Hausman test, it is known that the random cross-section value is 0.035984 with a probability value of 0.8495 > 0.05, which shows that the random effect model is more appropriate to use compared to the fixed effect model. Based on the results of the Lagrange multiplier test, it is known that the Breusch-Pagan cross-section value is 18.91359 with a probability value of 0.0000 < 0.05, which shows that the random effect model is more appropriate to use compared to the common effect model. Based on previous model selection tests, it can be concluded that the random effect model is the right model to use.

Tabel 9. Multicolinierity Test Result

Variable	Coefficient Variace	Uncentered VIF	Centered VIF
C	3.45E-06	1.000009	NA
D(X1)	6.90E-15	1.000009	1.000000

Source: Secondary Data Processed 2025

Based on Table 9, it shows that there are no symptoms of multicollinearity in decision making if the centered VIF value is < 10. Based on the test results, it is known that the VIF value is 1.000000 < 10 which shows that there are no symptoms of multicollinearity.

Tabel 10. Heteroscedasticity Test Result

Heteroskedasticity Test : Glejser **Null hypothesis : Homoskedasticity**			
F-statistic	1.547471	Prob. F(1,377)	0.2143
Obs*R-squared	1.549321	Prob. Chi-Square(1)	0.2132
Scaled explained SS	2.880303	Prob. Chi-Square(1)	0.0897
Variables	Glejser t-statistic		Prob.
D(X1)	-1.243974		0.2143

Source: Secondary Data Processed 2025

Based on Table 10, it is known that the obs*r-squared value is 1.549321 with a chi-square(1) probability value of 0.2132 and a variable probability value of 0.2143 > 0.05 with decision making if the probability value is > 0.05 then there are no symptoms of heteroscedasticity.

Tabel 11. Random Effect Model Estimation Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000265	0.002115	-0.125490	0.9002
D(X1)	5.50E-07	2.61E-07	2.105785	0.0360
R-squared	0.014330		Mean dependent var	-0.000754
Adjusted R-squared	0.011431		S.D. dependent var	0.037034
S.E. of regression	0.036822		Sum squared resid	0.460990
F-statistic	4.942989		Durbin-Watson stat	2.947186
Prob(F-statistic)	0.026854			

Source: Secondary Data Processed 2025

Based on Table 11, it shows the results of the panel data regression model equation with the random effect model. Based on Table 7, it can be seen that the coefficient value of the variable D(X1) is 5.50E-07 with a t-statistic of 2.105785 and a probability value of 0.0360 < 0.05, which shows that the variable D(X1) or digital productivity has a positive and significant influence on economic growth with an adjusted r-squared value of 1.14%, which indicates that the variable D(X1) or digital productivity is able to explain an influence of 1.14% on the economic growth variable. with a Prob(F-statistic) value of 0.026854 <0.05 which shows that simultaneously the independent variable has a significant effect on the dependent variable.

The results of this study show that digital productivity has a positive and significant influence on the economic growth of East Java Province as measured during the 2015-2024 period. This shows that increasing digital productivity is one of the sustainable strategies in encouraging increased economic growth in East Java Province. This can be reflected through investment and strengthening of the digital sector to develop various training and education programs and create a conducive digital-based business environment. It seeks to increase efficiency in the economic sector by increasing and strengthening digital productivity through innovation, creativity, and diversification to create *an innovative*

digital economy (innovation, creativity and diversification of the digital economy) in increasing wider market access and creating opportunities in international market competition. Based on research conducted by Cieślik & Parteka (2021) and Zuo & Huang (2020), productivity has a positive and significant impact on economic growth, as well as research conducted by Giannakis & Bruggeman (2018) and Chen et al., (2021) which states that productivity has a great contribution to economic growth and has a positive and significant direction towards economic growth. economic growth.

Conclution

This research proves that digital productivity plays an important role in encouraging economic growth in East Java Province, especially through the adoption of information and communication technology (ICT) and digital marketing strategies by small and medium enterprises (MSMEs). Through a *mixed method approach*, which combines netnographic analysis of public perception on social media and quantitative analysis of regional economic panel data, it was found that digitalization drives operational efficiency, increases business creativity, and expands market access. These findings are consistent with the global literature that states that the integration of digital technology is able to strengthen the competitiveness of MSMEs and encourage inclusion-based growth (Nambisan, et al., 2019; World Bank, 2021).

The MSME sector as part of the labor-intensive industry has a vital role in Indonesia's economic structure. In East Java, MSMEs absorb most of the workforce and are the main driving force of the local economy, especially in the trade, services, and agriculture sectors. With the increasing index of ICT development and digital connectivity in the region, digitalization has been proven to not only increase productivity, but also reduce the geographical and structural barriers that have been limiting the scale of small businesses (Qiang, et al., 2009). The application of digital technology such as e-commerce, marketing automation, and online communication allows MSME players to compete more equally with large business actors, as well as reach consumers across regions efficiently.

However, digital acceleration in the labor-intensive industrial sector cannot be completely dependent on the individual initiatives of business actors. The government plays a central role in creating an inclusive and empowering digital ecosystem. This includes the provision of equitable internet infrastructure, digital literacy training oriented to the needs of MSME actors, as well as fiscal incentive policies for businesses that transform to digital platforms (Tambunan, 2018; Zhao, 2016). Without structured interventions, the risk of digital inequality can actually deepen the gap between businesses that are technologically ready and those that are not.

In the future, cross-sector collaboration between the government, educational institutions, the private sector, and local communities is needed to strengthen the digital innovation ecosystem at the regional level. The business incubation model, strengthening community-based MSMEs, and expanding access to digital financing must be a priority agenda in regional economic development policies. With an integrated approach, digital transformation in labor-intensive industries can be a key strategy towards inclusive, adaptive, and sustainable economic growth, while strengthening local economic independence amid global challenges.

Bibliography

Abdillah, F. (2024). Dampak Ekonomi Digital Terhadap Pertumbuhan Ekonomi di Indonesia. *Benefit: Journal of Bussiness, Economics, and Finance*, *2*(1), 27–35. https://doi.org/10.37985/benefit.v2i1.335

Abro, Z. A., Alemu, B. A., & Hanjra, M. A. (2014). Policies for agricultural productivity growth and poverty reduction in rural Ethiopia. *World Development*, *59*, 461–474. https://doi.org/10.1016/j.worlddev.2014.01.033

Akita, T. (2010). Bulletin of Indonesian Economic Studies REGIONAL INCOME INEQUALITY IN INDONESIA AND THE INITIAL IMPACT OF. *Bulletin of Indonesian Economic Studies*, *4918*(March 2012), 37–41.

Asiva Noor Rachmayani. (2015). Economic and Social Benefits.

Chen, C., Zhang, Y., Bai, Y., & Li, W. (2021). The impact of green credit on economic growth-The mediating effect of environment on labor

supply. *PLoS ONE*, *16*(9 September), 1–21. https://doi.org/10.1371/journal.pone.0257612

Cieślik, A., & Parteka, A. (2021). Relative Productivity, Country Size and Export Diversification. *Structural Change and Economic Dynamics*, *57*, 28–44. https://doi.org/10.1016/j.strueco.2021.01.002

Dlodlo, N., & Kalezhi, J. (2015). The internet of things in agriculture for sustainable rural development. *Proceedings of 2015 International Conference on Emerging Trends in Networks and Computer Communications, ETNCC 2015*, 13–18. https://doi.org/10.1109/ETNCC.2015.7184801

Filimonenko, I. V., Likhachev, M. A., & Borodkina, V. V. (2021). Economic Growth of the Region's Territories: Comparative Analysis of the Productivity of the Manufacturing Sector. *IOP Conference Series: Earth and Environmental Science*, *666*(6). https://doi.org/10.1088/1755-1315/666/6/062054

Giannakis, E., & Bruggeman, A. (2018). Exploring the labour productivity of agricultural systems across European regions: A multilevel approach. *Land Use Policy*, *77*(December 2017), 94–106. https://doi.org/10.1016/j.landusepol.2018.05.037

Hollebeek, L. D., & Macky, K. (2019). Digital Content Marketing's Role in Fostering Consumer Engagement, Trust, and Value: Framework, Fundamental Propositions, and Implications. *Journal of Interactive Marketing*, *45*(2019), 27–41. https://doi.org/10.1016/j.intmar.2018.07.003

Malang, U. N., Malang, U. I., & Malang, U. N. (2024). *Why Indonesian MSMEs Should Go International : Economic and Social Benefits*. *2*.

Nambisan, S., Wright, M., & Feldman, M. (2019). *Research Policy*. *48(8)*(103773.).

Qiang, C. Z., Rossotto, C. M., & Kimura, K. (2009). (2009). *Information and Communications for Development 2009*. World Bank.

Ramayani, C. (2013). *PENGARUH INVESTASI PEMERINTAH, INVESTASI SWASTA, INFLASI, EKSPORT, TENAGA KERJA DAN PRODUKTIVITAS TENAGA KERJA TERHADAP PERTUMBUHAN EKONOMI DI INDONESIA Citra Ramayani*. *1*(2).

Rochmahwati, M. R. (2023). Analisis Pengaruh Teknologi Digital Terhadap Pertumbuhan Ekonomi di Pulau Jawa. *Jurnal Ilmu Ekonomi JIE*,

7(03), 369–380. https://doi.org/10.22219/jie.v7i03.27050

Schindler, D. R. C. and P. S. (2014). *Business Research Methods*. McGraw-Hill Education.

Sjoraida, D. F., Dewi, R., Adi, A. N., & Dipa, A. K. (2021). Penggunaan media sosial dalam membangun reputasi anggota legislatif di Jawa Barat. *PRofesi Humas Jurnal Ilmiah Ilmu Hubungan Masyarakat*, *6*(1), 89. https://doi.org/10.24198/prh.v6i1.32112

Sudiantini, D., Ayu, M. P., Aswan, M. C. A. S., Prastuti, M. A., & Apriliya Melani. (2023). Transformasi Digital : Dampak, Tantangan, Dan Peluang Untuk Pertumbuhan Ekonomi Digital. *Trending: Jurnal Ekonomi, Akuntansi Dan Manajemen*, *1*(3), 21–30.

Tambunan, T. (2018). *Journal of Global Entrepreneurship Research*. *9*(1), 18.

World Bank. (2021). *Data for Better Living*.

Zhao, L., & Collier, D. A. (2016). *Journal of Service Science and Management*. *9*(4), 330–340.

Zuo, B., & Huang, S. (2020). A Structural Change and Productivity Perspective of Tourism's Contribution to Economic Growth: The Case of Zhangjiajie in China. *Journal of Travel Research*, *59*(3), 465–476. https://doi.org/10.1177/0047287519841720