RESEARCH PAPER

The Impact of Creative Industries on Gross Domestic Product Using Generalized Method of Moments (GMM)

Hoda Zobeiri[a],* , Ahmad Jafari Samimi[a], Maryam Ehsani[a]

a. Faculty of Economics & Administrative Science, University of Mazandaran, Babolsar, Iran
* Corresponding author, E-mail: h.zobeiri@umz.ac.ir

Abstract

Creative industries are growing rapidly and have a high potential for employment and income creation. The growing importance of creative industries in increasing the prosperity and development of countries has been confirmed by many empirical studies. These industries offer a new experience of economic value in a variety of products, both tangible and intangible, through the integration and transfer of extensive knowledge, skills, and innovations into all sectors of today's economy. According to UNCTAD, creative industries include traditional cultural industries such as publishing, media, television, film, performing arts and crafts, as well as modern and creative cultural industries and services such as advertising, architecture, design, and photography. The present study examines the effect of creative industries on the GDP of 98 developed and developing countries from 2011 to 2019. The generalized Method of Moments (GMM) has been used to examine and evaluate the research model. The results of this study demonstrate the positive and significant effect of "creative industries" including production and services in creative, cultural, and artistic fields on the GDP of the studied countries.

Keywords: Art, Creative Industries, Cultural Industries, Generalized Method of Moments (GMM), Gross Domestic Product (GDP), Sustainable Development.

JEL Classification: Z1, O3, C33.

1. Introduction

The expression 'creative industries' was advanced by Caves throughout the last years of the twentieth century simultaneous with publishing the book entitled 'Creative Industries: Contracts between Art and Commerce' in 2000. In 1998, the Department of Culture, Media, and Sport (DCMS) of Britain compiled the first document of the creative industries plan. The U.K. Creative Industries Mapping Document (DCMS, 1998) defined the creative industries as 'those activities which have their origin in

individual creativity, skill, and talent and which have the potential for wealth and job creation through the generation and exploitation of intellectual property (Gouvea and Vora, 2018; Dharmani et al., 2021). John Howkins in 2001 for the first time used the term 'creative economics' to demonstrate the relationship between creativity and the economic system. In his opinion, neither creativity nor the economic system is a new concept. Their nature, width, and manner of combination to produce added value, commodities, and income are important (Ghazinoory et al., 2021).

Creative industries are the main component of the creative economy. These industries have been recognized as the leading industries of the 21st century due to their knowledge-based nature, connection to a wide range of industries, high flexibility, low pollution, low energy consumption, high efficiency, and high employment (Zhou et al., 2020). The 2018 UNCTAD report shows that creative industries have experienced significant growth globally over the past two decades (UNCTAD, 2018). The report also shows that creative industries were very resilient during the 2008 financial crisis and in the years that followed, and in some cases even grew. That is creative industries have significant potential for investment. According to Rodrigues and Franco (2019), economic sustainability is closely linked to the creative industries. According to Jones et al. (2016), creative industries are one of the fastest-growing industries in Europe and North America, and their growth depends on continuous innovation. The United Nations has declared 2021 as the "International Year of Creative Economy for Sustainable Development."

Given the importance of this issue, little quantitative and empirical research has been done to assess the effect of creative industries on the economic growth of countries. The reason can be attributed to a lack of access to appropriate data in this field. In recent years, regarding facilities, calculations, and disseminating relevant indexes in this field, conducting quantitative research and precise examination are more feasible. This study aims to examine the effect of creative industries on GDP in selected developed and developing countries based on a new index "creative industries" including handicrafts and cultural products, designing, visual and dramatic art, publications, movies, and other media as well as exporting art and cultural products and services including audiovisual, advertising, market research, and public opinion services, personal, cultural and recreational services. The main contribution of the present study is to provide an empirical quantitative analysis by using dynamic panel data regression to investigate the role of the creative industry in the gross domestic product of countries. The remainder of this paper is organized as follows. Section 2 discusses the concept of creative industry and the mechanism by which it affects economic growth, and provides a brief overview of the relative studies conducted to

date. Section 3 introduces the models and research data. In Section 4, an estimated effect of the creative industry on GDP is analyzed by using dynamic panel data regression. Finally, Section 5 summarizes the results and concludes.

2. Literature Review

Economic growth is a complex process. However, economic models such as neoclassic growth (Ramsey, 1928; Solow, 1956; Romer, 1986) have emphasized the role of main variables such as investment, human capital, research, development, and productivity, but empirical studies revealed that some other factors such as government policies and social organizations play a crucial role in economic growth, too. Often, general expenditures (Barro, 1990), political institutions (Alesina and Perotti, 1996), openness (Frankel and Romer, 1999) the role of the financial system (Levine et al., 2000), and the effect of macroeconomics policies and inflation (Fischer, 1993) in the growth models have been examined. Moreover, several other studies showed that some of these factors through their cross-impact on the significant variable of production may affect economic growth. As a case in point, behavioral patterns that affect individuals saving behaviors, their selection, or the rate of population growth can be mentioned here. Furthermore, one of the identified effective factors that affect economic growth is the tendency to enhance personal capabilities and competence that in turn, affects deciding on education investment. It allows the person to be effective in economic growth through promoting their skills and proficiency (Romer, 1986; Lucas, 1988). Additionally, other factor such as moral obligation which is one of the determinants of endeavor and efficiency of the workforce and underlies professional ethics, has a less direct relationship with the main variable of growth but can be considered a significant factor. Trust and willingness to collaborate that affect the mental cost of cooperation with strangers may play a crucial role in developing business networks as well as the size and expansion of the market. Respect and mutual rights that are foundations of professional ethics and rights of ownership, influence the cost of contract; decrease corruption, coercion, and deception; and prepare the society for query, research, and criticism that leads to the freedom of thought. Such an atmosphere provides opportunities for developing and disclosing creativity, and innovations, accepting new technologies, economic growth, and prosperity (Altman, 2001). Nevertheless, these cultural surroundings are rarely considered independent variables in growth models. Creative Economy is a branch of economic studies that addresses the importance and necessity of this issue. The creative economy includes financial and economic values as well as cultural values. This inclusion of both types of values has led governments around the world

to consider the growth and development of the creative economy as part of a strategy of economic diversity and the promotion of economic prosperity and well-being (UNCTAD, 2018).

4. Creative Economy

The main components of a creative economy are defined based on the three components of individuals (creative work), place (creative community), and businesses and organizations (creative clusters) (DeNatale and Wassall 2007). Emilia et al. (2008) believe that creative economy comprises two sections: culture and creativity that the contribution of culture in economics is gradually identified concurrently with developing the section of information technology and communication. Cultural sections include books, newspapers, magazines, movies, videos, radio and television, dramatic arts, publications, museums, archives, libraries, wholesaling and retailing the cultural products, artistic activities, and architecture. Culture is the final product of consumption that is unrepeatable and is consumed in a setting (e.g., art exhibitions, galleries, and concerts) or mass productions, publications, and exportation (e.g., books, movies, sound recordings). Through several studies on this issue, creative work is defined as multiple methods that can combine some components such as art and creativity, economic innovation, and technological innovation.

Csikszentmihalyi (1999) believes that the creative economy results from the interaction of three main factors: first, the culture that saves and transfers ideas, values, and selected beliefs. Second, the social system selects what behaviors, values, and behavioral patterns are worth surviving and saving. Third, people themselves establish these changes and evolution in socio-cultural areas. Therefore,

According to Gouvea and Vora (2018), the creative economy as an evolving concept is described as follows:

o It creates high income and employment and increases export revenues while promoting social capacity, cultural diversity, and human development;

o It includes economic, cultural, and social dimensions interacting with innovative technologies and intellectual property rights;

o It is a set of knowledge-based economic activities linked to the whole economy through communication and expansion at different micro- and macroeconomic levels;

o It calls on governments to adopt innovative policies and an interdisciplinary approach to development-oriented activities;

o   At the heart of the concept of the creative economy are the creative industries which is our main theme in this paper.

5. Creative Industries

Creative industries can be defined as the areas of overlap between culture, technology, science, and commerce. They involve the supply of goods and services that contain a substantial element of artistic and intellectual activities associated with a vital role in social and human development (Martinaityte and Kregzdaite, 2015). The UK Department of Culture, Media and Sports (DCMS) defined the creative industries as an umbrella term for those industries 'based on individual creativity, skill, and talent and have the potential to create wealth and jobs through developing intellectual property' (DCMS, 1998). This definition has since been widely adopted as a de facto world standard (Li, 2020).

UNCTAD classifies creative industries into four main groups: cultural heritage, arts, media, and functional creations. These groups are in turn divided into 9 subgroups indicated in Figure 1.

As can be seen in Figure 1, the creative industries are a collection of knowledge-based, cultural, and artistic industries that are largely interrelated and intertwined, with "ideas" being their main driving force (Howkins, 2001). Creative industries are also related to a country's human capital, social capital, cultural capital, and institutional and structural capital. It is the interaction between these different dimensions that shapes the nature of creative industries in countries (Moore, 2014; Gouvea and Vora, 2018).
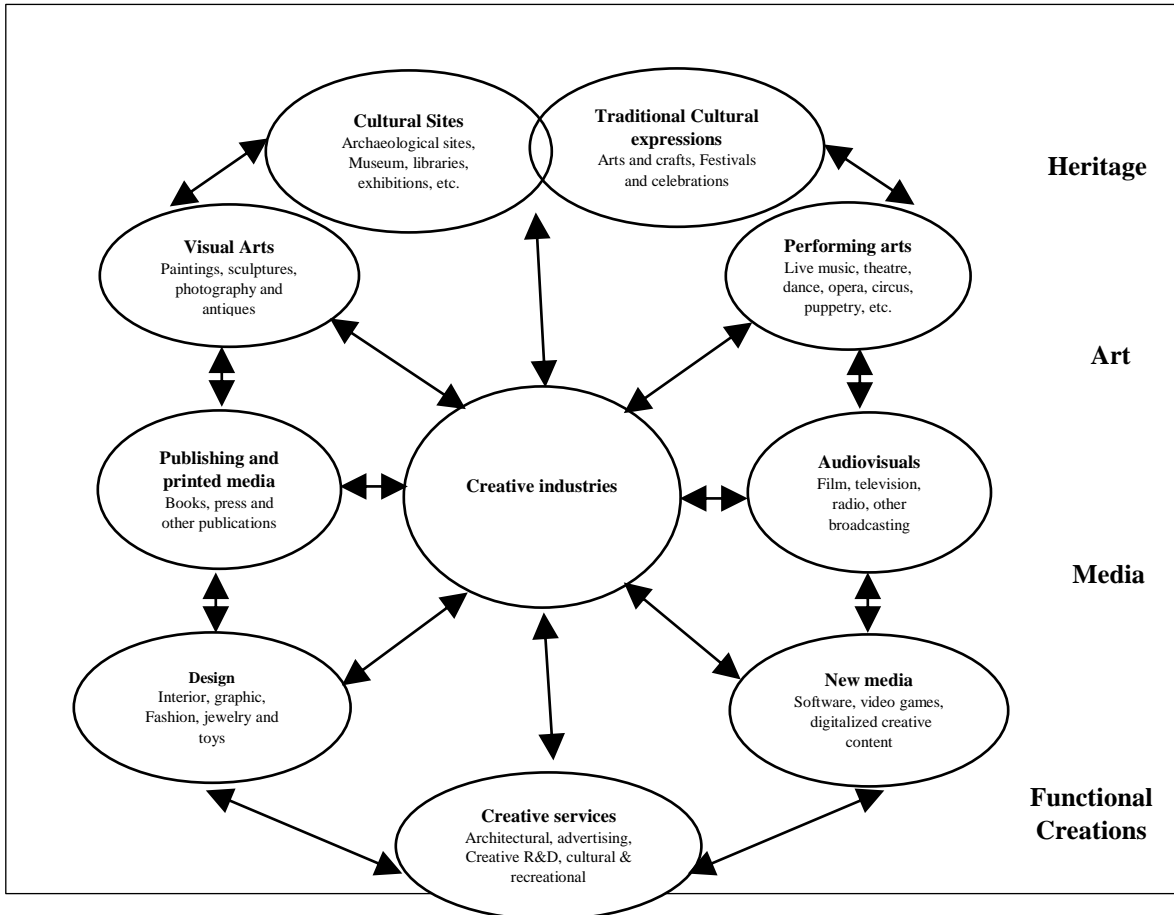
Figure 1. UNCTAD Classification of Creative Industries
Source: UNCTAD.

Creative industries generate revenue through trade and intellectual property rights and create new opportunities, especially for small and medium-sized enterprises. The products of creative industries can be tangible or intangible. But whether these products are arts and crafts, books, films, paintings, festivals, music, design, animation, and digital games, they not only promote economic growth, but also contribute to the dissemination of social and cultural values and arts at different levels, and this integration allows countries to pursue alternative global development strategies and pathways (UNCTAD, 2018).

According to Potts (2011), creative industries not only cause job creation or expansion of economic activities, but also, due to their role in facilitating economic development through participation and social and institutional development, cause economic growth and development and dynamics of social, political, cultural, and economic processes.

On the other hand, the creative industries, like any other economic sector, are closely linked to the conditions of the domestic economy. GDP growth, income levels, unemployment rate, interest rate, price indices, and government subsidies affect the creative industries and other economic sectors and activities. The creative economy is also linked to production through social development. However, due to the complexity and interconnectedness of these factors, it is difficult to explain the development of the creative economy through each sector as a separate factor (Martinaitytė and Kregždaitė, 2015).

Analyzing the mechanism through which the creative economy influences economic growth, most studies emphasize productivity in production, capital investment, and technological innovation. For example, Solow (1956), developing a neoclassical model of economic growth, explains the interaction between savings rate, capital accumulation, economic growth, and technological variables in the model, and shows the crucial effect of technological progress on economic growth. Using this theory, one can show that creative industries with relatively high technology compared to capital, labor, and other factors lead to economic growth. According to Kibbe (1982), creative industries can also increase human capital in the development process, and this spillover effect increasingly becomes a stronger stimulus for the economy.

Potts and Cunningham (2010) argue that creative industries in today's world are the same economic drivers as agriculture in the early twentieth century, manufacturing in the 1950s-60s, and information and communications technology (ICT) in the 1980s-1990s. In their view, in the mechanism by which creative industries influence economic growth, creative industries introduce new ideas into the economy and then penetrate other sectors (such as design-based innovation) or facilitate the adoption and

retention of new ideas or technologies in other sectors (e.g., information and communications technology) (such as ICT). Potts and Cunningham (2010) develop a theoretical model that shows how creative industries affect economic growth on both the supply and demand sides. On the supply side, this model emphasizes the role of the diffusion of new ideas from CI to Y, and on the demand side, the growth of Y proportionally increases the demand for CI services. Yet, in practice, it is very difficult to separate the two components without the use of advanced microeconometric techniques. According to Gouvea and Vora (2018), today countries that do not lay the foundation for the development and expansion of a dynamic and globally competitive creative economy will lag behind countries that meet these basic requirements.

6. Empirical Studies

As a result of the growth and the increasing importance of the creative economy, empirical studies in this field have expanded in recent years. Padalino and Vivarelli (1997) state that the creative industry is one the fastest developing industries and its added value is almost more than 10 percent of GDP in developed countries. In another study, Flew (2002) demonstrates that the emergence of knowledge-based economics and the discussion of the relationship between information, knowledge, and creativity have been a stimulus for the development of cultural industries. Howkins (2002) and Merkel (2017) found that creative industries themselves have strong innovation potential and influence economic growth by affecting innovative processes and knowledge-based growth in other sectors of the economy. Cunningham et al. (2004) examined the financing methods and barriers to the development of creative industries in developing countries and showed which financing methods can be used for creative industry development and export orientation. They also examined why it is difficult for cultural goods and services in developing countries to find global markets. Aoyama (2007) in a study shows that cultural industries provide a new and growing experience of economic source value in both commodity and non-commodity forms. The expansion of cultural industries has been relatively facilitated by increasing leisure and culture in advanced industrial economies. Nurse and Nicholls (2011) studied the economic share of creative industries in the region based on the three revenue streams of creative goods, creative services, and creative intellectual property, and showed that despite the high potential of creative industries in terms of exports and product diversity, these industries were not given as much importance as they should be. Pedroni and Sheppard (2013) investigated the relationship between art and economic growth in 345 urban areas in the US. The results show that the effect of art and cultural products is not contemporary and they can change economic growth. Moreover, there

is a mutual relationship between art and cultural products and economics, which means GDP influences art and cultural products and these products also have a positive impact on GDP. Xiang (2014) considers innovation the main core of cultural industries development. Innovation should be achieved through technical talents along with adding creativity based on existing cultural resources. Therefore, high-quality aptitudes and technology are essential in cultural industries. However, existing capacities and talented persons in cultural industries are not sufficient and the distribution of industrial structure is not realistic. This can directly constrain the development of cultural industries. Boccella and Salerno (2016) introduced the creative industries as a stimulus of economic growth and development according to global demand. In their research, this concept not only addresses the field of culture precisely but also includes cultural commodities and services as central cores of cultural industries. Lanati and Venturini (2017) analyzed the effect of importing cultural products on the process of emigration. To this end, they used the data acquired from UNESCO to classify cultural products (e.g., cultural and natural heritage, performance and festivals, visual arts and handicrafts, books and publications, auditory, visual, and interactive media, designing services, and creativity). The results of their study revealed that there is a positive correlation between cultural importation and emigration. Examining the share of exporting creative industries concerning global trade fluctuations, Gouvea and Vora (2018) show that there is a noticeable difference in the export outcome of countries. Their results also exhibited that the composition and content of the export portfolio of countries' creative industries (what they export) have a direct impact on the performance of the export portfolio of these industries. Abisuga Oyekunle and Sirayi (2018) indicated that creative industries had a positive impact on South Africa's economic development. They concluded that creative industries, as an exceptional group of contributors, influence a country's sustainable economy and should be supported. Dronyuk and Moiseienko (2019) consider creative industries as an effective tool for promoting the economy in transition into an innovative manner. The basis of their research is the realization of creative capital (a combination of the synergy of human, cultural, social, and institutional capital) at the micro, macro, and global levels. Their findings show that those European Union (EU) countries that emphasize creative industry are the most benefited ones. Zhou et al. (2020) studied cultural industries in China and stated that these industries have a positive and significant effect on economic growth and employment in China. According to their findings, this effect was more effective on economic growth comparing employment. In another study, Li and Yang (2020) declared that trading cultural products significantly increases the volume and

economic benefits of China's overseas integration. Examining the effect of cultural investment on producing cultural commodities and services in China, Yi et al. (2021) demonstrate that two different economic and cultural purposes are linked via increasing cultural productions. Dharmani et al. (2021) reviewed the literature related to creative industries and asserted that this research area is in its initial stages and a few researchers using limited resources in a few countries have been selected. Furthermore, many areas have the potential to conduct research in the field of creative industries. Ghazinoory et al. (2021), utilizing Causal Layered Analysis (CLA), provided a desirable image of cultural industries scenarios of Iran in 2050 horizon. The results of their study show that governing discourse on favorable conditions is an economic discourse. We can imagine three other scenarios based on cultural, social, and political discourses for the future of cultural industries in Iran.

7. Models and Data

In the present study, to evaluate the effect of culture, art, and creativity on GDP, the following model is affirmed relying on the study of Zhou et al. (2020) and based on the existing literature on economic growth models:

$$LNGDP_{it} = \alpha_i + \theta LNGDP_{it-1} + \beta_1 LNCI_{it} + \beta_2 LNHC_{it} + \beta_3 LNCP_{it} + \beta_4 GC_{it} + \beta_5 INF_{it} + \beta_6 TR_{it} + \varepsilon_{it}$$

In which $LNGDP_{it}$ is the logarithm of GDP (constant 2010 US$), $LNCI_{it}$ is the logarithm of creative industries, $LNHC_{it}$ is the logarithm of human capital (average years of education), $LNCP_{it}$ is the logarithm of investment (establishing stable gross investment), GC_{it} is the government size (The ratio of government expenditure to GDP), INF_{it} is the rate of inflation, TR_{it} is trade openness (sum of exports and imports of goods and services % GDP). α_i is intercept and u_{it} is the error term.

The studied countries were 98 developing and developed ones and the period was between 2011 and 2019. Utilized data were collected from the database of the World Bank.

The index of creative industries is a number between 0 and 1. It is estimated and measured by integrating creative goods (art-crafts, audiovisuals, design, digital fabrication, new media, performing arts, publishing, visual arts) and creative services (advertising, market research, and public opinion services, architectural, engineering, and other technical services, personal, cultural and recreational services, audiovisual and related services). Calculating and distributing creative index is accomplished by

the World Intellectual Property Organization and Cornell University. The data have been collected from "the World Bank/TCdata360" database.

In the above-mentioned model, human and physical capital were included in the equation as the main factors of production according to economic growth literature. The degree of trade openness has been inserted as the motor of production, and the rate of inflation and the government size have been inserted as the indicators of economic instability at the macro level.

Table 1 shows a summary of the data. As can be seen, there is a noticeable difference between the average GDP, creative industries, and other variables of the model regarding developing countries and developed ones. The average creative industries index for developing countries is 14.89 and for developed countries is 33.02. The highest ranking of the creative industries index for developing countries is 55.3 and for developed countries is 69.5. The average GDP for developing countries is 215573.2 million dollars, and for developed countries is 1054232 million dollars. Other descriptive statistics for all other variables according to central and dispersion indexes can be seen in Table 1.

Table 1. The Variables of the Model for Developed and Developing Countries

Independent Variable						Dependent Variable		Developed Countries	
Trade Openness	Inflation Rate	Government Size	Investment	Human Capital	Creative Industry	GDP			
109.35	2.01	18.19	228089	3.22	33.02	1054232	Mean	Central Index	
89.89	1.66	18.44	64338.84	3.27	33.30	285037	Median		
408.36	16.33	30.00	3928450	4.35	69.50	18349108	Maximum		
26.31	-2.10	8.32	2089.58	2.23	2.20	10411.57	Minimum	Dispersion Index	
66.99	2.36	4.16	527122.90	0.40	12.76	2527454	Std. Dev		
2.16	2.34	-0.05	4.99	-0.51	-0.08	5.10	Skewness	Relative Dispersion Index	
8.96	12.35	2.61	30.54	2.74	2.97	31.34	Kurtosis		
Independent Variable						Dependent Variable		Developing Countries	
Trade Openness	Inflation Rate	Government Size	Investment	Human Capital	Creative Industry	GDP			
71.38	5.06	13.70	51361.35	2.33	14.89	215573.20	Mean	Central Index	
63.68	3.97	13.49	8399.16	2.35	12.60	40132.38	Median		
210.40	48.70	27.94	984894.20	3.58	55.30	2940826	Maximum		
20.72	-3.75	4.40	1272.28	1.17	0.10	5075.45	Minimum	Dispersion Index	
31.42	5.17	4.36	127963.50	0.55	11.16	485969.80	Std. Dev		
1.14	3.45	0.27	4.58	-0.13	0.75	3.72	Skewness	Relative Dispersion Index	
5.02	23.11	3.14	26.01	2.26	2.97	16.82	Kurtosis		

Source: Research finding.

Note: * Unit of estimate for GDP and investment are million dollars; creative industries index is between 0 and 100; and unit of estimate for other variables (human capital, government size, rate of inflation, degree of trade openness) is percent.

Figure 2 shows the products of creative industries for 98 selected countries (49 developing and 49 developed) in 2019. As can be observed, three countries including Latvia, Swiss, and the US have the most creative cultural, and artistic products among developed countries. Brunei has the least amount of creative cultural and artistic products. Among developing countries, Lebanon, Thailand, and Mongolia have the most and Benin has the least amount of these products.
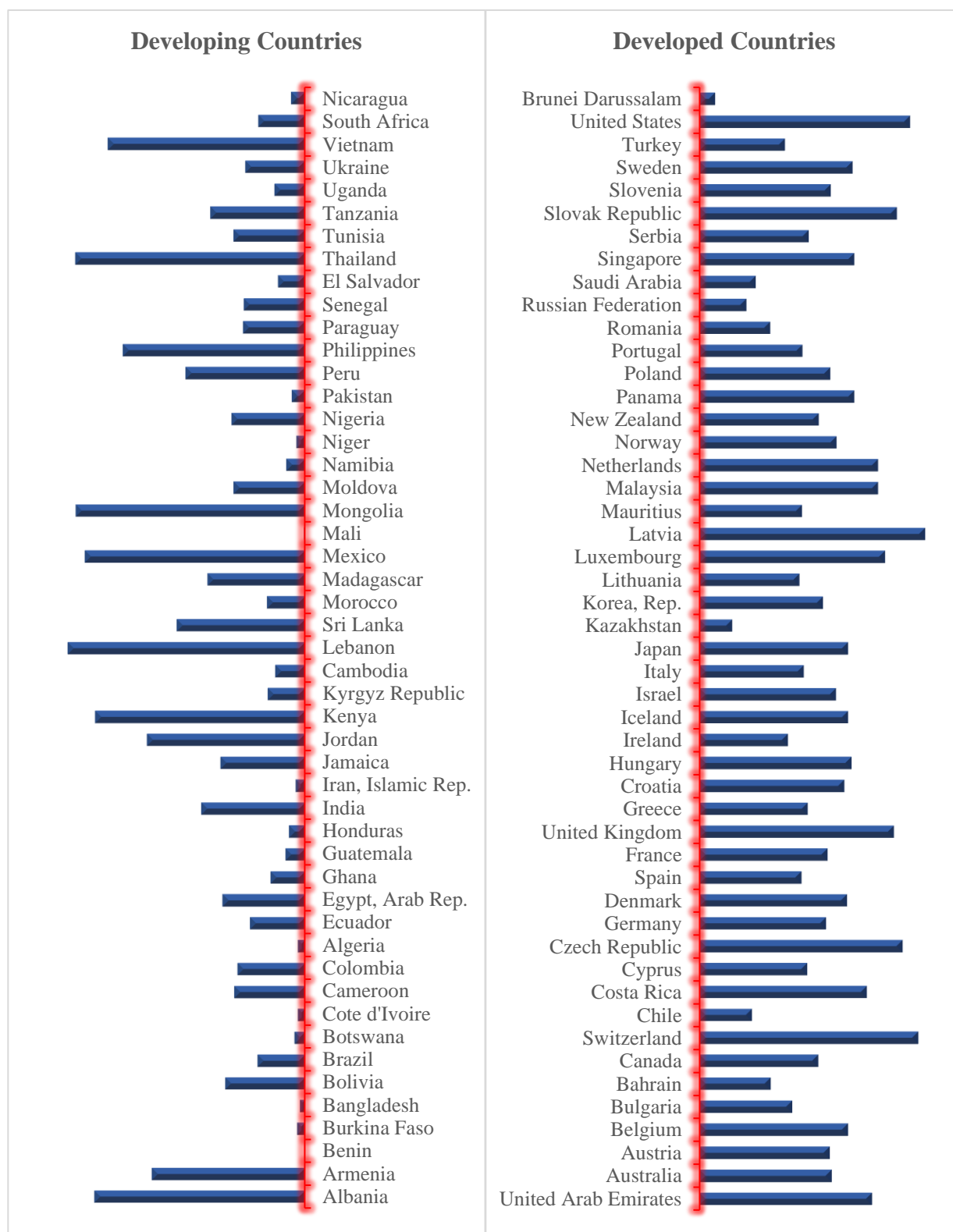
Figure 2. Products and Services in Creations, Art, and Cultural Industries in Selected Countries (2019)
Source: tcdata360.worldbank.org
Note: The index of creative industries is between 0 and 100.

The correlation coefficient between creative industries and GDP is 0.24. In some cases, the high rate of production in the field of culture is associated with a high level of GDP, and in other cases, the opposite has occurred. Figure 3 may show this fact better; however, we cannot prove its intensity and significance based on these observations. Thus, in the following, regression analysis will be utilized.
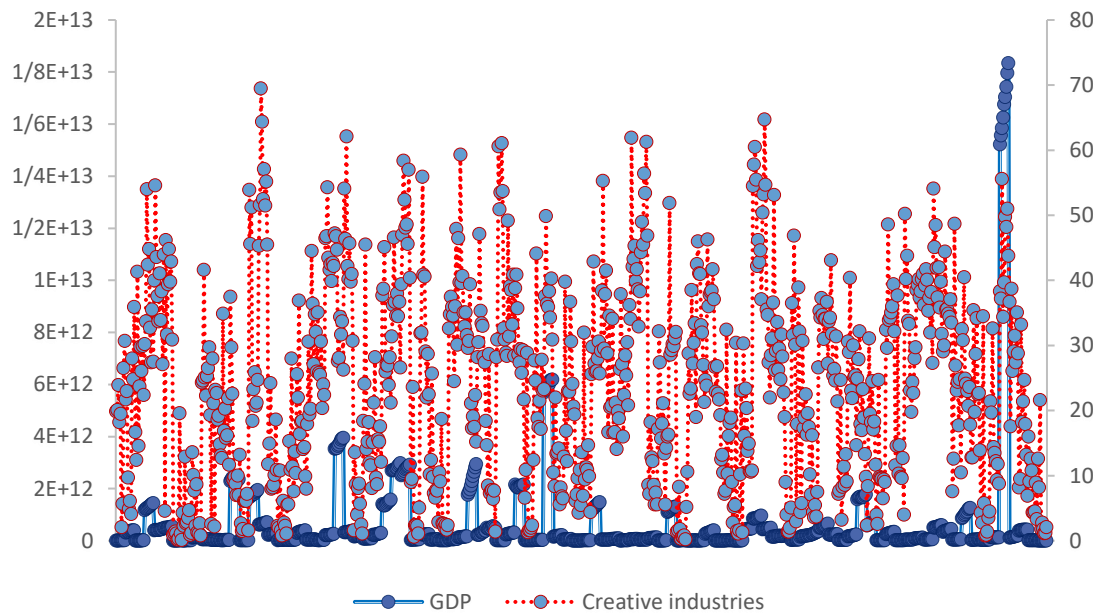

Figure 3. Creative Industries and GDP in Selected Countries
Source: Research finding.

8. Empirical Findings

In the present study, to examine the effect of culture, art and creativity on economic growth, Dynamic Panel Data model was applied that its coefficients were estimated with the aid of Generalized Method of Moments (GMM) method. One of the advantages of this method is using the first-order difference of variables as an instrumental variable and solving the endogenous problem, reducing multicollinearity in the model by using lagged dependent variable, solving the problem of removing deleted variables, efficient performance of Fixed and Random Effects, and solving the problem of Heterogeneity of Variance due to using moment estimators (Bond, 2002; Baltagi, 2008). In addition, Arellano and Bond (1991: 77) introduce Sargan's test to validate the model. The requirement of the model validity is the absence of correlation between instruments and error terms. In Sargan's test, the null hypothesis is the absence of serial correlation among them. According to Arellano and Bond (1991) in

estimating Generalized Method of Moments, terms have an independent uniform distribution if the disturbing terms have first-order serial autocorrelation (less than 0.05 probability) and no second-order serial autocorrelation (more than 0.05 probability). Table 2 shows the estimation result of the three models.

The first model shows the impact of creative industries on the GDP of all 98 developed and developing countries. The second and third model indicates the estimation for developed and developing countries, respectively. According to Table 2, the probability of the first order is less than 0.05 for all three models, which means that there is no autocorrelation disorder between the terms. Plus, the probability of the second order is higher than 0.05 for all three models. Therefore, the absence of autocorrelation of disorder terms is accepted.

Table 2. The Estimation Results of the Models Using Generalized
Method of Moments (GMM)

Variable	Model 1	Model 2	Model 3
	Coef.	Coef.	Coef.
θ	0.7494* (0.0160) [0.0000]	0.9538* (0.006) [0.0000]	0.8769* (0.0138) [0.0000]
β_1	0.0013* (0.0004) [0.0016]	0.0043* (0.0003) [0.0000]	0.0026* (0.0004) [0.0000]
β_2	0.617* (0.0546) [0.0000]	0.0524* (0.0066) [0.0000]	0.0791** (0.0380) [0.0430]
β_3	0.0728* (0.0092) [0.0000]	0.0635* (0.0028) [0.0000]	0.0698* (0.0054) [0.0000]
β_4	-0.0051* (0.0004) [0.0000]	-0.0052* (0.0002) [0.0000]	-0.0036* (0.0005) [0.0000]
β_5	-0.0033* (0.0001) [0.0000]	-0.0029* (0.0001) [0.0000]	-0.0015* (0.00008) [0.0000]
β_6	0.0002* (0.00006) [0.0001]	0.0003* (0.00003) [0.0000]	0.0002* (0.00004) [0.0000]
Model Diagnostics			
AR(1)	0.0346	0.0478	0.0182
AR(2)	0.1081	0.2076	0.0525
SARGAN	0.0751	0.3263	0.4876
Prob > chi2	0.0000	0.0000	0.0000

Source: Research finding.

Note: Standard error are written in () and prob. value is written in []
parenthesis and ∗ and ∗∗ show 1% and 5% level of significance
respectively.

The results of the research model estimation can be seen in Table 2 and they are
summarized as follows:

The first model shows the impact of creative industries on the GDP of 98 developed
and developing countries. As expected, the coefficient of creative industries is positive
and significant. One percent increase (decrease) in creative industries, leads to a
0.0013 percent increase (decrease) in Gross Domestic Product (GDP). Creative
industries with notice and employ values, emotions, aesthetics, creativity, art,
knowledge and technologies promote innovation and entrepreneurship; they also turn
culture and art into production input in the process of productivity and efficiency and

this process plays a positive role in the raising the rate of employment and economic added value. The first lag of Gross Domestic Product (GDP) has a positive and significant effect on Gross Domestic Product through the current period. It means that a one percent increase (decrease) in Gross Domestic Product with a lag, leads to a 0.74 percent increase (decrease) in GDP through the current period. The coefficient of human capital is 0.61 and is significant at 0.01 level and demonstrates the positive and significant effect of human capital on GDP. One percent increase (decrease) in the index of human capital, causes a 0.61 percent increase (decrease) in GDP. Promoting education, personal abilities, and productivity in the workforce as one of the production inputs, provides necessary conditions and foundations for economic growth.

Investment has a 0.06 coefficient and is significant at 0.01 level showing a positive and significant effect of investment on GDP. One percent increase (decrease) in investment, causes a 0.06 percent increase (decrease) in GDP. Based on a review of the literature, increasing physical capital as a production input is considered a key factor in enhancing GDP.

Government size has a -0.005 coefficient and is significant at 0.01 level. An increase in the expenditures of the government leads to a decrease in GDP. Increasing expenditures of government by insufficient distribution of resources and production deficiency may lead to decreasing productivity. It can have in turn, a negative impact on production and economic growth. Based on the neoclassic review of literature, it is possible to explain the negative effect of expenditures on economic growth in this way; an increase in government's expenditure leads to the phenomenon of the 'Crowding out effect' that may cause a decrease in investment in the private section and economic growth. Inflation has -0.003 coefficient and is significant at 0.01 level. An increase in inflation leads to a decrease in GDP. High rates of inflation cause an increase in transaction costs and actuate the capital to non-productive activities. Moreover, with increasing inflation, the real return on savings in the financial markets decreases and it leads to reduced investment and consequently reduced production. The degree of trade openness has a 0.0002 coefficient and it is significant at 0.01 level. Accordingly, it can be claimed that a one percent increase (decrease) in trade openness leads to a 0.0002 percent increase (decrease) in GDP. According to a review of literature, it is expected that increasing trade with the expansion and increase of the scope of trade transactions, will lead to the improvement of specialization in production and increase the productivity of the factors of production. Furthermore, it has a crucial role in absorbing knowledge and technology of applying new and creative

ideas to establish various markets. All the mentioned cases have a positive effect on increasing GDP.

As expected, the coefficient of creative industries for developed (Model 2) and developing countries (Model 3) is positive and significant. As Table 2 shows, all other coefficients are as expected in the estimated models for developing and developed countries. Also, Table 2 summarizes the results of Sargan's test. The null hypothesis in this test indicates the absence of serial correlation between utilized tools and error components. Hence, based on Sargan's test in a 5 percent error level, the estimated model is sufficiently valid.

5. Conclusion

With the economic development in the world, creative industries have become one of the fastest-growing industries, contributing significantly to regional economic growth and having a high employment potential. There are various definitions and classifications of creative industries, indicating that this is a growing industry. In a general definition, creative industries encompass a wide range of activities that include: cultural industries, creative cultural and artistic productions such as publishing, performing arts, cultural heritage, arts and crafts, as well as creative service industries such as advertising, architecture, design, and photography. The importance of creative industries lies not only in their relative contribution to the creation of economic value added, but also in their role in adopting, retaining, and absorbing new ideas and technologies, new jobs, goods, and services that in turn receive new ideas and technologies, contributing to inclusive development. Creative industries also have the advantage of paving the way for economic growth and inclusive development because of their dynamism and their links to social, cultural, and political activities and processes. In this study, we have attempted to examinethe role of creative industries in GDP in 98 developed and developing countries from 2011 to 2019 using Generalized Method of Moments (GMM). The results of this study revealed a positive and significant effect of creative industries on GDP in studied countries. These results were in line with the reported results by Boccella and Salerno (2016) and Zhou et al. (2020). The findings of the present study demonstrate the necessity of paying more attention to this issue, supporting, and making appropriate policy to strengthen creative industries' requirements for achieving more economic growth and prosperity. Of other findings of this research, the negative effect of inflation and government size on GDP as well as the positive effect of human capital, investment, and degree of trade openness on GDP can be mentioned.

References

Abisuga O. A., & Sirayi, M. (2018). The Role of Creative Industries as a Driver for a Sustainable Economy: A Case of South Africa. *Creative Industries Journal*, *11*(3), 225-244.

Alesina, A., & Perotti, R. (1996). Income Distribution, Political Instability, and Investment. *European Economic Review*, *40*(6), 1203-1228.

Altman, M. (2001). Culture, Human Agency, and Economic Theory: Culture as a Determinant of Material Welfare. *The Journal of Socio-Economics*, *30*(5), 379-391.

Aoyama, Y. (2007). The Role of Consumption and Globalization in a Cultural Industry: The Case of Flamenco. *Geoforum*, *38*(1), 103-113.

Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies*, *58*(2), 277-297.

Baltagi, B. H. (2008). Forecasting With Panel Data. *Journal of Forecasting*, *27*(2), 153-173.

Barro, R. J. (1990). Government Spending in a Simple Model of Endogeneous Growth. *Journal of Political Economy*, *98*, 103-S125.

Boccella, N., & Salerno, I. (2016). Creative Economy, Cultural Industries and Local Development. *Procedia-Social and Behavioral Sciences*, *223*, 291-296.

Bond, S. R. (2002). Dynamic Panel Data Models: a Guide to Micro Data Methods and Practice. *Portuguese Economic Journal*, *1*(2), 141-162.

Csikszentmihalyi, M. (1999). *Implications of a Systems Perspective for the Study of Creativity*. Cambridge: Cambridge University Press.

Cunningham, S., Ryan, M., Keane, M., and Ordonez, D. (2004). *Financing Creative Industries in Developing Country Contexts*. Retrieved from https://eprints.qut.edu.au/2504/

DeNatale, D., Wassall, G., & New England Foundation for the Arts. (2007). The Creative Economy: A New Definition. Boston, MA: New England Foundation for the Arts. Retrieved from http://www.nefa.org/sites/default/files/ResearchCreativeEconReport2007.pdf

Dharmani, P., Das, S., & Prashar, S. (2021). A Bibliometric Analysis of Creative Industries: Current Trends and Future Directions. *Journal of Business Research*, *135*, 252-267.

Dronyuk, I., & Moiseienko, I. (2019). Analysis of Creative Industries Activities in European Union Countries. *Procedia Computer Science*, *160*, 479-484.

Emilia, Ţ., Vergil, V., & Monica, T. (2008). The Impact of Cultural-Creative Industries on the Economic Growth-a Quantitative Approach. *Annals of the University of Oradea, Economic Science Series*, *17*(2), 56-70.

Fischer, S. (1993). The Role of Macroeconomic Factors in Growth. *Journal of Monetary Economics*, *32*(3), 485-512.

Flew, T. (2002). Beyond Ad Hocery: Defining Creative Industries. In *Cultural Sites, Cultural Theory, Cultural Policy, The Second International Conference on Cultural Policy Research*.

Frankel, J. A., & Romer, D. H. (1999). Does Trade Cause Growth? *American Economic Review*, *89*(3), 379-399.

Ghazinoory, S., Malekifar, S., Nasri, S., & Kousari, S. (2021). Visioning for Cultural Industries: CLA Inspired Scenario Method. *Futures, 131,* Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0016328721000793

Gouvea, R., & Vora, G. (2018). Creative Industries and Economic Growth: Stability of Creative Products Exports Earnings. *Creative Industries Journal*, *11*(1), 22-53.

Howkins, J. (2002). *The Creative Economy: How People Make Money from Ideas*. London: Penguin UK.

Jones, C., Svejenova, S., Pedersen, J. S., & Townley, B. (2016). Misfits, Mavericks and Mainstreams: Drivers of Innovation in the Creative Industries. *Organization Studies*, *37*(6), 751-768.

Kibbe, B. (1982). Cultural Industries: A Challenge for the Future of Culture. *UNESCO*, *112*(45), 120-135.

Lanati, M., & Venturini, A. (2017). The Import of' Cultural Goods' and Emigration: an Unexplored Relation. *RSCAS Working Papers, 2017/24*, Retrieved from https://ideas.repec.org/p/rsc/rsceui/2017-24.html

Levine, R., Loayza, N., & Beck, T. (2000). Financial Intermediation and Growth: Causality and Causes. *Journal of Monetary Economics*, *46*(1), 31-77.

Li, C., & Yang, L. (2020). Import to Invest: Impact of Cultural Goods on Cross-Border Mergers and Acquisitions. *Economic Modelling*, *93*, 354-364.

Li, F. (2020). The Digital Transformation of Business Models in the Creative Industries: A Holistic Framework and Emerging Trends. *Technovation*, *92*, Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0166497217300536

Lucas Jr, R. E. (1988). On the Mechanics of Economic Development. *Journal of Monetary Economics*, *22*(1), 3-42.

Martinaityte, E., & Kregzdaite, R. (2015). The Factors of Creative Industries Development in NowadaysStage. *Economics & Sociology*, *8*(1), 56-70.

Merkel, J. (2017). Richard Florida: The Rise of the Creative Class. In F. Eckardt (Eds.), *Key Works in Urban Research*. Wiesbaden: Springer.

Moore, I. (2014). Cultural and Creative Industries Concept–A Historical Perspective. *Procedia-Social and Behavioral Sciences*, *110*, 738-746.

Nurse, K., & Nicholls, A. (2011). Enhancing Data Collection in the Creative Industries Sector in Cariforum. Retrieved from https://www.academia.edu/download/31204241/Data_Collection_in_the_Creative_Industries_Sector.pdf

Padalino, S., & Vivarelli, M. (1997). The Employment Intensity of Economic Growth in the G-7 Countries. *International Labour Review, 136*, 191-213.

Pedroni, P., & Sheppard, S. (2013). Culture Shocks and Consequences: the Causal Link Between the Arts and Economic Growth. Retrieved from https://web.williams.edu/Economics/ArtsEcon/

Potts, J. (2011). *Creative Industries and Economic Evolution*. Massachusetts: Edward Elgar Publishing.

Potts, J., & Cunningham, S. (2010). Four Models of the Creative Industries. *Revue Deconomie Politique*, *120*(1), 163-180.

Rodrigues, M., & Franco, M. (2019). Composite Index to Measure Cities' Creative Performance: An Empirical Study in the Portuguese Context. *Sustainability*, *11*(*3),* 774-785.

Ramsey, F. P. (1928). A Mathematical Theory of Saving. *The Economic Journal*, *38*(152), 543-559.

Romer, P. M. (1986). Increasing Returns and Long-Run Growth. *Journal of Political Economy*, *94*(5), 1002-1037.

Solow, R. M. (1956). A Contribution to the Theory of Economic Growth. *The Quarterly Journal of Economics*, *70*(1), 65-94.

UNCTAD. (2018). Creative Economy Outlook: Trends in International Trade in Creative Industries. *United Nations Conference on Trade and Development*, Retrieved from https://unctad.org/webflyer/creative-economy-outlook-trends-international-trade-creative-industries

Xiang, H. Y. (2014). Principles of National Cultural Strategy and Cultural Industries Development (1-9). In *China Cultural and Creative Industries Reports 2013*. Berlin: Springer.

Yi, X., Throsby, D., & Gao, S. (2021). Cultural Policy and Investment in China: Do They Realize the Government's Cultural Objectives? *Journal of Policy Modeling*, *43*(2), 416-432.

Zhou, S., Siriboonchitta, S., & Maneejuk, P. (2020). The Impact of Cultural Industry on Economic and Employment Growth in China. *Journal of Administrative and Business Studies*, *6*(4), 129-137.