

The Effect of Human Resource Quality and Technological and Market Accesses on Creative Economy Development in Indonesia

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Abstract

This study primarily aimed to analyze the effect of the human development, Information, Communication, and Technology development index, and creative economy export value on the gross domestic product of the creative economy. Data were analyzed using multiple linear regression with Eviews 12. Study samples were time series data of creative economy GDP, Human Development Index, ICT development index, and creative economy product export values between 2007 and 2020. This study found that: (1) HDI significantly and partially affects the creative economy GDP, (2) the ICT development index significantly and partially affects the creative economy GDP, (3) creative economy product export values significantly and partially affect the creative economy GDP, and (4) HDI, ICT development index, and creative economy export values significantly and simultaneously affect the creative economy GDP. The result of this study suggests the need for the government to improve education quality, build sufficient, equal ICT infrastructure, and make regulations that facilitate creative economy actors. The creative economy actors are recommended to develop more creative products, while educators are suggested to develop more innovative learning methods.

Keywords: Creative economy, Human Development Index, ICT Development Index, export, Gross Domestic Product, Multiple Linear Regression.

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INTRODUCTION

The creative economy recently became one of the sectors showing significant development in Indonesia, and such development positively affects the country's economic growth. An economy grows when the community's economic activities increase (Nurulita

et al., 2018). The creative economy is one of the largest contributors to Indonesia's gross domestic product (GDP) (Setiyaningrum & Ramawati, 2020). Ministry of Tourism and Creative Economy (Kemenparekraf) showed that this sector's contribution to national GDP increases every year.

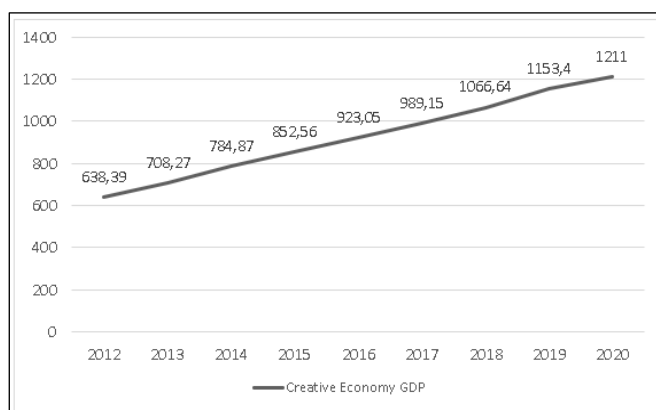


Figure 1: Creative Economy GDP based on the 2012-2020 (Trillion Rupiah)
 Source: Kemenparekraf (2020)

However, this positive trend is not free from the problem that emerges during its process. Kemenparekraf's 2020-2024 strategic plan lists seven issues that need to be tackled in creative economy development. The first issue deals with limited developmental research on the creative economy in terms of marketing and creative product development. The second issue is related to the actors' skills and knowledge for managing their businesses. The third issue is related to access to funding for the creative economic actors. The fourth issue deals with limited physical and ICT infrastructures for the economic actors. The fifth issue deals with the distribution chain of domestic creative products to the global market. Sixth, the absence of incentivizing creative economy development scheme. The last issue deals with the fact that only a few creative economic actors register their intellectual property rights (Kemenparekraf, 2020).

These issues indicate that human resource plays a central role in developing a creative economy. Human resources significantly contribute to the processes of idea creation until the realization in the form of creative products. From the macro perspective, human capital plays an important role in determining economic growth (Anwar, 2018). Creative economic products should be supported by adequate facilities to boost the creative economy's GDP more optimally. Infrastructure and technology have emerged as the main requirement for improving the competitiveness of Indonesia's creative industry (Kemenparekraf, 2020). Access to technology plays an important role in accelerating creative economy growth, especially related to product distribution. Creative economy actors in Indonesia desire their domestic products to be globally known. Therefore, it is necessary to have broader access to the international market through export activities.

Creative economy development emerges as an interesting research topic due to the presence of various problems that come along with Indonesia's creative economy development. Studies on creative economy development are still focused on several factors, such as employment and the company quantity, employees' wage, and total production (Leksono & Santosa, 2014; Nasution, 2020; Widiyanto, 2019). Therefore, the present study attempted to fill the knowledge gap by analyzing other factors expected to affect the creative economy development in Indonesia, namely Information communication technology development index (ICT development index).

A previous study conducted by Leksono and Santosa (2014) reports that the export, as an independent variable, significantly and negatively affects the dependent variable, i.e., creative industry GDP. In contrast, Resti & Monika (2020) found that the export significantly and positively affected the creative industry GDP. This difference implies the needs for

further scrutiny of the export and creative economy GDP in order to confirm the relationship directions between the two variables.

This study specifically aims to see the effect of human resource quality, as the main actor of creative industry and the technological and market access, as a means to facilitate the creative industry growth on the creative economy development in Indonesia.

THEORETICAL REVIEW

Concept and History of Creative Economy in Indonesia

The concept of creative economy was introduced by Howkins (2001) in his book *Creative Economy, How People Make Money from Ideas*. He defined creative economy as a novel concept that combines the essence of economy and creativity into a value that is impactful on one's well-being. The process of value creation is affected by numerous external factors, including sociocultural environments where the creative product is made. Creative economy is an emerging economic era that contributes to a country's GDP and export earnings (Hasan *et al.*, 2021).

United Nations Conference on Trade and Development UNCTAD (2008) defines creative economy as a concept that develops based on creative assets and potentially promotes a country's creative economy development through increased revenue and new employment. This concept encompasses economic, social, and cultural aspects that interact with technological aspects and intellectual property. It involves a set of cross-sectoral economic activities at macro- and micro-levels. Creative economy is a part of the evolution process that begins during the enlightenment era and continues to the industrialization era (Firdausy, 2017).

The creative economy development was put into realization when Indonesian Design Power (IDP) was established in 2007. It was established by the Department of Trade in order to facilitate the development of the creative industry in Indonesia. This department worked together with other departments and ministries to develop creative economy by organizing a national culture exhibition on 11 to 15 July 2007 with a theme "Pekan Produk Budaya Indonesia (Indonesian cultural product week)" (Mensesneg, 2007).

In Indonesia, creative economy is massively introduced to public during the era of President Susilo Bambang Yudhoyono through Presidential Instruction No. 6 of 2009 on the Creative Economy Development. The instruction stipulates the development of economic activities based on creativity, skills, and individual aptitude to (Inpres No.6 Tahun 2009) create an economically valuable creation that affects Indonesian people's welfare.

Indonesian government pays attention to the creative industry development because it brings positive impacts to the social life, business climate, economic growth, and image of a region (Sumar'in *et al.*, 2017). The development can be seen from the increasingly intense socialization from the central government to the regional governments. Topics on establishing data on exporters, importers, entrepreneurs, association, creative industry actors, and educational institution were among the big themes socialized by the government in order to introduce the creative economy to the public (Purnomo, 2016).

The development of the creative industry sector requires synergy among the government, intellectuals, business actors, and the public, a synergy known as the quad helix system (Hendarmin & Kartika, 2018). These four actors play important roles in achieving common goals. The government is responsible for formulating policies and regulations, while intellectuals and business sectors are responsible for providing facilities and media, and the public plays roles as a source of innovation (Imron, 2020).

According to the Presidential Regulation No. 72 of 2015 (Perpres No.72 Tahun 2015), creative economy could be grouped into seventeen subsectors:

1. Application
2. *Game developer*
3. Architecture
4. Interior design
5. Visual communication design
6. Product design
7. *Fashion*
8. Movie, animation, and video
9. Photography
10. Crafts
11. Culinary
12. Music
13. Publication
14. Advertising
15. Performance art
16. visual art
17. Television and radio

Roles of Human Resources in the Country's Development

Human resource development serves as both an input factor and the final goal of development (BPS, 2021). Human development is pivotal in order to obtain sustainable economic development (Hutajulu *et al.*, 2020). Human capital, innovation, and knowledge may significantly promote economic growth (Das *et al.*, 2020).

A country with high-quality, competitive human resources will likely exhibit more rapid development. In contrast, a country with relatively poor human resources will likely find it difficult to have optimal development (Kyswantoro, 2017). A creative

human resource serves as a foundation to make innovations to survive the increasingly tighter market competition (Purnomo, 2016).

Human Development index (HDI), as the name suggests, is a concept that measures human development introduced by the United Nations Development Program (UNDP). This index depicts human quality based on three dimensions: long and healthy life, knowledge, and decent standard of living (BPS, 2021).

The Role of ICT in accelerating A country's development

Information and communication technology is a combination of technological, engineering, and management techniques for processing information and social, economic, and cultural aspects (Iskandar, 2019). Among the main requirements to improve industrial competitiveness are the presence of adequate physical and ICT infrastructure and technology. Economic growth that comes along with technological innovation will likely boost community productivity (Surya *et al.*, 2021). In the creative economy context, the actors' creativity will likely develop and bring positive impacts on the national creative economy growth when they are supported by adequate creative economy infrastructure (Kemenparekraf, 2020).

International Telecommunication Union (ITU) developed the ICT development index in 2008. It serves as a benchmark to compare ICT development in various regions and periods. ICT development index combines 11 indicators: permanent telephone subscriber per 100 population, cellular phone subscriber per 100 population, international internet bandwidth per user, percentage of households using a computer, percentage of household with internet access, percentage of individuals using the internet, internet fixed broadband per 100 citizens, active internet mobile broadband per 100 citizens, average length of education, gross secondary participation rate, and gross tertiary participation rate (BPS, 2019).

The Role of Export in Increasing Gross Domestic Product

The term export refers to the selling of goods or commodities from a country to another (Astuti & Ayuningtyas, 2018). Its payment system, quality, quantity, and conditions are made based on the agreement between the exporter and the importer (BR Silitonga *et al.*, 2019). A country with increased export will likely exhibit economic improvement due to multiplier processes (Resti & Monika, 2020).

Export value can affect economic growth through international trading activities (Calderón *et al.*, 2001). A commodity export may be affected by domestic factors, supply and demands, foreign prices, and exchange rate (Huda & Widodo, 2017). Export

activities may increase domestic demands in a country (Harahap *et al.*, 2020). The economic increase of a country is driven by the aggregate demands in a domestic region to produce the desired export quality and quantities (Komariyah *et al.*, 2020).

Heckscher-Ohlin theory suggests that a country with abundant workforce tend to export labor-intensive commodity, while a country with abundant capital tends to export capital-intensive commodity. Such a condition will encourage optimal resource use and improve aggregate production (Raharja & Setyari, 2020).

Gross Domestic Product

Economic growth refers to the increase of goods and service volume in a certain economic region in a particular period of time (BPS, 2020). Economic growth is characterized by the increased goods availability, better product procurement ability, and

more massive, efficient technology use (Jhingan, 2016). Economic growth consists of various theories and models, from the classic, neoclassic, to modern eras. The Solow Swan theory is one of the economic growth theories in the neoclassic era, which was developed by Robert Merton Solow. This theory began to develop in 1956. It comprises three factors affecting economic growth: number of employment, capital accumulation, and technological advancement (Amalia *et al.*, 2016).

The goods and service production in an economic area was measured using the concept of gross domestic product (GDP). Gross Domestic Product is the market value of a product or service produced by a country by accumulating all outputs (Oktavianti & Nanda, 2019).

Theoretical Framework

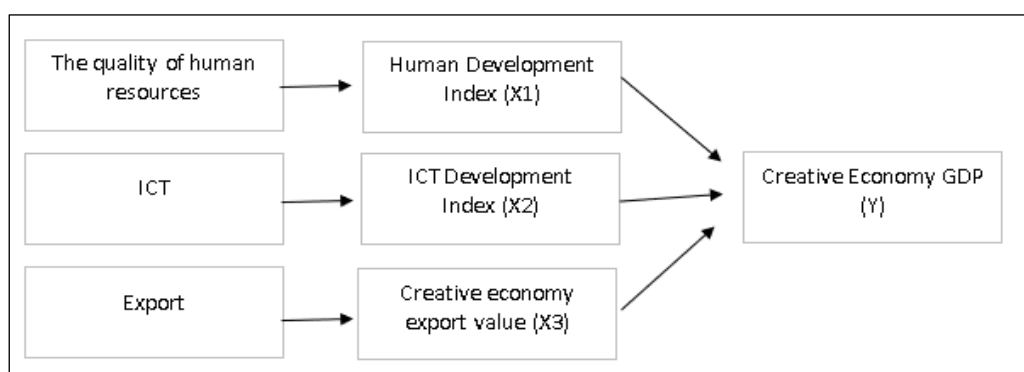


Figure 2: Research Framework
Source: Data Processing, 2022

Research Hypotheses

H1: Human Development Index (HDI) partially affects the creative economy GDP

H2: ICT Development Index partially affects the creative economy GDP

H3: Creative economy export value partially affects the creative economy GDP

H4: HDI, ICT development index, and creative economy export values simultaneously affect creative economy GDP

RESEARCH METHOD

Research Approach, Scope, and Variables

This study was categorized as quantitative correlational research. It employed numerical data analysis to scrutinize the relationship between two or more variables (Widiyanto, 2019). Data in this study were presented in numbers, including human development index, ICT development index, and creative economy export values. The analysis was performed through classical assumption tests and hypothesis tests. The scope of this study was 2007-2020 time series data of creative economy GDP (Y variable), human development index (X1), ICT development index (X2), and creative economy product export values

(X3). It also examined previous works such as journal articles, governmental publications, and books.

Data Analysis Method

The multiple linear regression analysis was made to find out the relationships between independent variables and the dependent one.

$$PDBekraf = C + \beta_1 IPMt + \beta_2 IPTIKt + \beta_3 Ekt + Et$$

Description:

PDBekraf = Gross domestic product of creative economy sector based on the constant price

C = Constant

$\beta_1, \beta_2, \beta_3$ = Intercept

IPM = Human Development Index

IP-TIK = ICT development index

Ek = Creative economy export values

RESULT

Human development index, ICT development index, and creative economy export values based on the constant price from 2007 to 2020 were processed using Eviews 12. The result is presented as follows:
Multiple Linear Regression Test

Table 1: Multiple Linear Regression Test Result

Variable	Creative Economy GDP		
	Coefficient	Standard Error	t stat
IPM	35.56962 (0.0256)	13.57131	2.379528
IP-TIK	145.3867 (0.0048)	40.38715	3.838340
Creative economy export values	1.769264 (0.0204)	0.642841	2.650626
C	-2711.017	935.0887	
R ²	0.950447		
Adj R ²	0.935580		
F-statistic	59.12034		
Prob F stat	0.000001		
N	14		

Source: Secondary data processing, 2022

The regression result, as shown in the table above, results in the following regression formula:

$$Y = -2711.017 + 35.56962IPM + 145.3867IPTIK + 1.769264EKS + e, \text{ which could be described as follows:}$$

- Constant (a) = -2711.017. By assuming that HDI, ICT development index, and creative economy export value equal to zero, then the creative economy GDP was -2711.017.
- Coefficient X1= 35.56962. Every one-point increase in HDI may lead to a 35.56962 increase in the creative economy development, assuming that all variables are constant.
- Coefficient X2= 145.3867. Every one-point increase in ICT development index may lead to a 145.3867 increase in the creative economy development, assuming that all variables are constant.
- Coefficient X3= 1.769264. Every one-point increase in creative economy export value may lead to a 1.769264 increase in the creative economy development, assuming that all variables are constant.

Based on the multiple linear regression result, partial and simultaneous hypothesis tests were performed as follows:

1. Coefficient of Determination

The multiple linear regression test result showed that the adjusted R-squared value was 0.935580, or 93%, meaning that independent variables can account for the dependent variable by 93%. Meanwhile, the rest, 7%, was accounted for by other variables outside the study's scope. HDI, ICT development index, and creative economy export values can simultaneously account for Indonesia's ICT development by 93%.

2. T-Test

The partial test was done by comparing t-count to t-table. This study used two-tailed test, resulting in the following t-table:

$$\begin{aligned} T \text{ table} &= t(a/2; n-k-1) \\ T \text{ table} &= t(0,05/2; 14-3-1) \\ T \text{ table} &= t(0,025; 10) \\ T \text{ table} &= 2,288 \end{aligned}$$

Based on the t-count and the t-table, the partial hypothesis tests could be described as follows:

- Tstat. of X1 (HDI) was higher than t table (2,379528 > 2,288), meaning that Human Development Index (HDI) significantly affects the creative economy GDP.
- Tstat. of X2 (ICT development index) was also higher than t table (3.838340 > 2.288), showing that ICT development index significantly affects the creative economy GDP.
- Similarly, tstat. of X3 (creative economy export values) was also higher than t table (2.650626 > 2.288), indicating that creative economy export value significantly affects the creative economy GDP.

3. F Test

This study also compared Fstat. to Ftable to examine the simultaneous effect. The Ftable of the study was shown as follows:

$$\begin{aligned} F \text{ stat.} &= 59.12034 \\ F \text{ table} &= f(k;n-k) \\ F \text{ table} &= f(3;11) \\ F \text{ table} &= 3,59 \end{aligned}$$

The Eviews output showed Fstatistics of 59.12034, which was higher than the Ftable of 3.59. It could be concluded the multiple regression model was applicable and HDI, ICT development index, and the creative economy export values simultaneously affected the creative economy GDP.

Classical Assumption Test

1. Normality Test

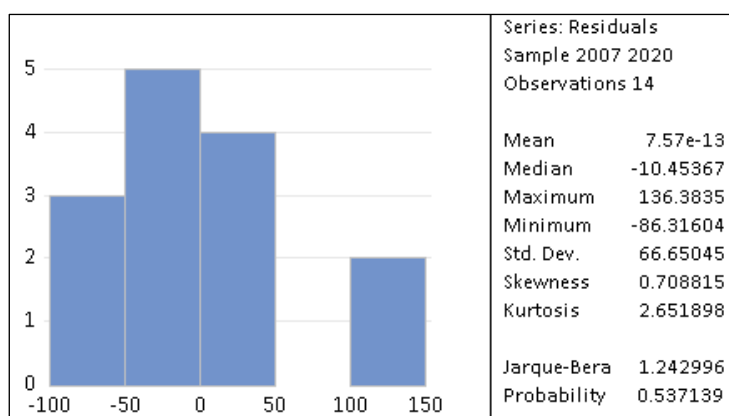


Figure 3: Normality Test Result
Source: Secondary data processing, 2022

The measurement was done by comparing Prob Jarque-Bera to the predetermined alpha value (i.e., 5%). The prob value higher than 0.05 indicated a normal distribution. As shown in Figure 3, the

Probability Jarque-Bera value was 0.537139 (> 0.05), implying normal data distribution.

2. Heteroscedasticity Test

Table 2: Heteroscedasticity Test Result

<i>F-statistic</i>	2.903386	<i>Prob. F(3,10)</i>	0.0877
<i>Obs*R-squared</i>	6.517433	<i>Prob. Chi-Square(3)</i>	0.0890
<i>Scaled exp. SA</i>	2.746462	<i>Prob. Chi-Square(3)</i>	0.4324

Source: Secondary data processing, 2022

Heteroscedasticity test was performed using Breusch-Godfrey test. The chi-square probability value lower than alpha (0.05) indicate the issue of heteroscedasticity. As shown in Table 2, the chi-square

probability value was 0.0890 (> 0.05), which means that there was no issue of heteroscedasticity.

3. Autocorrelation test.

Table 3: Autocorrelation Test Result

<i>F-statistic</i>	1.976383	<i>Prob (2.8)</i>	0.2007
<i>Obs*R-squared</i>	4.629783	<i>Prob.X² Chi - Square</i>	0.0988

Source: Secondary data processing, 2022

The autocorrelation test was performed using Breusch-Godfrey test. The result showed a score of 0.0988, which indicated no issue of autocorrelation

because the prob chi-square higher than alpha value (0,05).

4. Multicollinearity test

Table 4: Multicollinearity test result

<i>Variable</i>	C	HDI	ICT development index	Export value
<i>Centered VIF</i>	NA	1.423048	4.741518	4.437256

Source: Secondary data processing, 2022

Multicollinearity occurred if the VIF > 10 . The Eview output showed the centered VIF of HDI, ICT development index and creative economy export values were less than 10, meaning that there was no issue of multicollinearity. Therefore, these three independent variables could be used in this study.

DISCUSSION

The Effect of HDI on Creative Economy GDP

The first hypothesis expected that HDI partially affects the creative economy GDP. The multiple linear regression result showed that the HDI coefficient was 35.56962 with a tstat. of 2.379528 (tstat. $>$ ttable), meaning that HDI has a partial significant and positive effect on creative economy GDP.

This result is consistent with Nasution (2020), who reported that HDI significantly and positively affect the creative economy growth. The community education, income, and health qualities could be improved by enhancing the HDI (Nasution, 2020). Other studies from Saleh *et al.*, (2020) and Hutajulu *et al.*, (2020) also reported a significant, positive effect of HDI on a country's economic growth. Human resource was proven to affect the economic development of Bulukamba Regency, South Sulawesi Province (Saleh *et al.*, 2020). This result further confirms that human development affects the economic growth of a region (Hutajulu *et al.*, 2020).

However, this study contradicts Muqorrobin & Soejoto's (2017) study stating that HDI did not significantly affect a country's economic development. Their study in East Java Province showed that higher HDI tends to result in lower economic growth (Muqorrobin & Soejoto, 2017). Such a result was reported when the coefficient of determination was relatively low, i.e., 49.6%, implying that there were other variables outside their studies that were capable of accounting for the dependent variable.

The Effect of ICT Development Index on Creative Economy GDP

The second hypothesis expected that ICT Development Index affects the creative economy GDP. The regression test result showed a coefficient value of ICT development index of 145.3867 and tstat. of 3.838340 (tstat.> ttable). The result implies that ICT development index possessed partial positive and significant effect on the creative economy GDP.

This finding is in line with previous studies (Kristiawan & Iskandar, 2020; Lantera, 2019; Makun & Jayaraman, 2020; Rath & Hermawan, 2019) concluding that ICT significantly affects a country's economic growth. A country's economic growth is affected by the presence of adequate telecommunication infrastructure (Kristiawan & Iskandar, 2020). The economic growth in the USA, Australia, Chile, Hong Kong, Japan, Canada, New Zealand, Singapore, and Brunei Darussalam was affected by the ICT development, particularly the broadband internet and telephone network development (Lantera, 2019).

However, this study contradicted Sabila (2019), who reported that ICT did not significantly affect the economic growth of a region. Such a finding was based on the absence of significant difference in GDP increase before and after 3G/4G technology, proxied by the investment component (Sabila, 2019). This difference may be accounted for by difference in measurement indicators, where Sabila (2019) used dummy variable representing pre- and post- 3G/4G conditions in Indonesia, whereas Kristiawan & Iskandar (2020) and Lantera (2019) used ICT development index to measure intangible infrastructure development.

The Effect of Creative Economy Export Values on Creative Economy GDP

The third hypothesis in this study expected that creative economy export value affects the creative economy GDP. The regression test result showed a coefficient value of creative economy export values of 1.769264 and tstat. of 2.650626 (tstat.> ttable). The result implies that the creative economy export values possessed partial positive and significant effect on the creative economy GDP.

This result is consistent with Resti & Monika (2020), who reported that the creative economy export value significantly and positively affect the creative economy GDP. Their study reported that 15.54 Trillion Rupiahs increase in creative economy export values in 2019 may contribute to 7.81 Trillion rupiahs of GDP (Resti & Monika, 2020). The study conducted by Ginting (2017) also reported a significant, positive effect of export value on a country's economic growth both in a short- and a long term (Ginting, 2017).

This result is in contrast with Leksono & Santosa (2014), who reported that the creative economy export value significantly and negatively affect the creative economy GDP, as they found that An increase in export value would lead to a 0.08% decrease in creative industry GDP (Leksono & Santosa, 2014). This difference may be accounted for by the period during which the study was conducted, where Leksono & Santosa (2014) used a 2002-2008 period, when Indonesia's creative industry export highly relied on European countries and USA that underwent sluggish economic conditions. The USA's Subprime Mortgage crisis in 2007 had generated domino effects worldwide. The indirect impact of this crisis was the weakening of rupiah's exchange rate and dropped commodity price (Mahendra, 2016).

The Effect of HDI, ICT Development Index, and Creative Economy Export on Creative Economy GDP

This study expects that HDI, ICT development index, and creative economy export values simultaneously affect creative economy GDP. The multiple regression test result showed an prob value F-statistic of 0.000001 (< 0.05) and Fstat. of 59.12034 (Fstat. > Ftable). The result implies that these three variables simultaneously and significantly affect the creative economy GDP.

This finding is in line with Solow-Swan economic growth theory and Heckscher-Ohlin international trading theory. The former suggests that a country's economic growth is affected by capital accumulation, workforce, and technological advancement. The capital and workforce accumulation represented by HDI and technological advancement represented by ICT development index shows a

significant relationship with the creative economy GDP. Meanwhile, Heckscher-Ohlin international trading theory suggests that export is a pivotal factor of national income, which is in line with the study finding that the creative economy export values significantly relates to the creative economy GDP.

CONCLUSION

Based on the data analysis results, the following conclusions were drawn: (1) HDI significantly and partially affects the creative economy GDP. (2) ICT development index significantly and partially affects the creative economy GDP. (3) The creative economy export value significantly and partially affects the creative economy GDP. (4) HDI, ICT development index, and creative economy export values simultaneously and significantly affect the creative economy GDP.

RECOMMENDATION

Some recommendations were made based on the result, discussion, and the conclusion of the study. These recommendations were made for relevant parties involved in creative economy development.

1. The government and educators are suggested to improve Indonesia's education quality through innovative learning methods to produce high-quality and competitive human resources.
2. The government is also expected to equally establish adequate ICT infrastructure in the country to promote people's ICT improvement.
3. The government is also suggested to issue policies and regulations capable of providing spaces for creative economy actors' development.
4. On the other hand, creative economy actors are suggested to develop more competitive products in order to increase the country's export volume and value.
5. The public, government, educators, and creative economy actors are expected to work together to promote Indonesia's creative economy development.

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