

The creative industries effects on economic performance in the time of pandemic

Creative industries effects

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Abstract

Purpose – This paper aims to investigate empirically whether creative industries are boosting the economic performance of the ASEAN countries (Malaysia, Indonesia, Singapore, Thailand, Vietnam and Brunei Darussalam) during the Coronavirus disease (COVID-19) pandemic.

Design/methodology/approach – This paper applied a random effect and fixed effect estimation approach to investigate the impact of creative industries' development (government expenditure on education, export of creative industries, trade openness, innovation index, sukuk issuances) on the economic performance spanning from 2010 to 2020.

Findings – The economic performance was proxied by two dependent variables, namely, the gross domestic product and the Misery Index. On top of containment and vaccination measures, the findings demonstrated that creative industries are enhancing economic growth in Association of Southeast Asian Nations (ASEAN) countries, supported by the significant role of the sukuk market as a vital contributor to economic growth.

Originality/value – This study is unique because it provides novel and empirical results of the creative industries' development on economic performance in the ASEAN countries before and during the COVID-19 pandemic.

Keywords Economic performance, Creative industry, Panel-data modelling method, Sukuk issuances, COVID-19 pandemic

Paper type Research paper

Introduction

The creative industries stimulate innovation across the economy and contribute to a variety of other channels for positive social impact, such as education, employment, trade and *sukuk* market. The industrial revolution that took place in the 18th century was the beginning of a very rapid economic growth because for two centuries after the industrial revolution, the average per capita income of countries in the world increased more than six-fold (Lucas, 2016).

The industrial revolution, which is the transition from manpower to machinery power leading to industrialization, is a part of the modernization process, in which changes in society and economic development have been greatly influenced by technology and innovations. Rapid development in science, technology, globalization and connectivity



JEL classification – E44, F63, J24, O47

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changed the way information is exchanged and the culture of how technological products from various parts of the world are being traded. The world has become dynamic and more complex, making knowledge and creativity invaluable assets in an economic development. Creative economy is often entwined with creative industry, which gained popularity in early 21st century. The term “Creative Industry” first appeared in the Australian Creative Nation report in 1994. However, it only started to be widely used in 1997 with the establishment of the Creative Industries Task Force by the Culture, Media and Sports Department of the UK.

Creative industry is an industry that has the characteristics of excellence in terms of creativity in producing a variety of creative designs that are attached to the products of goods or services produced (Gasparin and Quinn, 2021). The creative industry comes from the creativity, skills and talents of individuals who have the potential to create wealth and employment through the exploitation and generation of individual creativity and intellectual wealth. Along with the economic journey, the creative industries have been severely affected by the COVID-19.

COVID-19 caught the world’s attention in January 2020 when The World Health Organization announced the coronavirus outbreak in China as a global health emergency issue. The prolonged COVID-19 pandemic has affected all sectors of life, including the creative industry and has dampened significantly the economic performance of Association of Southeast Asian Nations (ASEAN) countries. The ASEAN is one of the first economic regions affected by the pandemic due to its geographical proximity to China and its extensive involvement in trade, business travel, supply chain and tourism among member countries.

Figure 1 shows COVID-19 cumulative total cases by country in the ASEAN region. As of May 2020, there were 70,910 cases and the trend is increasing. However, nationwide lockdowns and enhanced community quarantine implemented in a number of countries such as Malaysia, Vietnam and Thailand have been effective in reducing the COVID-19 cases, and some economic activities were resumed. However, travel restrictions are still enforced on foreign visitors. Other prevention and containment measures against the coronavirus pandemics such as 3T (test, track and trace), introduced by Vietnam and Singapore are found effective and could be emulated by other ASEAN countries.

On July 2021, Malaysia has announced that it will not extend a national state of emergency when the lockdown ends on 1 August 2021. The measure has been in place since January 2021. It was enforced when the total number of confirmed COVID-19 cases passed 1 million in July 2021. However, Indonesia has extended the COVID-19 restrictions for a week until August 2021 in an ongoing effort to curb new infections. Meanwhile, Vietnam has

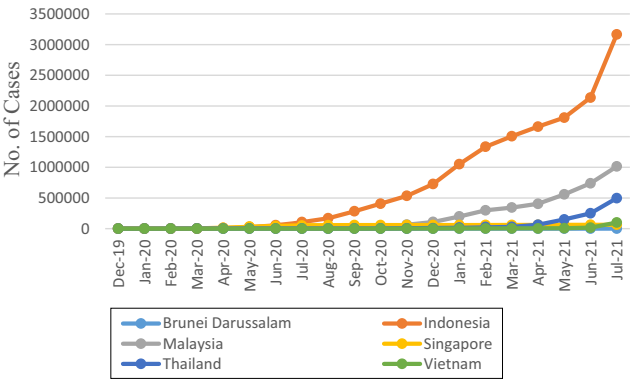


Figure 1.
Coronavirus
(COVID-19) cases –
cumulative total

received from the USA, three million doses of Moderna COVID-19 vaccine, with the country's ambassador to the USA suggesting more donations could be in the pipeline. Whereas Thailand has reported a large number of new confirmed COVID-19 cases. It recorded 16,376 new cases as at the end of July 2021, setting a daily record for the second consecutive day.

The gross domestic product (GDP) growth for the ASEAN countries was reduced in 2020 as mobility restrictions are implemented to combat the rise of COVID-19 across the region. However, the GDP growth forecast for 2022 is revised up slightly, reflecting the higher vaccination coverage by year 2021. Brief data on the GDP per capita growth is given in Figure 2.

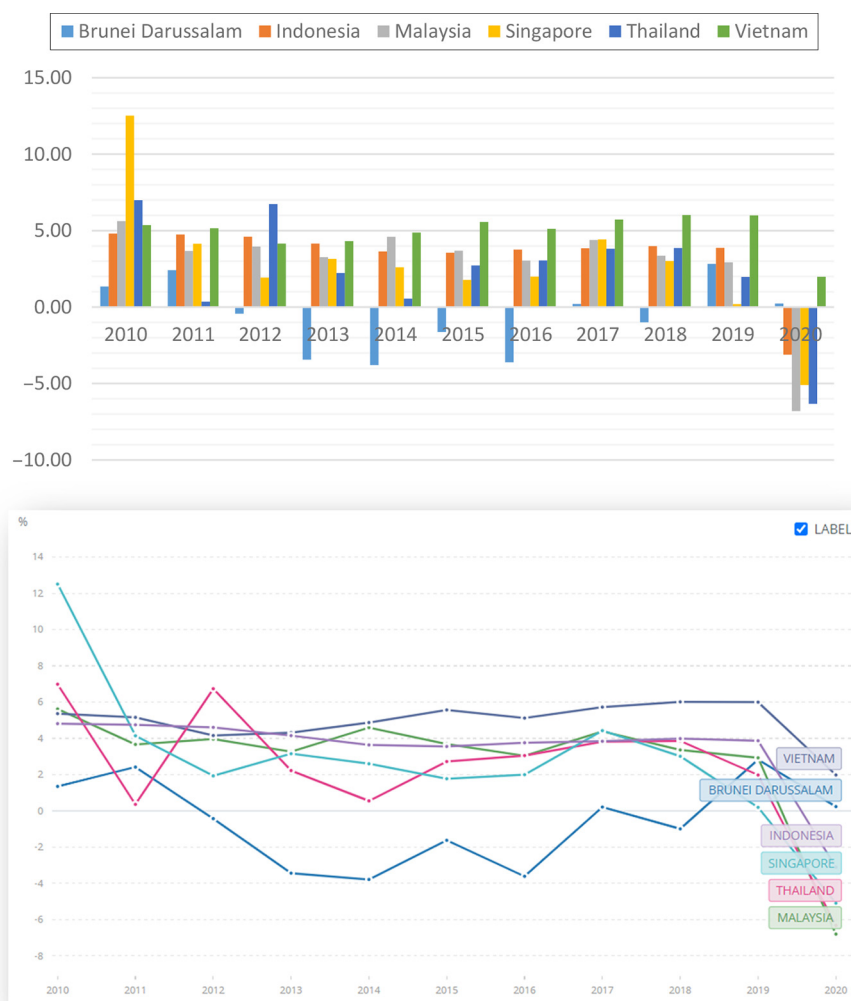


Figure 2.
GDP per capita
growth (Annual %)

As [Figure 3](#) shows, creative industries export in ASEAN countries remained relatively increased between 2013 and 2021. The average annual growth rate of export in creative industries between 2013 and 2021 for ASEAN countries was at 20.04%. The creative industries export in total trade has steadily increased from 18.83% in 2013 to 23.83% in 2021. This positive trend was maintained despite the global COVID-19 crisis. For example, in Brunei Darussalam, the government has set a number of priority business clusters ([The ASEAN, 2021](#)), including creative industries, which will help achieve its long-term national development plan.

Notwithstanding the impact of COVID-19 on the economy, creative industries have emerged as one of the catalysts for economic growth. They provide new opportunities for ASEAN economies to develop high development regions of the world economy. Based on this phenomenon, the creative industries have very high economic potential in various countries because each country has its own creativity and innovation, so that it gives characteristics to each product that is not owned by other countries.

Hence, we aimed to present in this paper, the empirical results of the impact of creative industries development (measured by government expenditure on education, export of creative industries, trade openness [TO], innovation index, *sukuk* issuances) on economic performance in the ASEAN countries during the COVID-19 pandemic.

Literature review

Theory to be applied

New growth theory. The new growth theory is an extension of traditional economic growth theory, and it provides the basis for a consistent internal framework for most data on the innovation process.

The new growth theory, which is essentially the theory of endogenous growth, was pioneered by [Romer \(1994\)](#) and [Lucas \(1988\)](#). It serves as a critique of Solow's classical neo growth theory which could not properly explain a long-term economic growth.

The new growth models have been written as follows:

$$Y = f(T, L)$$

where output (Y) is a function of a production factor such as labour (L), and T represents the investment stock in technological change. The growth is explained by technical changes driven by endogenous, which, in turn, is due to various reasons such as the externalities

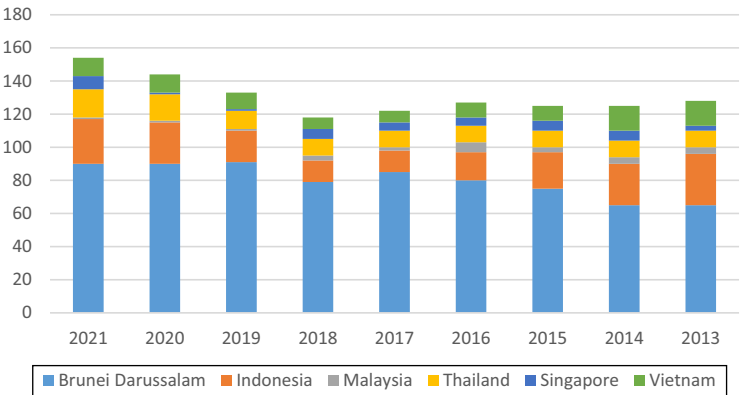


Figure 3.
Creative industries
export of total trade,
2013–2021
(Annual %)

related to education, which accommodate endogenous technical changes and increased returns to scale.

According to [Richard and June \(2001\)](#), the new growth theory is the concept of economics, stating unlimited human wants and desires, fostering ever-increasing productivity and economic growth. This theory asserts that the GDP increases as a result of efforts to make a profit. Whenever there is a decline in income, people will continue to look for better ways to solve a problem to ensure they maximize profits.

Therefore, this theory was applied here because the creative industries development (government expenditure on education, export of creative industries, TO, innovation index and *sukuk* issuances) are considered as the role of learning-by-doing in the new things for increased economic productivity.

Knowledge economy. It is the economy which uses knowledge to produce intangible and tangible values. Technology uses machines to incorporate parts of human knowledge to create values ([Arthur, 2010](#)). The World Bank defines Knowledge Economy to comprise four pillars, namely:

(1) Educated and skilled workforce

An educated population is crucial to obtain efficiency in creation, dissemination and knowledge use, resulting in the number of factors of production to enhancing growth in the economy.

Basic education is needed to increase the community's capacity to learn and use information so that later, a person can learn foreign technology to be used in the production process locally. So is the training needed to monitor technology developments, to evaluate relevant factors to the economy and to adapt new technologies to companies' operations. The more educated population also tend to be more knowledgeable in technology. This knowledge creates a demand for new local goods, which inspires local companies to engage in innovations and high-tech designs.

(2) An effective innovation system

Economic theory shows that technical progress is the main source of productivity growth and an effective innovation system is the key to such technical progress ([Solow, 1957](#); [Romer, 1986, 1990](#)). The innovation systems refer to the network of institutions, procedures and rules that influence the way a country acquires, creates, disseminates and uses knowledge.

Institutions in the innovation system include private and public research centres. Non-governmental and governmental organizations are also part of the innovation system as they also generate new knowledge. An effective innovation system is a system of research and development environments that produce new knowledge, new goods and new processes.

The following is the Global Innovation Index (GII) issued by Cornell University, the Institut Européen d'Administration des Affaires and the World Intellectual Property Organization.

Based on [Figure 4](#), GII divides into two sub-indices; innovation input sub-index which consists of five inputs, namely, institutions, human resources and research, infrastructure, market sophistication and business sophistication; and innovation output sub-index innovations comprising output of knowledge and technology and output of creative. The innovation efficiency ratio is the ratio between the output sub-index and the input sub-index. The result of both ratios is used as the GII.

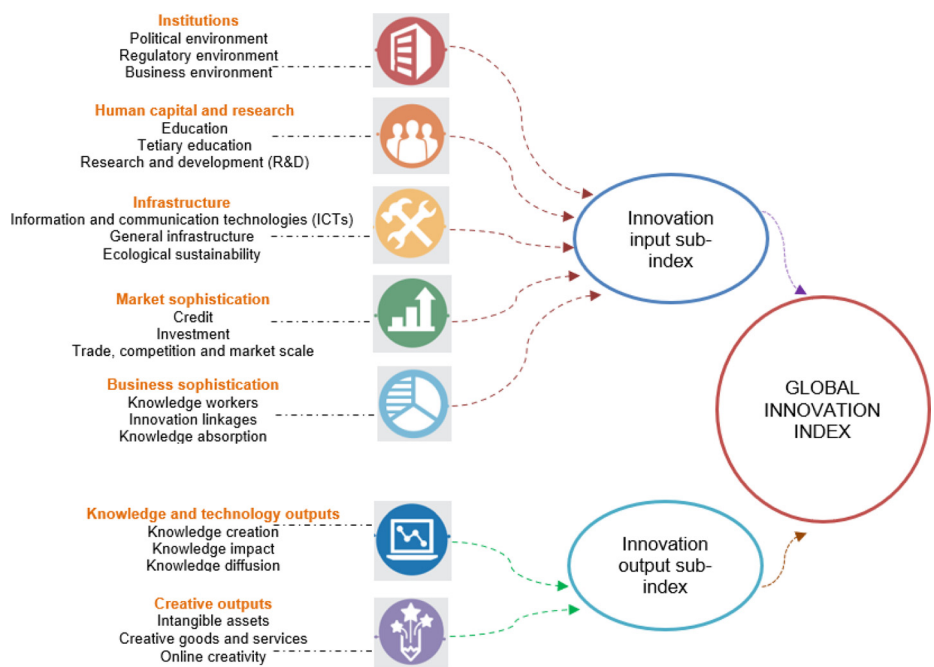


Figure 4.
Framework of GII

Source: Global innovation index database (2020)

GII aims to capture aspects of multi-dimensional innovation and provides tools that can support adapting policies for long-term output growth, increased productivity and job growth. GII helps to create innovation factors that are constantly evaluated. Understanding in greater detail the human aspects behind innovation is crucial to making policies that help enhance economic development and realizing the key role of innovation as a driver of economic prosperity and growth.

(3) Adequate information infrastructure

The infrastructure of information and communication technology (ICT) refers to the reliability, accessibility and efficiency of computers, telephones, televisions and radio sets and various other systems. ICT is defined as hardware, software, networks and media for the collection, storage, transmission processing and delivery of information in the form of sound, images, data and text; from radio, telephone and television to internet devices (World Bank, 2003).

ICT is a factor underlying the knowledge economy, and recently, it has been accepted as a tool effective for sustainable development and promoting growth in the economy. With its relatively low cost of use and the ability to overcome distances, ICT has revolutionized the transfer of knowledge and information around the world. [Pilat and Schreyer \(2003\)](#), [Jorgenson and Stiroh \(2000\)](#), [Oliner and Sichel \(2000\)](#), [Whelan \(2000\)](#) and [Schreyer \(2000\)](#) have concluded that ICT production and the use of ICT are instrumental to achieve economic growth.

The ICT-producing sector has undergone major technological advances, which have emerged as major gains in total productivity factors at the economic level. Investment in the ICT sector results in increased capital, thus increasing labour productivity. More importantly, various studies such as Whelan (2000), Oliner and Sichel (2000) and Jorgenson and Stiroh (2000) have produced empirical evidence confirming that there are productivity benefits from the use of ICT.

(4) Conducive economy and constitutional regime

Economic regimes generally have the problem of economic distortion. Economic distortions or market imperfections are things that make economic conditions inefficient so as to interfere with economic agents in maximizing social welfare (Deardorff, 2000). A country must be open to international trade and free from various protectionist policies to encourage competition, which will ultimately inspire entrepreneurship (Sachs and Andrew, 1999). Likewise, it should maintain capital market stability because the capital market acts as a liaison between investors and government companies or institutions through the trading of long-term instruments such as *sukuk*, bonds and stocks. Thereafter, the exchange rate must be stable, and the financial system is able to distribute resources for good investment prospects and transforming failing companies into more productive ones (Levine, 2000).

The economic performance

We used the Misery Index (MI) and GDP as a proxy for economic performance.

The MI or discomfort index is an indicator of economic performance of different countries. MI is a combination of unweighted total unemployment and inflation rate. This is an effort to develop a single statistical tool to find the level of economic performance of the population. Wang *et al.* (2019) defined MI, and has been extended by others, on the assumption that higher rates of the MI generate significant economic and social difficulties. We can say that MI is used to measure the economic well-being. An increase in the MI shows the public well-being of a country.

However, MI is cited as the main source of the major obstacle of economic development in a society (Asteriou and Siriopoulos, 2000). It exhibits an inverse relationship where a decrease in MI or discomfort index leads to improvement in economic performance. An increase in MI, however, decreases employment and increases the unemployment rate. Further, the increases in the price levels due to a shift to the left in the aggregate supply curve, increases the inflation rate. It is seen that the MI has a negative relationship with GDP, that is, an increase in MI will decrease GDP and vice-versa.

Meanwhile, GDP is a measure of value-added created through the production of goods and services in a country over a period of time. A country's GDP is not only influenced by its economic activity but also by the world activities. Konchitchki and Patatoukas (2014) emphasized that GDP is important in economic performance analysis, as it reflects the summary of total activities in the economy. Thus, an increase in real GDP increases economic performance.

The government expenditure on education

Investing in education has been acknowledged as an important factor in improving economic performance. Education provides economic value as it develops, improves and enhances human capital. Thus, it is an important investment in human capital. Romer (1986) and Lucas (1988) endogenous growth model highlights the role of human capital as the main source of increased returns and departure in growth rates between developed and

developing countries. Studies by [Mankiw et al. \(1992\)](#) further emphasize the important role of education as the most significant production factor in increasing human capital as a determinant of economic performance.

Schools provide education and help individuals acquire knowledge and skills that can be used to generate higher growth for the economy and allow people to earn higher wages. Thus, better productivity is achieved through efficient use of educated and skilled manpower and capital resources as supported by [Nelson and Phelps \(1966\)](#) and [Benhabib and Spiegel \(2005\)](#). They also stressed the fact that education facilitates knowledge sharing and knowledge transfer needed in new technology development. However, the positive link between skilled manpower and economic productivity is refuted by [Pritchett \(2001\)](#), who found economic growth to be significantly and negatively related to human capital.

As a result, the first and second hypothesis is proposed as follows:

H1. There is a negative relation between government expenditure on education and MI.

H2. There is a positive relation between government expenditure on education and GDP.

The export of creative industries. Measuring international competitiveness is often done by comparing export and import. Export value of creative industries (EXCI) internationalization provides social and cultural development in addition to a direct impact on economic performance. The exports of creative industries represent 4.3% of GDP in Lithuania, Europe ([OMC, 2014](#)). It should be noted that the small contribution to GDP implies that exports of creative industries have great growth potentials. However, they are still in the early stages of development. In view of their great potentials, researchers need to take into consideration the creative industries' future exports contribution to GDP.

These arguments propose the following hypothesis:

H3. There is a negative relation between the export of creative industries and MI.

H4. There is a positive relation between the export of creative industries and GDP.

The trade openness

TO as an indicator of globalization, is often considered as one of the drivers of technical progress, skill transfer and productivity increase among the regions and countries of the world. TO is useful in assigning inputs to generate opportunity for economic development. Removing buffer for import substitution business will result in greater economic performance. [Solow \(1957\)](#) and [Grossman and Helpman \(1991\)](#) indicated that countries with greater TO can attract higher skills for technological development, and this attraction gives them faster growth advantage compared to the countries with lower TO.

Based on 30 developing countries cross-sectional data, [Edwards \(1992\)](#) found a significant and positive relationship between TO and economic performance during 1970 to 1982 study period. This finding is supported by [Harrison \(1996\)](#), who found similar positive relationship between TO and economic growth from analysis of 51 developing countries. Another finding by [Vamvakidis \(2002\)](#) shows that TO has significant influence on the GDP growth rate of 62 developed and developing economies over the 1970 to 1990 study periods.

Accordingly, the following hypothesis is postulated:

H5. There is a negative relation between the trade openness and MI.

H6. There is a positive relation between the trade openness and GDP.

The innovation index

Innovation significantly contributes to a country's higher standard of living. As such, innovation plays a very important role in maintaining competitiveness and economic development as well as in meeting global challenges. A study by Goliuk (2017) shows innovation index (INOV) is positively related to GDP. Accordingly, innovation-driven productivity gains are fundamental to innovation-driven economic growth, which is expressed primarily in GDP output (Gegersen and Johnson, 1997; Gurbiel, 2002; Günday *et al.*, 2019).

As a consequence, we propose:

H7. There is a negative relation between the innovation index and MI.

H8. There is a positive relation between the innovation index and GDP.

The sukuk issuances

Innovation is also taking place in the financial markets' instruments, particularly in *sukuk*. The rapid growth of *sukuk* markets all through the years has been supported by the availability of various types of *sukuk* whose structures depend on the underlying Islamic concept used in the financing. The Accounting and Auditing Organization for Islamic Financial Institutions clarified that there are five categories of *sukuk* issued by corporations:

- (1) leased-based, such as *sukuk al ijarah*;
- (2) partnership-based, namely, *sukuk al mudharabah* and *sukuk al musharakah*;
- (3) sale-based, for example, *sukuk al murabahah* and *sukuk al istisna*;
- (4) hybrid-based, such as *sukuk al istithmar*; and
- (5) other types, like *sukuk al wakalah*.

In line with the *Shariah* requirement for Islamic financial instruments to be supported by tangible assets, *sukuk* is also asset backed, but it uses a different concept compared to the ones used in debt securities. In any *sukuk* issuance, the *sukuk* issuer has a beneficial ownership to the assets, and he is entitled to a share of the profits from the assets invested. In contrast, an issuer of a conventional bond has contractual obligation to pay the investor, interest and the initial invested amount since a bond is a debt.

The second difference is that the risks associated with the underlying asset are shared between the *sukuk* holder and the investor (Jamaldeen, 2012). As such, the *sukuk* holder does not provide guarantee on the initial investment. In case the business venture fails, both the holder and the investor share the loss. The third difference is that the *sukuk* structure must be based on assets which comply with the *Shariah* law, while conventional bonds can be used to finance any asset in accordance with the stipulated civil law (Alim, 2014).

Cakir and Raei (2007) compared the advantages of risk mitigation in issuing sovereign *sukuk* and bonds from the same issuer. In addition, this reference has used the value-at-risk (VaR) analysis to compare and estimate risk for a portfolio consisting of *sukuk* and a pure Eurobond portfolio. They found that when *sukuk* is added to a portfolio of fixed income securities, VaR is reduced. The finding indicates that *sukuk* collectively mitigate risk and contribute benefits to investors through risk diversification.

These arguments lead us to propose the subsequent hypothesis:

H9. There is a negative relation between *sukuk* issuances and MI.

H10. There is a positive relation between *sukuk* issuances and GDP.

The COVID-19 pandemic has driven many economic activities, including those in the creative industries, to become more resilient (Ivanov, 2020). For economic performance to survive in times of pandemic, the component of creative industries development (government expenditure on education, export of creative industries, TO, innovation index, *sukuk* issuances) should be resilient.

The government has a role in promoting the creative industries (Jan and Elzbieta, 2020). Governments can encourage the growth of talent and capability for the development of education, science and technology and upskilling creative workers. Furthermore, to ensure market efficiency, government needs to develop the ecosystem, including digital and physical infrastructure and facilitate creative industries to improve economic performance in the ASEAN countries.

Methodology

We illustrate the research models and the data used to assess the contributions of factors of creative industries on economic performance. Figure 5 shows the analysis models for the independent or exogenous variables (X), namely, government expenditure on education, export of creative industries, TO, innovation index, *sukuk* issuances and for the dependent or endogenous variables (Y), namely, economic performance.

The secondary data for the analysis is obtained from four sources –The World Bank, The Global Economy, Fitch Connect and UNCTAD Statistics database – and covers six ASEAN countries (Malaysia, Singapore, Indonesia, Thailand, Vietnam and Brunei Darussalam) for the period from 2010 to 2020. These countries are leading in investing *sukuk* issuance in ASEAN. Furthermore, they are looking for creative solutions in implementing innovative mechanisms, which may be best suited in the face of COVID-19 and their national development needs.

Other information comes from literature studies in the form of scientific journals and textbooks.

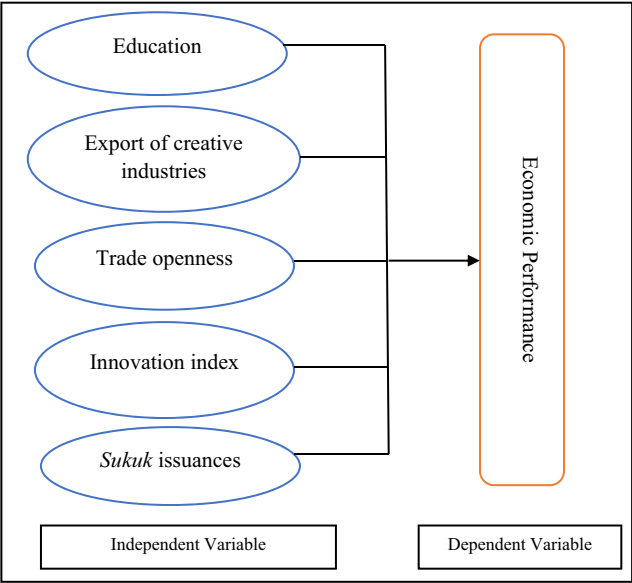


Figure 5.
Economic
performance analysis
models

This study uses six research variables, namely, government expenditure on education (X1), creative industry export value (X2), trade openness (X3), innovation index (X4), *sukuk* issuances (X5) and economic performance (Y). Brief definitions and data sources of the variables are given in Table 1.

To assess the roles of creative industries development (government expenditure on education, export of creative industries, TO, innovation index, *sukuk* issuances) on economic performance in the ASEAN countries, we adopt a panel-data modelling method such as fixed effects and random effects estimation.

We write the empirical model as:

Variable	Abbreviation	Definition	Data source
Economic performance (Y)	Dependence variable MI	The Misery Index (MI) by combining unemployment and inflation rates $MI = \text{Inflation} + \text{Unemployment}$	The World Bank
	GDP	Gross domestic product (GDP) The real GDP per capita	The World Bank
The government expenditure on education (X1)	Independence variables EDU	1. The gross participation rate of education is the number of people who enter higher education divided by the number of population age corresponding to higher education in six ASEAN countries in 2010–2020 2. Government expenditure on education in six ASEAN countries in 2010–2020	The World Bank
The creative industry export value (X2)	EXCI	The export value of creative industries in six ASEAN countries in 2010–2020	The UNCTAD Statistics
The trade openness (X3)	TO	1. The ratio of exports plus imports divided by GDP in six ASEAN countries 2010–2020 $X3 = \frac{X + M}{GDP}$ Description: X = Export M = Import GDP: gross domestic product	The Global Economy
The innovation index (X4)	INOV	1. The value of the innovation index calculated by the global innovation index (GII) in six ASEAN countries in 2010–2020 2. Total patent rights in six ASEAN countries in 2010–2020	The Global Economy
The <i>sukuk</i> issuances (X5)	SUKUK	The total <i>sukuk</i> issuances in the Islamic financial market in six ASEAN countries in 2010–2020	Fitch Connect

Table 1.
Variables and data sources

$$y_{it} = a_{0i} + a_1 \text{EDU}_{it} + a_2 \text{EXCI}_{it1} + a_3 \text{TO}_{it} + a_4 \text{INOV}_{it} + a_5 \text{SUKUK}_{it} + \varepsilon_{it} \tag{1}$$

Description:

- y = the measurement of economic performance. Using the real gross domestic product (GDP) and the Misery Index (MI) of each country in 2010 – 2020;
- EDU = higher education participation rate in each country in 2010–2020;
- EXCI = the export value of creative industries of each country in 2010–2020;
- TO = trade openness of each country in 2010–2020;
- INOV = innovation index of each country in 2010–2020;
- SUKUK = the total *sukuk* issuances of each country in 2010–2020;
- i = six ASEAN countries (Malaysia, Singapore, Indonesia, Thailand, Vietnam and Brunei Darussalam);
- t = year 2010–2020; and
- ε_{it} = the standard error term.

Results and analysis

Descriptive analysis

The result in Table 2 reports the descriptive analysis of the economic performance of ASEAN countries and its explanatory variables. Moreover, Table 2 shows that the mean of the GDP flow among ASEAN countries is at 2.271, with a range of –6.802–12.514. However, the mean of the MI flow among ASEAN countries is at 7.377, with a range of –9.923–26.821. The mean value of TO within ASEAN countries shows a high value among the independent variables of 5.019. Meanwhile, the mean value of EXCI, INOV and SUKUK with values of 2.289, 1.582 and 3.12, respectively. Meanwhile, EDU shows the lowest mean value of 1.239 for ASEAN countries.

This study continued by estimating the panel data regression model to analyze the impact of creative industries development (government expenditure on education, export of creative industries, TO, innovation index, *sukuk* issuances) on economic performance in the ASEAN countries during the COVID-19 pandemic.

Regression analysis

The analysis started by comparing the models of pooled ordinary least squares (OLS) regression and the fixed effect. To ensure a good and reliable estimate of model parameters, we conducted the poolability test. The result of the fixed effect model confirms that all intercept are zero. Thus, the OLS estimator is biased and inconsistent. On the basis of the test, we accept the individual effects and reject the null hypothesis.

Table 2.
Descriptive statistics

Variable	Mean	Min	Max	SD	Skewness	Kurtosis	Jarque-Bera
GDP	2.271	–6.802	12.514	3.336	–0.293	4.889	6.520
MI	7.377	–9.923	26.821	6.350	0.927	5.665	17.562
EDU	1.239	0.724	1.497	0.170	–0.819	3.528	4.932
EXCI	2.289	0.600	2.963	0.892	–1.065	2.307	8.356
TO	5.019	3.728	5.781	0.695	–0.854	2.080	6.273
INOV	1.582	1.423	1.803	0.116	0.512	1.944	3.604
SUKUK	3.120	2.013	4.900	0.689	0.852	3.542	5.329

To decide the best statistical estimation, this study compared the random effect and fixed effect models. We used Hausman test to verify the relationship between the explanatory variables and unobservable heterogeneity. The probability result is less than 0.05. Therefore, the null hypothesis was rejected, and we proceeded with a fixed effect regression model.

To ensure the validity of the statistical results, we conducted a modified Wald test and serial correlation test. The results for both statistical tests confirmed a heteroskedasticity and a serial correlation problem in the fixed effect model.

To solve the problem, we used a fixed effect regression with a Driscoll–Kraay standard errors. This method is used due to its ability to adjust the standard errors of coefficient estimates for the possibility of dependence on the residuals. The error structure is assumed to be heteroskedastic and auto-correlated to some lag and may be a correlation exists between the variables. Table 3 shows the regression results of random effect, fixed effect and fixed effects with the Driscoll–Kraay standard errors.

The result shows a positive relationship between education (EDU) and GDP. In particular, a 1% point increase in EDU leads to a GDP increase of 1.216% point. We interpret from the result that investment in human capital and education programmes increases national output and per capita income. Therefore, countries with higher investment in education will achieve a high level of economic performance. Thus, this result fully supporting *H2*. This is confirmed with the result by Al-Yousif (2008). He studies the direction and nature of the relationship between education spending (as a proxy for human capital) and economic growth.

On the other hand, MI and EDU have a substantial negative impact. Specifically, a 1% point increase in the EDU leads to decrease in the MI by a 1.209% point, supporting *H1*. Our results are consistent with the findings of existing studies on human capital development and economic performance. For instance, Minini and Nwinee (2021) investigated the impact of human capital development on the drive to achieving economic development in Nigeria. Their results support the negative effect between government expenditure on education and economic performance. Hence, a decreasing index means an improving economic performance and vice versa. In economic terms, a decline in inflation attached with lower unemployment leads to higher consumer spending and contributes to an economic growth.

The result for EXCI positively affected economic performance (GDP). Specifically, a 1% point increase in the EXCI leads to an increase in the GDP by a 2.265% point. The result shows that more support of the creative industries export value is needed to strengthen its involvement into the innovation and value-added system of the economic performance. This result is in line with the finding of the research which defines positive impact of creative industries on national economy in regard to sub-sectors (Ugne and Grazina, 2015). This potentially categorization of the sub-sectors allows for deeper insights and selection of the most suitable measures for each category to develop value of creative industries on economic performance. Consequently, *H4* is also supported.

Next, MI and EXCI have a substantial negative impact. Specifically, a 1% point increase in the EXCI leads to decrease in the MI by a 1.676% point. The important role of the EXCI in shaping the volume and direction of trade flows has important implications for economic development and performance, especially in ASEAN countries. In ASEAN countries, the EXCI becomes a platform to promote innovation, improve services and reduce unemployment. The strength of the EXCI depends on its ability to increase competitiveness and help countries generate jobs and incomes. Consequently, *H3* is fully supported.

TO positively affected economic performance (GDP). The result is consistent with the finding of Sabina and Eldin (2018), specifically, a 1% point increase in the TO leads to an increase in the GDP by a 1.744% point, according to *H6*. The result shows that TO

Table 3.
The panel regression
results for creative
industries and
economic
performance: random
and fixed effects
regressions (2010 to
2020)

Variable	Random effects			Fixed effects			Fixed effects – Driscoll–Kraay standard errors		
	Economic performance measures			Economic performance measures			Economic performance measures		
	GDP	MI		GDP	MI		GDP	MI	
EDU	1.439 (0.054)*	-1.532 (0.059)*		1.216 (0.067)*	-1.209 (0.056)*		1.216 (0.067)*	-1.209 (0.056)*	
EXCI	2.877 (0.035)**	-1.921 (-0.052)*		2.265 (0.052)*	-1.676 (0.063)*		2.265 (0.052)*	-1.676 (0.063)*	
TO	1.523 (0.084)*	-1.043 (0.069)*		1.744 (0.072)*	-1.021 (0.051)*		1.744 (0.072)*	-1.021 (0.051)*	
INOV	2.792 (0.020)**	-1.713 (0.070)*		2.565 (0.021)**	-1.505 (0.051)*		2.565 (0.021)**	-1.505 (0.051)*	
SUKUK	3.100 (0.089)*	-1.688 (0.030)**		2.721 (0.056)*	-1.317 (0.054)*		2.721 (0.056)*	-1.317 (0.054)*	
Constant	0.632 (0.058)*	0.544 (0.432)		0.598 (2.405)	0.553 (0.276)		0.598 (2.405)	0.553 (0.276)	
R ²	0.649	0.635		0.642	0.657		0.642	0.657	
Adj R ²	0.640	0.629		0.638	0.651		0.635	0.649	
Hausman test <i>p</i> -value	25.965	22.432		Accepted	Accepted		Accepted	Accepted	
Heteroskedasticity				19.938	18.182				
Autocorrelation				37.232	35.847				

Note: *p*-values in parentheses: **p* < 0.1, ***p* < 0.05

generates a positive effect on GDP as the increase of trade liberalization boosts economic performance. Higher trade intensities effectively capture the ability of an individual country to improve its economic performance and enhance technology transfer through increased trade integration with technologically innovative countries.

Conversely, the MI and TO have a substantial negative impact. Specifically, a 1% point increase in the TO leads to a decrease in the MI by a 1.021% point. It shows that a decline in inflation with lower unemployment leads to higher availability of substitutes from international markets. This result support *H5* since the two proxies show opposite signs.

The result shows INOV positively affected economic performance (GDP). Specifically, a 1% point increase in the INOV leads to an increase in the GDP by a 2.565% point. This result reveals that the share of innovative goods and services has a positive and significant effect on GDP. This also proves that the ASEAN countries had progressed on the path towards innovative development. Thus, this finding fully supported *H8*. It is in line with the previous evidence supporting that the innovation performance of a national economy positively correlates with GDP in 126 countries among differences geographical regions (Szlobodan, 2019).

The MI and INOV have a substantial negative impact. Specifically, a 1% point increase in the INOV leads to a decrease in the MI by a 1.505% point, supporting *H7*. Using the INOV as a measure of the innovative environment prevailing in the ASEAN countries, it can be inferred that the more innovative a country is, the lower is its inflation coupled with lower unemployment, higher employment. These relations are statistically significant.

The result for *sukuk* issuance (*SUKUK*) shows it positively related to economic performance (GDP). Specifically, a 1% point increase in the *SUKUK* leads to an increase in the GDP by a 2.721% point. This result highlights that *sukuk* is one way to convert government debts into equity payments based on the GDP performance. Such a growth-related financial instrument is similar to a “stock” of a country in the sense that it has equity-like structures. Similarly, *sukuk* issuer will pay extra dividends to its investors when the performance is better and pay less when it is worse than the predicted. The finding is consistent with Seda *et al.* (2020), who reported that the development of *sukuk* market can positively influence economic performance in countries with Islamic finance industries. Thus, developing Muslim countries can benefit from the *sukuk* market development. Based on the result, *H10* is also supported.

The MI and *sukuk* have a substantial negative impact, according to *H9*. Specifically, a 1% point increase in the *sukuk* leads to decrease in the MI by a 1.317% point. The negative effects of *sukuk* issuance on unemployment and inflation suggest its contribution to economic growth. Funds provided by *sukuk* market make it easier to pass on investments to investors. This leads to an increase in employment and an increase in production.

The result from this study on *SUKUK* provides empirical evidence to support that the increased demand for global *Shariah*-compliant bonds, and the significant growth in *sukuk* market had played an important role in the economic development of the ASEAN countries in the past recent years. It is worth noting that this study highlights one of the growth drivers for *SUKUK*'s growth is its good track record of strong risk-adjusted returns in the global markets compared to bonds market, notably over the coronavirus 2019 pandemic times.

Conclusion and recommendation

The creative industry is likely to be a crucial driver of economic growth as governments around the world seek to rebuild their economies following the downturn associated with COVID-19. The ongoing COVID-19 has affected businesses and serious disruptions for

industries. Thus, this study aimed at investigating the empirical impact of creative industries development factors (government expenditure on education, export of creative industries, TO, innovation index, *sukuk* issuances) on economic performance of the ASEAN countries during the COVID-19 pandemic.

The main findings of this study are summarized here. Firstly, when COVID-19 hit, in their efforts to encourage the development of creative industries, the governments in the ASEAN countries played a vital role in building opportunities and promoting education for innovation and future growth. According to the new growth theory, new innovations do not happen by chance; instead, they rely on governments' strong support. In addition, people have control over the knowledge capital they want to have. For example, they choose what to learn and how seriously they want to learn. Thus, if the profit incentives are good enough, people will pursue human capital growth because they are seriously looking for innovations that can help them realize the profits. A critical aspect of the new growth theory is that economists view knowledge as a growth asset, and accordingly, it has an intangible quality and is a great resource that help industries grow from the inside.

Secondly, the development of creative industries in the ASEAN countries which is the focus of this research shows a diverse pattern. Initially, the COVID-19 has had considerable adverse impact on creative industry sectors which have significant contributions to the economy. In mitigating the downside risk, these countries began to identify strategic ways to recover and develop their creative industries. To be more focused, these countries have formed special institutions that deal with their creative industries. The results from this study testify the positive effects the strategies adopted in the creative industries have on economic recovery.

Each country has superior products in its own creative industry. For instance, Singapore has superior products in the information technology and performing arts sub-sectors, while Thailand has superior products in the jewellery and information technology sub-sectors. Malaysia has excellent products in the digital animation, film and broadcasting sub-sectors. Indonesia has excellent products in the Culinary, Fashion and Kriya sub-sectors. Vietnam has excellent products in the cultural tourism sub-sector. The flagship products of each country are diverse because in the creative industry, there are elements of creativity and culture.

Therefore, each country has its own strength with a different factors of creative industry. In its development, each country strives to continue to develop the creative industry with its own formulated policies so that the increase and development of this creative industry sector will have an impact on increasing its contribution to economic performance of the country.

Thirdly, *sukuk* has become a dynamic Islamic financial instrument and contributed to the growth of Islamic capital market and increased the width and breadth of a financial system. This growth has been driven mainly by the ASEAN countries, especially Malaysia and Indonesia. Malaysia is the key player with 60% share of the global *sukuk* issuance, and it controls the largest share of the world's *sukuk* market. The domestic market continues to record good issuance encouraged by large public investment programme which continues to support the expansion of global issuance by increasing its investment outlook. Coupled with its strong investment outlook, Malaysian is poised to support the expansion in *sukuk* issuance to meet the global demand.

Despite the effects of the pandemic on the global economy, global *sukuk* issuance increased in 2020. The top *sukuk* markets continued to be dominated by Malaysia (39.2%), followed by Indonesia with a market share of 17.5%. Collectively, this market accounted for 77.1% of total global *sukuk* issuance.

The effects of COVID-19 saw a steady issuance of *sukuk* in 2021 to fund stimulus packages to support the pandemic-hit economy. Supportive monetary policy and strong government expenditure are key to boosting the local economies.

In conclusion, this research proves that innovations and strong creative elements promoted by the creative industries provide strategic ways to improve economic performance during COVID-19 period. Notably, *sukuk* issuance plays a vital role in the creative industries sector with significantly positive effects on the capital market and economic performance of ASEAN countries.

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