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## Analysis of Creative Industries Development in Indonesia

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### Abstract

This study aims to identify the relative strengths of the creative industry subsector in Indonesia and analyze the determinants that affect the GDP of the creative industry sector in Indonesia. The analysis period from 2010 to 2016 used Klassen's typological analysis and panel data regression. The data used in this study from 2010 to 2016 (time series) and 16 sub-sectors of the creative industry sector. Based on typology Klassen creative industry sub-sector craft, fashion and culinary is a sub-sector that has a relative advantage over other subsectors, thus contributing more to the GDP of the creative industry. The panel data regression results show that the variable of the creative industry workforce, creative industry employee wages, and patents were able to increase the GDP of the creative industry. The vocational creative industry sector which is a proxy for education and creative industry sector policies can make the GDP value of Indonesia's creative industries in the future be higher. Some industrial sub-sectors such as photography, publishing, architecture, advertising, interior design, and fine arts need government support to catch up with other subsectors to make a better contribution to the GDP of creative industries. the promotion of patents and policies for small businesses must be improved, especially administrative and technical requirements to make it easier.

**Keywords:** creative economy; creative industries; growth; panel data.

### 1. Introduction

The Creative economy is one of the fields that play an important role in Indonesia's economic development.

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Shifts have occurred in the economy in Indonesia, and one of them affects how creative industries such as arts and culture are connected to economic life, creative industry assets can be produced, consumed and distributed in Indonesia and throughout the world. The creative economy has the potential to generate income and jobs while promoting social inclusion, cultural diversity, and human development because the creative economy itself is a concept that relies on ideas, ideas, or creativity of human resources as a major factor in its economic activities [1]. Their research said that the creative industry can encourage overall economic growth both directly and indirectly. Based on the results of research between the Central Statistics Agency (BPS) and the Creative Economy Agency (Bekraf) conducted in 2016, it was recorded that the creative economy contributed to national economic growth of 852 trillion rupiahs or 7.39 percent of the national Gross Domestic Product (GDP) in 2015 shown by Figure 1.



Figure 1: The structure of the Indonesian economy in 2014-2016

Source: [2]

Based on creative economy GDP data that has increased in recent years, new hopes arise from the government to be able to exploit this potential. Through Bekraf, the Indonesian government developed the creative economy in 16 sub-sectors, including: (1) architecture, (2) interior design, (3) visual communication design, (4) product design, (5) film, animation, and video, (6) photography, (7) crafts, (8) culinary, (9) music, (10) fashion, (11) application and game developers, (12) publishing, (13) advertising, (14) television and radio, (15) performing arts, and (16) fine arts. Figure 2 shows the GDP of the creative industries by subsector at constant prices.

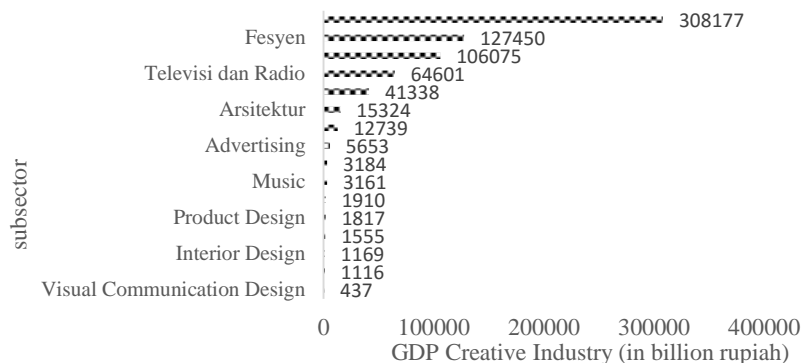


Figure 2: The structure of the Indonesian economy in 2014-2016

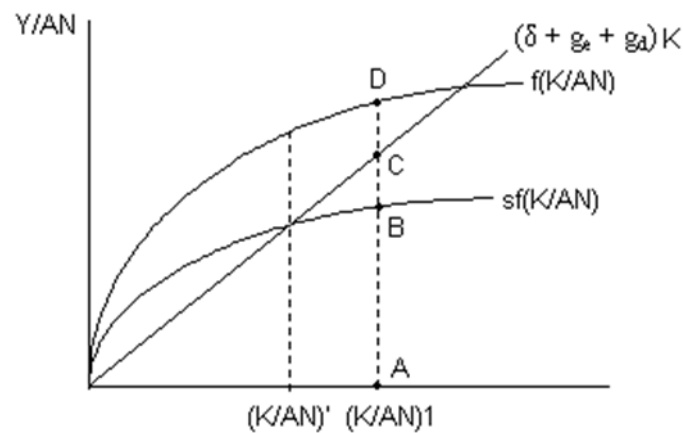
Source: [2]

Indonesia can take advantage of the opportunities that can be achieved in the creative economy, taking into account the workforce, the number of businesses, wages, and the level of education in developing the creative economy industry. Lots of empirical evidence supports that the creative industry has an impact on GDP through the creative industry subsector and creates a new form of cultural industry governance [3,4,5]. The creative industry has several problems related to its development in Indonesia. First, based on data from [6], the GDP growth of the creative industries in Indonesia in 2016 was only realized at 4.95 percent from the targeted target of 5.21 percent. The target of creative economic development targeted at 12 percent in the 2019 National Medium Term Development Plan (RPJMN), was only realized at 7.44 percent in 2016. The contribution of the creative industries sub-sector in Indonesia in recent years has been dominated by three sectors, namely the culinary, fashion and craft sectors. In addition to the three sub-sectors, the contribution is still low, and the sub-sectors that use high innovations such as applications and game developers, animation and video films, photography, and others have not been maximized properly. In line with this, export development according to the creative economy subsector is also only a number of sub-sectors that have succeeded in penetrating the world export market. Second, out of the 16 creative economy subsectors, only a few sectors have developed well, while most have gaps that are still far from the three subsectors. Based on [2], in 2016 the distribution (share) of GDP of the creative economy industry, in general, more than 70 percent came only from the culinary subsector (41.40 percent), fashion (18.01 percent), and crafts (15.40 percent). In addition to the three sub-sectors, the contribution is still low, and the sub-sectors that use high innovations such as applications and game developers, animation and video films, photography, and others have not been maximized properly. In line with this, export development according to the creative economy sub-sector is also only a number of sub-sectors that have succeeded in penetrating the world market, the rest is still oriented in the domestic market. The role of government through creative industry sub-sector policies and in terms of attracting capital flows from outside through Foreign Direct Investment (FDI) is very important to encourage economic growth in the creative industries [7]. His research says that the government can move the community to increase creativity, ideas, and skills with a policy. In this regard, there is also research that says that the strength of the relationship between business people in the creative industries will create creativity and innovation through the community and supply chain [8]. One important factor in the development of creative industries is education. Education can contribute to the creative industry through schools and colleges in producing graduates who have good education and skills. This is in line with research [9] and [10], which found that the number of higher education institutions was able to increase the growth of the creative industries. Previous research on the creative industry in Indonesia is relatively limited. Previous research mostly consists of case studies in big cities in certain creative industry sectors [3,11,12,13]. Research on creative industries at a regional or national level is still very little due to the limited data available. Studies related to the determinants of GDP of the creative industries in Indonesia are very important to contribute in presenting the factors that influence the GDP of the creative industries. The method often used is the ordinary least square (OLS) method using panel data regression [10, 14,15]. Based on the background and formulation of the problems that have been described, the purpose of this study is to identify the advantages of the creative industry sub-sector in Indonesia and analyze the factors that influence the GDP of the creative industry sector in Indonesia.

## 2. Introduction

### 2.1. Concept of Production Theory

Production is defined as an activity in which goods and services are called inputs that are converted to output. Output in the form of production goods depends on the number of inputs used in the production process. The relationship between input and output can use the production function. A neo-classical growth theory with a production function was developed by Solow. Solow's theory uses the factors of production in the form of capital (K) and labor (L) to be the main factors in economic growth. If these two factors increase, it will increase production output. Solow states the theory in a growth model that is  $Y = F(K, L)$ . The output obtained from the accumulation of capital and labor will increase if it is accompanied by technological advances. The role of technology in the production process can be formulated only as  $Y = F(K, AN)$  [16].



**Figure 3:** The dynamics of capital and output per labor

Source: [16]

Figure 3 shows where A represents a measure of the level of technology use that increases output through capital per labor. The technology produces the same amount of output with only half of the original workforce (AN). Technology makes the amount of output generated per unit of production factors increases. [14] In his study said that Total Factory Product (TFP), technology plays a role in increasing the output produced.

### 2.2. GDP Creative Industry

Economic growth explained by Kuznets is an increase in the long-term capacity of a country to provide various economic goods to its population [17]. The ability to grow in accordance with technological progress, institutional adjustments, and ideological needs. Economic growth with changes in production capacity can be seen through an increase in national income. An increase in national income can be seen through the value of a country's Gross Domestic Product (GDP). The development of economic growth in Indonesia began to include activities originating from creativity, skills and individual talents through cultural arts and intellectual property rights which are often referred to as the creative economy. The role of the creative economy is making a new

sector in the industry in Indonesia and producing creative industry GDP. GDP of Creative Industries (GDP CI) prioritizes the role of human factors through their talents and innovations.

### 3. Research Methods

The data used in this research is secondary data from the results of the Bekraf-BPS collaboration in the form of Creative Economy Statistics, including the GDP of the creative industry, labor, and the wages of the creative industry subsector. In addition, patent data, education dummy, FDI dummy, and creative industry sector policy dummy collected through literature studies.

**Table 1:** Variables and sources of research data

<b>Data</b>	<b>Literature</b>	<b>Source</b>
GDP Creative Industry	Awalia and his colleagues (2013)	BPS-Bekraf
Labor	Awalia and his colleagues (2013)	BPS-Bekraf
Wage	Domenech dan Koster (2018)	BPS-Bekraf
Patent	Zhang dan Kloudova (2011)	Ministry of Law
Education	Zhang dan Kloudova (2011)	Minister of Education
<i>FDI</i>	Okafor and his colleagues (2015)	BKPM
Policy	Awalia and his colleagues (2013)	Bekraf

#### 3.1. Relative Superiority Based on Klassen Typology

Klassen's typology technique is one of the regional economic analysis tools commonly used to identify policy priorities. Klassen typology analysis in this study was conducted to identify a picture of the patterns and structure of the growth of the creative industry subsector. This analysis bases the grouping of a sector by looking at the growth and excellence of certain subsectors from other sub-sectors to the total GDP of creative industries.

#### 3.2. Determinants of GDP Creative Industry

The model specifications in this study refer to [14,10], the models used in this study mathematically, are as follows:

$$\ln PDBIK_{it} = \beta_0 + \beta_1 \ln TK_{it} + \beta_2 \ln Upah_{it} + \beta_3 \ln Paten_{it} + \beta_4 D\_Pend_{it} + \beta_5 D\_FDI_{it} + \beta_6 D\_Keb_{it} + e_{it} \quad (1)$$

Note:

$PDBIK_{it}$  : GDP of creative industries subsector i subsector in the t-year (rupiah)

$TK_{it}$  : The number of workers in the creative industry sub-sector i in the t-year (people)

$Upah_{it}$  : Employment of creative industries sub-sector i employees in the t-year (rupiah)

$Paten_{it}$  : Number of creative industries sub-sector patents  $i$  in the  $t$ -year (unit)

$Pend_{it}$  : Dummy program or vocational education in the creative economy subsector that is registered at SMK (1 = registered; 0 = not registered)

$FDI_{it}$  : Dummy Foreign Direct Investment (FDI) in the creative economy subsector (1 = any investment; 0 = no investment)

$Keb_{it}$  : Government policy dummy in the creative economy subsector (1 = any policy; 0 = no policy)

$e_{it}$  : error

$i$  : creative industry subsector

$t$  : year

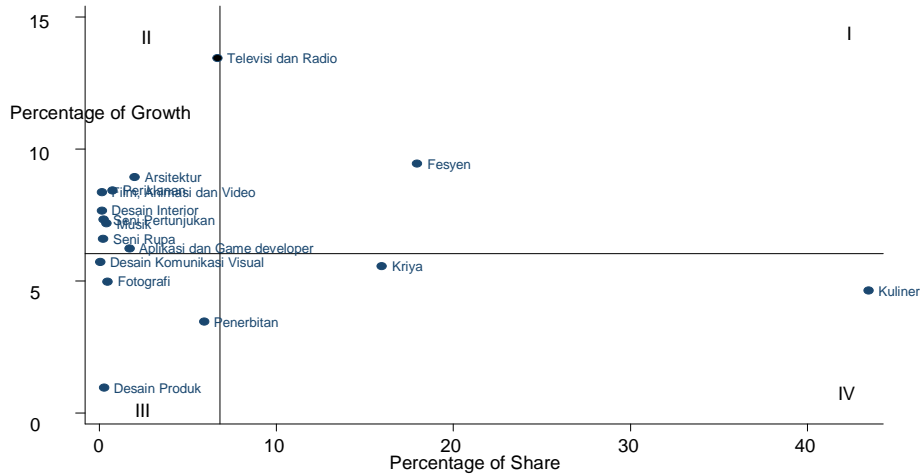
$\beta_0$  : Intercept

There are several methods that are often used to estimate parameters of panel data models, including the following: Common Effect Model (Pooled Least Square), Fixed Effect Model, and Random Effect Model. The selection of an appropriate regression model in the panel data regression analysis was performed using the estimation test. The tests conducted in the selection of this regression model, namely: Chow test, Breusch Pagan Langrange Multiplier test, and Hausman test.

## 4. Result and Discussion

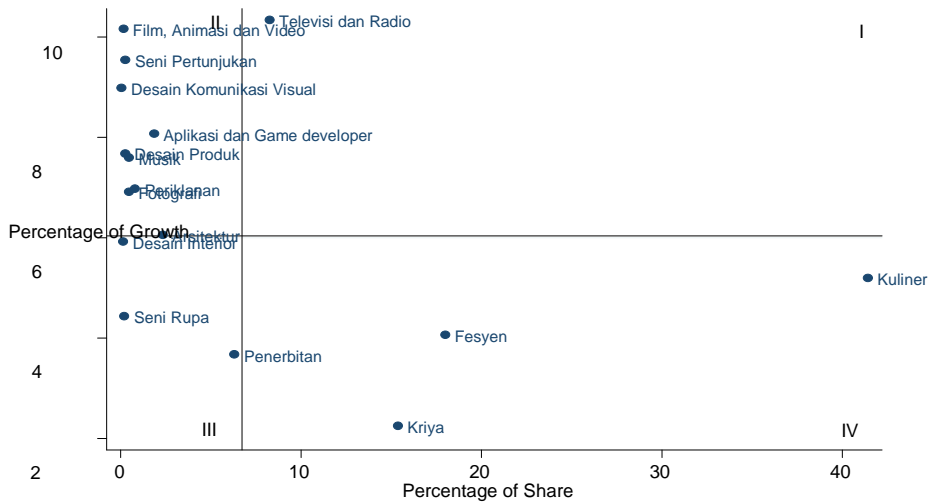
### 4.1. Klassen's Typological Analysis

Figure 4 shows the conditions in 2011, by juxtaposing the distribution and growth rate, it can be seen that there is a buildup in Quadrant II, which means that the subsector that is in Quadrant II already has a positive growth rate but has not contributed a significant share. That is, when the architecture subsector, interior design, animated films, and video, advertising, fine arts, and performing arts have grown, but the share contributed by the subsector has fallen. Subsectors that have high share and growth are only subsectors, namely the fashion subsector and the television and radio subsector. This means that the two subsectors are in an ideal condition, both of which grew positively as expected. Game developer application subsector, visual communication design, photography, product design, and publishing are in quadrant III. Sub-sectors that are in this quadrant must be given special attention to immediately improve the growth and share contributed. As for the two craft and culinary subsectors, both are subsectors that have a high share but have a slower growth rate.



**Figure 4:** Distribution (share) and growth rate (growth) of the creative economy subsector in 2011

Figure 5 shows in 2016 while still using the distribution (share) and the rate of growth (growth), visible changes in position in several quadrants. The creative economy subsector in this quadrant is only the television and radio subsector. The fashion subsector that was previously in quadrant I moved to quadrant IV. The creative economy subsector that still survives with positive growth is animation and video films, music and performing arts. Then there is also the product design subsector, visual communication design, and application and game developers that previously both share and growth contributed low.



**Figure 5:** Distribution (share) and growth rate (growth) of the creative economy subsector in 2016

This means that the government has succeeded in improving the performance of the three sub-sectors so that it has progressed in terms of growth rates, even though they share has not yet had a positive impact on the GDP of the creative industries. The photography and publishing subsector remains in quadrant III, which is a lagging subsector with low share and growth, plus the architecture, advertising, interior design, and fine arts sub-sectors

that were previously in Quadrant II, which has positive growth. These sub-sectors need to be increased again through government policies in order to catch up with other sub-sectors. In Quadrant IV, there are three sub-sectors of the creative economy, namely the culinary, craft and fashion subsectors, which in 2011 the fashion subsector was in Quadrant I. Previous studies by [14], the dominant sub-sector was the fashion and handicraft sector, which absorbed 47 percent and 38 percent respectively. While the subsector that developed both share and growth was the publishing and advertising subsector.

#### 4.2. Determination of GDP Creative Industry

In choosing which model is better between the common effect (pooled least square) or fixed-effect model, a Chow test is performed. Chow test results show the probability value F is smaller than  $\alpha$  (0.05), it is concluded that there is enough evidence to reject the  $H_0$  hypothesis so the right model of the Chow test is a fixed-effect model. In addition to the Chow test, to choose which model is better between the random effect model or the fixed-effect model, the Hausman test (Hausman test) is performed. Hausman test results show a probability value smaller than  $\alpha$  (0.05), it is concluded that there is enough evidence to reject the  $H_1$  hypothesis so the right model of the Hausman test is a fixed-effect model.

**Table 2:** Determinants of GDP growth in creative industries

Variabel	Koefisien	Std. Error	t-Statistic	Prob
LnTK	0.830171***	0.049007	16.94000	0.0000
LnUpah	0.215586*	0.125017	1.724459	0.0877
LnPaten	0.231950***	0.048636	4.769116	0.0000
D_Pendidikan	0.618366*	0.344672	1.794073	0.0759
D_FDI	-0.188237	0.221682	-0.849131	0.3979
D_Kebijakan	0.864575***	0.229619	3.765265	0.0003
R <sup>2</sup>	0.832833			
R <sup>2</sup> -adj	0.812570			
Prob(F-statistic)	0.000000			

Note: \*\*\* statistically significant 1%, \* statistically significant 10%

Table 2 shows the estimated results of the panel data regression model. The results of the joint test (F-test) are seen from the probability of the F-statistic (0.0000) because the probability value is smaller than  $\alpha$  (0.05) which means that there is at least one independent variable that significantly influences the GDP growth of the creative industry. The estimation results of the model produce an R2 value of 0.832833 and R2-adj of 0.812570 which indicates that the variables included in the research model can explain the relationship of 83.28 percent, while the remaining 16.72 percent is explained by other variables. The LnTK variable has a positive and significant coefficient value, it shows that the number of creative industry workers encourages the growth of GDP of creative industries. The variable coefficient of LnTK is 0.830171, meaning that when the number of workers rises by one percent, it will increase the GDP growth of the creative industry by 0.830171 percent, assuming other factors are ceteris paribus This is in line with the results [14], that the availability of labor is proven to encourage the GDP of creative industries because human resources are the main resources in the creative industries. The LnUpah variable has a positive and significant coefficient value, it shows that the wages of creative industry employees encourage the growth of the GDP of creative industries, because the increase in



wages will spur employees to be more productive. The coefficient of this variable is 0.215586, meaning that when the number of workers rises by one percent, it will increase the GDP growth of the creative industries by 0.215586 percent, assuming other factors are *ceteris paribus*. These results are in line with research by [8], that wage rates will affect production growth, as well as indirect effects to create technical progress and modification of economic growth pathways. The patent variable has a positive and significant coefficient value, it shows the patent as a proxy of innovation in the creative industry sector is able to be an important determinant in increasing the GDP growth of the creative industry. The coefficient of the patent variable is 0.231950, meaning that when the number of patents increases by one percent, it will increase the GDP growth of the creative industry by 0.231950 percent, assuming other factors are *ceteris paribus* [10]. His research found similar evidence in their research that the number of patents represents the important role of technology and innovation that can increase the growth of the creative industry. Based on BPS-Bekraf data in 2016, out of 8.2 million new creative industry businesses, 11 percent are registered in Wealth Intellectual Property Right (WIPR). Business actors are still constrained by the administrative costs of licensing, IPR management, and the establishment of relatively expensive businesses. Second, in terms of technical constraints, namely the still low understanding of the creative economy business actors on create, patent, and brand rights so that product piracy is still occurring. The role of the government is needed to conduct socialization related to the importance of patenting a product so that in the future the role of patents will greatly influence the growth of GDP in creative industries. Education Dummy Variable has a positive and significant coefficient value, it shows that someone who has an educational background with a major in the creative economy will produce a higher GDP value of creative industries because the educational background of the creative industry employees indirectly becomes important in the development creative industry [9,10], found that the education factor was able to increase the growth of the creative industry through the talents generated from education. The Dummy Foreign Direct Investment (FDI) variable has a negative coefficient of 0.188237. This shows that FDI does not have a significant influence on influencing the GDP of creative industries. Based on BPS-Bekraf data in 2016, out of the 16 existing creative industries, only five subsectors have succeeded in penetrating the export market, with the remaining 11 subsectors still remaining in the local market. The multidimensional crisis globally affects the value of foreign investment in Indonesia. The uneven government attention to all of the existing creative economy subsectors has caused uncertainty of foreign investors to invest in the creative economy. This needs to be intervened by the government through coordination and supervision from the center to the regions so that it is well coordinated so as not to overlap and guarantee the certainty of foreign investors [18]. His research found similar evidence in his study that dummy FDI was not significant for the production of several food subsector industries in China in 1998-2007. The Dummy Policy variable has a positive and significant coefficient value, it shows that the policy made by the government related to the creative industry sector will produce a higher value of creative industry GDP because government policies in the creative industry sector both in the form of regulations and others will determine the productivity of all input of creative industries subsector. If business operators benefit from government policies, economic conditions will continue to be conducive so as to encourage the creative industry sub-sector to produce products of high quantity and quality [12]. Her research shows that policy is a good thing for the development of the creative economy industry, but if not managed properly will be a risk for those who do not prepare their competencies optimally.

## 5. Conclusion

Based on the Quadrant in the Klassen Typology, in 2011 and 2016 the fashion, architecture, advertising, interior design, and fine arts subsectors experienced a growth rate decline. In contrast, the three sub-sectors namely the product design subsector, DKV, and AGD have increased their growth rates so that they move to Quadrant II. Craft, fashion and culinary creative industries subsectors are subsectors that have relative advantages over other subsectors, thus contributing more to the GDP of creative industries. Some industrial sub-sectors such as photography, publishing, architecture, advertising, interior design, and fine arts need government support to catch up with other subsectors to make a better contribution to the GDP of creative industries. Determinants of the GDP of creative industries show that the number of workers, wages, and patents can increase the growth of the GDP of creative industries. The vocational creative industry sector which is a proxy for education and creative industry sector policies can make the GDP value of Indonesia's creative industries in the future be higher. The results of patents and policies in the model are significant but still require the role of government to improve both of these. Policy recommendations related to the development of creative industries can be done through the dissemination of patents for small business actors, which must be further improved, especially administrative and technical requirements to be made easier. Government policies in the creative economy sector also need to be improved, especially related to the policy of access to financing the creative industry sector, which is proven to be able to make the GDP value of the creative industries higher. The limitation of this research is that it only uses sectoral data due to the availability of data, so it cannot see the contribution of creative industries spatially or each province. In addition, the study only uses a number of indicators such as labor, wages, and intellectual property rights through patents. Future studies are expected to use spatial or regional data, and add a number of indicators of economic and social variables such as the number of entrepreneurs and their characteristics, and the use of the internet as a promotional medium.

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