

## Impact of a sharing economy and green energy on achieving sustainable economic development: Evidence from a novel NARDL model



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### ABSTRACT

Recently, the sharing economy has become a significant factor in sustainable economic development (SED), and green energy plays a role in this regard, a phenomenon which requires researchers' frequent emphasis. Thus, the present research investigates the impact of a sharing economy (sharing economy users and sharing economy values) and green energy (renewable energy production and consumption) on achieving SED in China. The article takes inflation and foreign direct investment (FDI) as the control variables. The research uses secondary data extracted from World Development Indicators (WDI) and Statista from 1991 to 2020. It applies the nonlinear autoregressive distributed lagged (NARDL) model to examine the linkages among the constructs. The results reveal that sharing economy users, sharing economy values, renewable energy production (REP), renewable energy consumption (REC), FDI, and inflation are positively linked with SED achievement in China. This article can help regulators develop regulations related to the achievement of SED using the sharing economy and green energy.

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### Introduction

Over the past few decades, the concept of sustainability has attracted worldwide attention. The competition between firms has accelerated rapidly, resulting in firms having to achieve sustainable development to survive. Sustainable development is an approach to developing using natural resources such that they can continue to exist for future generations. The use of renewable resources or recycled materials for building is a good example of sustainable development. China is a country of about 1.413 billion people, and, as the world's largest populated country, it faces many challenges in fulfilling its needs for food and energy. Energy production while keeping the balance of natural resources is a huge challenge for the government of China. In the last few years, the economy of China has grown enormously, and it is now the leading economic giant in the world. Due to this rapid economic growth, it requires even more energy to fulfill its needs. China's power generation is dominated by thermal power, resulting in the rapid emission of carbon dioxide (CO<sub>2</sub>) over the past decades (Ahmad et al., 2021; Al Mamun et al., 2021; Sador-sky, 2021). This results in two severe problems, an energy crisis and global warming. To ensure the production of sufficient energy to meet economic growth and sustainable development, more attention

should be given to energy efficiency and renewable energy production. The beginning of the 21st century is critical point for China's rapid sustainable economic growth and intensifying environmental protection.

According to the sustainable development goals (SDGs) knowledge platform of the United Nations, China is actively taking climate action and contributing to global green development. China has implemented policies for sustainable development very well and won three major battles to keep its sky blue, water clear, and soil pollution-free. It has made remarkable headway in the treatment of its mountains, forests, farmlands, lakes, grasslands, and deserts (Ahmad et al., 2021; Ainou et al., 2022; Criado-Gomis et al., 2020). Carbon intensity in China has accumulatively dropped by 18.8%, and clean energy now makes up 23.4% of the total energy mix. Although China will continue to rely on fossil fuels for the coming decades, the government has undertaken an unprecedented effort to forge a low-carbon development path by promoting energy efficiency and renewable energy (Al-Omouh et al., 2020; Chien et al., 2021; Li et al., 2020). In 2015, the 193 countries of the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development in New York, a program for countries worldwide to implement sustainable development. However, the Sustainable Development Goals Summit of 2019 pointed out that most countries are not on track to implement SDGs. Only a few countries are implementing the SDGs, and China is one of the leaders. The 2019 report features cases of the

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Chinese government at all levels and shows how positively the private sector and general public are contributing. The policy of China for sustainable development seems to have a very positive effect on its economy. China's gross domestic product (GDP) increased from less than 70 trillion Yuan to 100 trillion Yuan (Al-Refaie et al., 2020; Benintendi et al., 2020). Valuable progress has been made in infrastructure, connectivity, and sustainable transportation. In 2020, China's GDP grew by 2.3%, making China the only major world economy to grow.

The industry sector of any country plays a vital role in the country's economy. Since the Covid-19 pandemic, the industrial sector has faced a rapidly decreasing trend. The literature proposes that the industrial sector leads to carbon emissions, forcing the world to switch to renewable energy resources to support the environment (Chien et al., 2022; Jelača et al., 2020; Mahmood et al., 2021; Zhao et al., 2021). The industry sector dropping affects all levels of society, thus it is a true supporter of the sharing economy. Likewise, China's industrial sector is a major contributor to the Chinese economy, with an overall contribution to GDP of 20.6%. The accelerating interest of stakeholders in this sector implies sustainable growth. The recent diversification of Chinese business has resulted in the development of diverse and customized goods that fulfill the demands of many stakeholders. This development derives from the necessity for industrial practitioners to react to the needs of various interest groups, which is critical to the sector's achievement of SDGs (Chien et al., 2021; Méndez-Picazo et al., 2021; Xie et al., 2020). However, practitioners in China's industrial sector have been unable to achieve operational coherence, meaning there is increasing industry interest in reconciling stakeholder and sustainability goals. Despite this, there are some issues related to this industry, which can be divided according to the study variables, such as a sharing economy and green energy. In terms of a sharing economy, the major issues are taxation, inflation, seasonal dependence, lack of infrastructure, security issues, regularity issues, and fluctuation in currency exchange (Liu et al., 2022; Sharma, 2020; Zha et al., 2020). On the other hand, in terms of energy, the issues are increasing carbon emissions, energy costs, harmful effects on society, increasing volume of the industry sector, and global warming (Huang et al., 2021; Rojek-Adamek, 2021; Yurui et al., 2021). Some statistics related to the economic growth in China are presented in Fig. 1.

The present study addresses some gaps in the literature: 1) research into one of the most important and highlighted nexuses between energy and economy from a Chinese perspective has not reached its peak; 2) Govindan et al. (2020) investigate whether sharing economies affect SDG achievement, while the present study adds

green energy as a variable, keeping in view its accelerating importance in China, where energy consumption is very high; 3) Hu et al. (2019) ask whether green energy impacts customers and whether the sharing economy affects sustainable supply chain management, while the present study investigates the effect of green energy and the sharing economy on SDG in China; 4) Lyaskovskaya and Khudyakova (2021) examine whether a sharing economy is favourable or unfavourable for sustainable development, while the current article reevaluates two factors, a sharing economy and green energy, on sustainable development achievement in China using updated data; 5) the framework consists of internal sharing economy factors such as sharing economy value, sharing economy users, REC, REP, inflation, and FDI, which have not been tested before in China (in recent times), with a new dataset; 6) Ucal and Xydis (2020) explore the relationship between energy and sustainable development, while this study adds the sharing economy factor and uses the latest data to explore the association in China; and 7) Khan et al. (2022) ask whether renewable energy affects sustainable development growth, while the present study adds another variable, the sharing economy, in the context of China. The study contributes in numerous ways: 1) it underlines the significance of a sharing economy along with green energy for the achievement of sustainable development, particularly in China; 2) it helps professionals revamp their policies for the betterment of the environment in terms of green energy and the sharing economy to improvise the economic development in China; and 3) it helps researchers identify aspects of the sharing economy and green energy which contribute to sustainable development achievement.

The study structure is divided into five sections. The first is the introduction. The second presents the evidence regarding the chosen constructs discussed considering past literature. The third is the methodology employed for the collection of data and their validity. The fourth section compares the results of the study with the evidence from the reviewed literature. The last section presents the study implications, conclusions, and future recommendations.

#### Literature review

Recently, the sharing economy has become a significant factor in sustainable economic development (SED), and green energy also plays a role, a phenomenon which requires research emphasis. The world is full of opportunities for organizations to induce elements of support to enable benefits from various sources. By enabling under-used organizational resources, the sharing economy creates opportunities for organizations and individual people to jointly earn and generate money from resources that are already in use. In this

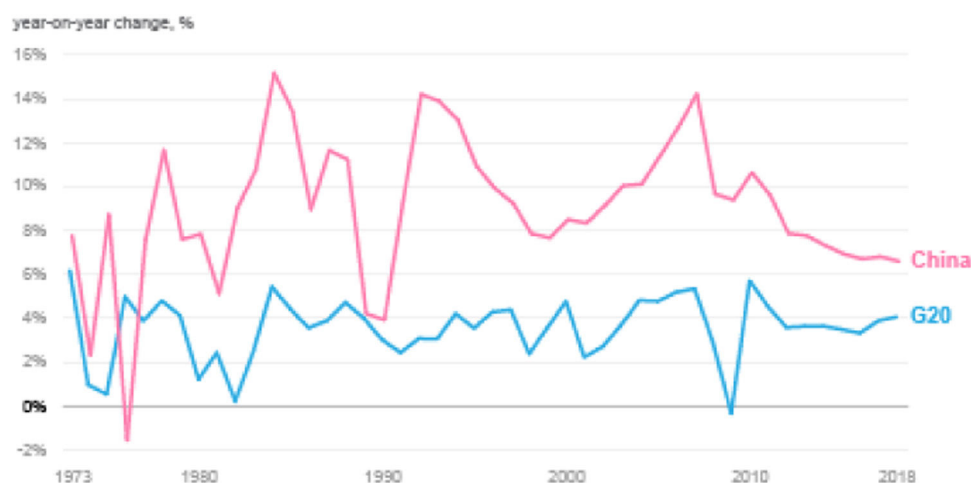


Fig. 1. Sustainable economic growth in China.

context, [Shah et al. \(2021\)](#) and [Lisha and Abdullah \(2021\)](#) discuss the trust, risks, and privacy of developing value creation in the economy under the co-creation of a sharing economy. Many government and state assets are not in use and can be leased to make money. [Yang and Xia \(2022\)](#) investigate the benefits of sharing economic value by exploring the willingness and satisfaction of consumers. Usually, workers benefit most from a sharing economy, as there are low barriers induced by freedom and a flexible environment. In the consumer and international markets of China, the sharing economy contributes outstanding value for consumers through convenience. [Cui et al. \(2021\)](#) explore the factors influencing economic and social development and sustainability by identifying the driving platforms of sharing economy values. Usually, consumers value services and products provided at low price with convenience. These products are found in traditional commercial markets where consumers' hedonic experiences and social interactions increase. [Carius and Job \(2019\)](#) and [Richterová et al. \(2021\)](#) suggest that the contributing factors of revenue sharing and economic values, impact SDG achievement. The sharing economy value in China increases the generation of money and contributes significantly to sustainable development. For sustainable development, numerous elements are vital, and the value of a sharing economy enhances sustainability. Revenues are divided at various levels of employed peoples' turnover, having a respective impact on sustainable development. Prominently, sharing economy value, involving services, convenience, and experience, lead to a dominant proportion of economic growth and help countries attain sustainable development.

The business world is a combination of product and service-oriented businesses. Although product-based industry has been highlighted more than service-based over the past few decades, the service industries have gradually, but significantly, increased, and consumers have attained prominent advantages. These advantages include various satisfaction measures that sharing economy users gain. In this context, [Guo et al. \(2021\)](#) and [Sadiq et al. \(2022b\)](#) investigate the intentions of sharing economy users which cumulatively have an impact on the institutional and calculative mechanisms of sustainable development. Sharing economy users in the economy of China ascertain gaps, through which they acquire advantages for sustainable development. [Liu et al. \(2022b\)](#) and [Meng et al. \(2020\)](#) discuss user cooperation performance in the sharing economy and its effectiveness in strengthening sustainable and economic development. The consumers in the sharing economy of China benefit from services that are not singly owned but universal for all. The classification of services as universally available for every individual benefits people at every stage, whether for services or goods. Companies operating internationally provide all the necessary measures to purchase and sell, while supporting sustainable development. [Mahadevan \(2018\)](#) and [Sadiq et al. \(2022a\)](#) examine the attitudes and motivations of sharing economy users, and how they influence the meaningful needs of sustainable development. Many online facilities established in China allow everyone to be involved in the sale and purchase of goods and services. These goods and services are available on company websites, where all operation measures are available. Sharing economy users mainly operate in developed countries. [Van Zanten and van Tulder \(2021\)](#) assess the governance of economic activities by users that contribute significantly to sustainable development. However, developing countries also avail themselves of the facilities, due to their strong foreign policies for the introduction and establishment of international businesses. There are many users in the world who achieve portions of sharing economy platforms which are important for the sustainability of economic development. Moreover, users worldwide induce major functions through which sustainable development is significantly improved.

Over the past few decades, renewable energy production has increased significantly worldwide, covering many gaps in energy production due to a lack of technology being applied globally.

[Villavicencio \(2018\)](#) analyze the agenda for sustainable development and renewable energy production with the challenge of achieving justice in energy. Renewable energy production supports sustainable development in China and many other countries. Energy production is important for the development and sustainability of industries worldwide. [Güney \(2019\)](#) discusses the relationship between sustainable development, non-renewable energy, and renewable energy in the production elements of the economy. Renewable energy production is most associated with natural processes and resources. These resources are found widely in China, and the country has benefited from largescale funding and production. Renewable energy supports the sustainable development of many developing countries. [Bayale et al. \(2021\)](#) and [Oanh et al. \(2021\)](#) enumerate the factors of REP and its policy which have implications for sustainable development. China is considered a powerful country with a huge reserve of minerals that produces its renewable energy from natural resources such as biomass, hydro, solar, wind, and geothermal. [Similä \(2022\)](#) and [Zygmunt \(2020\)](#) investigate energy production from renewable elements which contribute to the adaptive and transformative capacity to attain sustainable development. These elements exist all over the world, but some areas are less adapted due to the relevant technology. The long-lasting energy production crisis in the world led to the idea of producing renewable energy from natural resources. These natural resources are a step towards energy production for industries and communities that enhances sustainable development.

The world's renewable energy consumption from various sources is consistently increasing, strengthening economic development. Renewable energy was used by ancient people for survival but increasing technological trends in the past few years have emphasized its importance. [Güney and Kantar \(2020\)](#) see the relationship between sustainable development and renewable energy consumption in countries with high incomes as contributing to economic growth. There are various perspectives on renewable energy consumption from biomass, solar, and wind. Various strategies have been implemented for renewable energy consumption that strengthen sustainable development. [Güney and Kantar \(2020\)](#) and [Zhao et al. \(2021b\)](#) examine the impacts of non-renewable and renewable energy consumption on sustainable development, including biomass energy consumption. The clear technological changes in sustainable development show the importance of demand and energy saving. Improved energy efficiency and efficacy has consistently increased reliable developments in China. [Khoshnevis Yazdi \(2018\)](#) elaborate on the dynamic influence of renewable energy consumption on financial and sustainable development. Rather than disrupting the environment, effective technological steps have been taken to improve the consumption of renewable energy. In many sectors, excessive consumption of renewable energy costs sustainable development, while control of sustainable development supports controlled consumption. [Azam et al. \(2021\)](#) and [Thuy et al. \(2021\)](#) investigate the effect of REC, including electricity consumption, which is important for sustainable economic development. The emission of gasses and wastes from fossil fuels damages the climate and environment. Therefore, the effective and flexible introduction of energy systems is important in China, and it is the responsibility of policymakers to adopt effective measures for renewable energy consumption to prevent the excessive waste of energy. Initiative policies and effective terminologies are important elements of energy consumption that strengthen sustainable development. Even though foreign businesses show interest in less renewable energy consumption, the everlasting benefits help with sustainable economic development.

The financial structure, including all the corresponding elements, and the sustainable growth of any country are associated. The slight uncertainty in sustainable and economic development could be due to uncertainty in rates of inflation, which is a prominent macroeconomic factor which has various influences on economic and

sustainable development. Inflation is linked to prices and the value of money, in terms of commodities and other currencies. [Baklouti and Boujelbene \(2019\)](#) and [Pintuma and Aunyawong \(2021\)](#) analyze economic growth and inflation in the shadow of an economy that triggers sustainable development in developing countries. When money is devalued in any country, it affects the economy and hence sustainable development. This hit to sustainable development counters all macroeconomic factors, including inflation rates. Due to the decrease in production and transactions, high inflation consistently disrupts sustainable growth. [Bandura \(2022\)](#) and [Štreimikienė and Ahmed \(2021\)](#) aim to determine the effects of inflation on financial growth, which strongly influences sustainable development. Inflation clearly influences the growth of any country, and when money is devalued sustainable growth is disrupted. Having increased inflation rates in developing countries, not only increases commodity values but also devalues currency. The instability which inflation creates causes an uncertain situation for investment and production projects. [Roncaglia de Carvalho et al. \(2018\)](#) study the correlation between economic development and inflation, and the inflationary patterns and sustainability of economic growth. Supply and demand can also be disrupted by higher rates of inflation, as the total productivity is dependent on the sustainability of inflation. The running of projects in any country can be delayed due to frequent changes in inflation rates as the prices of materials change. [Feil and Feijó \(2021\)](#) discuss the policies of economics and financial development in banks that promote structural change in sustainable development. Inflation controlled at manageable levels supports economic growth and sustainable development. When there are uncontrolled inflation rates, consumers have more money to buy goods and services. Although this slightly benefits the economy, it ultimately impacts sustainable development negatively, as growth and benefits are linked. When the consumption and demand of consumers are boosted, inflation is a significant indicator, especially in China, where the effects of inflation are controlled.

Foreign reserves and investments are effective strategies for sustainable development. This is a significant measure for supporting sustainability by developing and strengthening economic growth. [Mukhtarov et al. \(2021\)](#) discuss the nexus between perspectives on sustainable development and FDI, along with elasticity of income. FDI contributes significantly to sustainable development when there are effective policies and conditions. In China, FDI increases the country's value across the world, as sustainable development is necessary. [Ibrahim and Acquah \(2021\)](#) and [Pilgrimienė et al. \(2021\)](#) examine the association between financial sector development, economic growth, FDI, and the contribution to sustainable development. Sustainable development is dependent on many factors including the operationalizing and development of foreign direct investment regulatory frameworks and policies. Foreign direct investment is a necessary tool for economic growth and developing countries need this for sustainable development. Sustainable development involves industries linked to water, energy, education, and sanitation, that evolve in the presence of FDI. [Irandoust \(2021\)](#) and [Ojogiwa \(2021\)](#) investigate how financial development and FDI helps in the sustainability of economic development. International investment is necessary for both developing and developed countries, as it strengthens sustainable development and economic growth. There is a need for investment governance and policymaking that unlocks the barriers and constraints preventing sustainable growth. [Mbratana et al. \(2021\)](#) and [Nurwani et al. \(2020\)](#) assess the relationship between financial development and foreign direct investment that plays a vital role in economic growth. In developing countries, investment-oriented frameworks are emerging to eliminate the barriers to sustainable development. Economic growth is associated with FDI as human capital accumulation and financial development increase. In China, FDI is developing a momentum that helps the developing country eliminate the elements of poverty. Institutional quality and sustainable development are positively associated with increments of FDI. Without

FDI involvement, the loopholes in economic growth and sustainable development could not be covered.

Methodology

This research investigates the impact of sharing economy users, sharing economy values, REP, REC, inflation, and FDI on SED achievement in China. The research uses secondary data extracted from WDI and Statista from 1991 to 2020. The study applies the NARDL model to examine the proposed framework. The expression is:

$$SED_t = \alpha_0 + \beta_1 SEV_t + \beta_2 SEU_t + \beta_3 REP_t + \beta_4 REC_t + \beta_5 INF_t + \beta_6 FDI_t + e_t \tag{1}$$

where:

- SED = sustainable economic development
- t = time period
- SEV = sharing economy value
- SEU = sharing economy users
- REP = renewable energy production
- REC = renewable energy consumption
- INF = inflation
- FDI = foreign direct investment.

The research takes sustainable economic development (SED) as a direct variable, measured through gross domestic product (GDP) growth (annual%). Two predictors are used, sharing economy measured as the sharing economy users (in millions) and sharing economy values (in billion US dollars). Green energy (GE) is measured through renewable energy production (REP) (% of total electricity output) and renewable energy consumption (REC) (% of total final energy consumption). Inflation (INF) is measured through consumer prices (annual%) and foreign direct investment (FDI) is measured via net flow (% of GDP), both taken as control variables. The measurements are given in [Table 1](#).

The research conducts descriptive analysis to find out the normality of the data along with the standard deviations, and mean values. The study employs descriptive of the variables according to year. The correlations among the variables are examined using the matrix of correlation. The stationarity of the construct is tested using the augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. The expression is given as:

$$d(Y_t) = \alpha_0 + \beta t + \gamma Y_{t-1} + d(Y_t(-1)) + \varepsilon_t \tag{2}$$

The study examines the associations among the variables using the ARDL model, which is appropriate when some constructs are stationary at 1(0) and others at 1(1) ([Çitak et al., 2021](#)). It adjusts the heteroscedasticity and autocorrelation effects of the results ([Qamruzzaman & Jianguo, 2020](#)). The expression is:

**Table 1**  
Variable measurements.

S#	Construct	Measurement	Instrument
01	SED	GDP growth (annual%)	WDI
02	SE	Sharing economy users (in millions) Sharing economy values (in billions US dollars)	Statista Statista
03	GE	REP (% of total electricity output) REC (% of total final energy consumption)	WDI WDI
04	INF	Consumer prices (annual%)	WDI
05	FDI	FDI, net inflows (% of GDP)	WDI

GDP=gross domestic product, WDI= World Development Indicator, REP= renewable energy production, REC=renewable energy production, and FDI=foreign direct investment.



$$\begin{aligned} \Delta SED_t = & \alpha_0 + \sum \delta_1 \Delta SED_{t-1} + \sum \delta_2 \Delta SEU_{t-1} + \sum \delta_3 \Delta SEV_{t-1} \\ & + \sum \delta_4 \Delta REP_{t-1} + \sum \delta_5 \Delta REC_{t-1} + \sum \delta_6 \Delta INF_{t-1} \\ & + \sum \delta_7 \Delta FDI_{t-1} \\ \varphi_1 SED_{t-1} + & \varphi_2 SEU_{t-1} + \varphi_3 SEV_{t-1} + \varphi_4 REP_{t-1} + \varphi_5 REC_{t-1} \\ & + \varphi_6 INF_{t-1} + \varphi_7 FDI_{t-1} + \varepsilon_t \end{aligned} \tag{3}$$

The aim of the study is to analyze the asymmetric nexus among inflation, FDI, and SED. Thus, the nonlinear function is developed as:

$$SED = f(SEU, SEV, REP, REC, INF^+, INF^-, FDI^+, FDI^-) \tag{4}$$

Thus, the empirical model is developed as:

$$\begin{aligned} SED_t = & \alpha_0 + \beta_1 SEU_t + \beta_2 SEV_t + \beta_3 REP_t + \beta_4 REC_t + \beta_5 INF_t^+ \\ & + \beta_6 INF_t^- + \beta_7 FDI_t^+ + \beta_8 FDI_t^- + \varepsilon_t \end{aligned} \tag{5}$$

Eq. (3) shows the ARDL model used to investigate the associations among the variables. The nonlinear association of inflation, FDI, and SED is determined. The equations for the partial sum of positive and negative changes in inflation, FDI, and SED are given as:

$$INF^+ = \sum_{i=1}^t \Delta INF_i^+ = \sum_{i=1}^t \max(\Delta EI_i, 0) \tag{6}$$

$$INF^- = \sum_{i=1}^t \Delta INF_i^- = \sum_{i=1}^t \min(\Delta EI_i, 0) \tag{7}$$

$$FDI^+ = \sum_{i=1}^t \Delta FDI_i^+ = \sum_{i=1}^t \max(\Delta EU_i, 0) \tag{8}$$

$$FDI^- = \sum_{i=1}^t \Delta FDI_i^- = \sum_{i=1}^t \min(\Delta EU_i, 0) \tag{9}$$

Hence, using positive and negative changes in inflation and FDI, the study develops the nonlinear ARDL model equation:

$$\begin{aligned} \Delta SED_t = & \alpha_0 + \sum \delta_1 \Delta SED_{t-1} + \sum \delta_2 \Delta SEU_{t-1} + \sum \delta_3 \Delta SEV_{t-1} \\ & + \sum \delta_4 \Delta REP_{t-1} + \sum \delta_5 \Delta REC_{t-1} + \sum \delta_6 \Delta INF_{t-1}^+ \\ & + \sum \delta_7 \Delta INF_{t-1}^- + \sum \delta_8 \Delta FDI_{t-1}^+ + \sum \delta_9 \Delta FDI_{t-1}^- + \varphi_1 SED_{t-1} \\ & + \varphi_2 SEU_{t-1} + \varphi_3 SEV_{t-1} + \varphi_4 REP_{t-1} + \varphi_5 REC_{t-1} + \\ & \varphi_6 INF_{t-1}^+ + \varphi_7 INF_{t-1}^- + \varphi_8 FDI_{t-1}^+ + \varphi_9 FDI_{t-1}^- + \varepsilon_t \end{aligned} \tag{10}$$

**Findings**

Overall, 30 observations are used, and the average value of SED is 9.376%, while the mean value of SEU is 39.139 million. The mean value of SEV is 220.702 billion US dollars, while the average value of REP is 19.065%. The average value of REC is 20.095%, while the mean value of INF is 4.040%, and the average value of FDI is 3.362% (see Table 2).

The correlation among the variables is examined using the matrix of correlation. The results show that the sharing economy users, sharing economy values, REP, REC, FDI, and inflation are positively linked with SED achievement in China (Table 3).

**Table 2**  
Descriptives.

Variable	Obs	Mean	Std. Dev.	Min	Max
SED	30	9.376	2.444	4.973	14.231
SEU	30	39.139	3.739	33.163	45.297
SEV	30	220.702	10.665	202.737	238.268
REP	30	19.065	3.054	15.037	25.649
REC	30	20.095	9.290	6.900	33.258
INF	30	4.040	5.547	-1.401	24.257
FDI	30	3.362	1.383	0.908	6.187

Source: Author's estimates.

**Table 3**  
Matrix of correlation.

Variable	SED	SEU	SEV	REP	REC	INF	FDI
SED	1.000						
SEU	0.639	1.000					
SEV	0.630	0.999	1.000				
REP	0.712	0.680	0.678	1.000			
REC	0.484	-0.972	-0.972	-0.591	1.000		
INF	0.540	-0.436	-0.429	-0.100	0.337	1.000	
FDI	0.703	-0.635	-0.626	-0.690	0.561	0.542	1.000

Source: Author's estimates.

**Table 4**  
Unit Root test.

Series	ADF PP		ADF PP	
	Level	First difference	Level	First difference
SED	-4.620***	-7.902***	-5.820***	-7.102***
SEU	-3.902***	-8.109***	-2.903**	-5.403***
SEV	-1.810	-4.643***	-1.620	-4.922***
REP	-1.091	-5.655***	-1.352	-4.901***
REC	-1.002	-5.903***	-1.527	-5.663***
INF	-4.420***	-7.534***	-3.829***	-6.493***
FDI	-5.892***	-5.856***	-4.910***	-7.422***

Source: Author's estimates.

**Table 5**  
Bound test of nonlinear ARDL.

	F-statistic	Lower Bound	Upper Bound	Decision
Linear ARDL	0.545	3.183	3.872	No Co-integration
Asymmetric ARDL	6.982	4.192	4.810	Co-integration

Source: Author's estimates.

**Table 6**  
Nonlinear ARDL results.

Construct	Coefficient	Std. Err.	t-statistic
C	0.904	0.109	8.294
SED (-1)	1.829	0.539	3.393
SEU (-1)	1.984	0.433	4.582
SEV (-1)	0.837	0.201	4.164
REP (-1)	2.893	0.827	3.498
REC (-1)	1.982	0.228	8.693
INF-P (-1)	3.929	1.281	3.067
INF-N (-1)	0.873	0.349	2.501
FDI-P (-1)	0.761	0.299	2.545
FDI-N (-1)	0.993	0.421	2.359
Adj. R Square	0.592		
F-statistic	50.543		
Prob.(F-statistic)	0.006		

Source: Author's estimates.

The stationarity of the constructs is examined using ADF and PP tests. The results indicate that SED, SEU, INF, and FDI are stationary at a level while SEV, REP, and REC are stationary at first difference (Table 4).

The bound test of nonlinear ARDL shows that the calculated f-statistic (6.882) is higher than the critical value, and co-integration exist, as shown Table 5.

The results of the NARDL model show that sharing economy users, sharing economy values, REP, REC, FDI, and inflation are positively linked with the achievement of SED in China. The results reveal that inflation and FDI, both positive and negative, are positively correlated with SED in China. The regression value indicates that 59.2% of variation in SED is due to SEU, SEV, REP, REC, INF, and FDI. These figures are given in Table 6.

## Discussion

The results state that a sharing economy is positively related to sustainable development. These results are consistent with [Govindan et al. \(2020\)](#), that when a sharing economy is encouraged in a region, maximum value is created through sharing underused or entirely unused assets such as parked vehicles, spare accommodation buildings, new technologies or other physical assets. On the other hand, costs can be saved while money can be earned from renting out resources at spare times. Through both methods of value creation in a sharing economy, the monetary resources saved can be used to perform ecological friendly actions and social undertakings, which are two major pillars of sustainable development. The findings are supported by [Laukkanen and Tura \(2020\)](#), that when individuals or commercial entities create value by hiring resources instead of buying and owning physical resources or granting resources for rent instead of using them without purpose, the use of resources such as technologies, plants, or energy can be reduced. This reduces the negative environmental impact of domestic and commercial activities and saves the associated resources for future use. Hence, sustainability can be developed through a country's economic development.

The results show that sharing economy users have a positive impact on sustainable development. These results are supported by [Leung et al. \(2019\)](#), that when more people in a country have a sense of the utility of a sharing economy and practice it, even those in remote areas can access resources. This promotes economic activity in the larger area and improves the productivity of goods and services, which can provide resources for the future. When there is surety of resources for the future economy, sustainability can be developed. These results agree with [Hu et al. \(2019\)](#), that when there is a constant increase in the number of sharing economy users within a country, when certain social or economic facilities, such as education, transportation, or medical instruments, are scarce, people can have access to these facilities and, thus, can produce physical and human resources for the future, making the country's development more sustainable.

The results state that renewable energy consumption has a positive impact on sustainable development, in line with [Majid \(2020\)](#), who posits that sustainable development requires the availability of many resources the production of which depends on the environment's health and elements. When renewable energy is used in a country to provide fuel for social and economic practices, the environment and its elements are protected. Therefore, sustainable economic development is possible. These results are corroborated by [Güney \(2019\)](#), that by encouraging renewable energy sources, fuel, which is an essential part of economic activity and many domestic chores, can be saved. These renewable energy sources assist in carrying out economic activities, so renewable energy consumption enhances the sustainability of economic development. The results reveal that renewable energy production has a positive impact on sustainable development. Correspondingly, [Bishoge et al. \(2020\)](#) report that energy is a major factor in the production of both goods and services in an economy. When fossil fuels are scarce in a region, and economies rely on fossil fuels to meet their needs, reserves soon diminish. However, alternatives to fossil fuels and the production of renewable energy provides comprehensive energy sources for the economy and assures its continuance into the future. These results are supported by [Østergaard et al. \(2020\)](#), who highlight that the production of renewable energy provides a clean environment where human beings can breathe easily. The comfortable environment does not affect the health of the labor force or their motivation for work. A healthy labor force provides everlasting productivity. So, renewable energy production leads to sustainable development and economic growth.

This study shows that inflation has a positive impact on sustainable development. These results match [Koirala and Pradhan \(2020\)](#),

that when there is inflation within a country, firms in all economic sectors actively perform their operations, produce goods and services at an increasing rate, and take care of quality. Eventually, there are enough resources available for economic use, and the way is clear for sustainable economic development. These results are supported by [Girdzijauskas et al. \(2022\)](#), that during inflationary periods, the production of natural resources through the adoption of innovation is high, which contributes to sustainability in a positive manner. The findings show that FDI is linked with sustainable development in positive way, consistent with [Li \(2021\)](#), who states that foreign entities investing in domestic economic or social welfare programmes enhances the production of resources such as energy, technologies, agricultural products, and minerals. The increased resources within the economy provide sustainable development opportunities. These results confirm the study of [Mukhtarov et al. \(2021\)](#), that an increase FDI enhances capital formation within a country, and the rise in capital goods assures economic development sustainability.

## Implications

The present study has theoretical significance and makes a considerable contribution to the literature. The findings concern the role of the sharing economy and green energy in sustainable development. The study examines the influences of sharing economy value, sharing economy users, renewable energy consumption, renewable energy production, inflation, and FDI on sustainable development. The impacts of the sharing economy and green energy on sustainable development are analysed, but with the distinction of time and research. The study examines the influences of a sharing economy and green energy on sustainable development which makes it distinct in the literature. The analysis of the influences of sharing economy value, sharing economy users, renewable energy consumption, renewable energy production, inflation, and FDI on sustainable development are conducted with evidence from China, and no such study has been undertaken before. The present study has considerable importance for emerging economies such as China, which, because of its increased population and social and economic needs, may face a scarcity of energy resources. The study suggests how the sharing economy, with sharing economy value and sharing economy users, can effectively increase sustainable development. The article helps regulators developing regulations related to the achievement of SED using the sharing economy and green energy. The study reveals that, through effective policies, the encouragement of green energy consumption and production can help enhance sustainable development.

## Conclusions

This study examines the influences of sharing economy value, sharing economy users, renewable energy consumption, renewable energy production, inflation, and FDI on sustainable development. A survey is conducted of the Chinese economy, and the influences of sharing economy value, sharing economy users, renewable energy consumption, renewable energy production, inflation, and FDI on the sustainable development are analysed empirically. The results show a positive relationship between sharing economy value, sharing economy users, renewable energy consumption, renewable energy production, inflation, and FDI and sustainable development. The results indicate that an increase in sharing economy value and users encourages optimal use of resources and leads to the maximum production of goods and services. This improves businesses' social and environmental performance and leads to sustainable development. The results show that an increase in renewable energy production helps preserve energy resources and keep the environment clean. Thus, it adds to sustainable development. When mostly renewable energy is used in an economy, the potential fossil fuel energy sources

can be persevered for the future. The reduced negative environmental impacts of a clean work environment, efficient human resources, and quality natural resources all lead to sustainable economic development. The results reveal that, due to the adoption of innovation, natural resource production can remain high throughout inflationary periods, contributing positively to sustainability. Moreover, the study implies that increased FDI boosts capital formation and improves human capital creation within a country, while a rise in capital goods and skilled humans ensures sustainable economic development.

The study has several limitations, which have theoretical and empirical implications. Only the impacts of sharing economy value, sharing economy users, renewable energy consumption, renewable energy production, inflation, and FDI on sustainable development are explored. There are more significant factors, such as corporate governance, green finance, and human resource management, which affect sustainable development but are missing from this research. Future research must include these factors. This study presents research on the impacts of sharing economy value, sharing economy users, renewable energy consumption, renewable energy production, inflation, and FDI on sustainable development over a limited period. For a more comprehensive study, future research must cover an extended period.

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## References

- Ahmad, M., Chandio, A. A., Solangi, Y. A., Shah, S. A. A., Shahzad, F., & Rehman, A. (2021). & Jabeen, G. Dynamic interactive links among sustainable energy investment, air pollution, and sustainable development in regional China. *Environmental Science and Pollution Research*, 28(2), 1502–1518. doi:10.1007/s11356-020-10239-8
- Ainou, F. Z., Ali, M., & Sadiq, M. (2022). Green energy security assessment in Morocco: Green finance as a step toward sustainable energy transition. *Environmental Science and Pollution Research*. doi:10.1007/s11356-022-19153-7.
- Al Mamun, A., Muniady, R., & Nasir, N. A. B. M. (2021). Effect of participation in development initiatives on competitive advantages, performance, and sustainability of micro-enterprises in Malaysia. *Contemporary Economics*, 15(2), 122–138.
- Al-Omoush, K. S., Simón-Moya, V., & Sendra-García, J. (2020). The impact of social capital and collaborative knowledge creation on e-business proactiveness and organizational agility in responding to the COVID-19 crisis. *Journal of Innovation & Knowledge*, 5(4), 279–288.
- Al-Refaie, A., Al-Tahat, M., & Lepkova, N. (2020). Modelling relationships between agility, lean, resilient, green practices in cold supply chains using ISM approach. *Technological and Economic Development of Economy*, 26(4), 675–694.
- Azam, A., Rafiq, M., Shafique, M., Ateeq, M., & Yuan, J. (2021). Investigating the impact of renewable electricity consumption on sustainable economic development: A panel ARDL approach. *International Journal of Green Energy*, 18(11), 1185–1192. doi:10.1080/15435075.2021.1897825.
- Baklouti, N., & Boujelbene, Y. (2019). The economic growth–inflation–shadow economy trilogy: Developed versus developing countries. *International Economic Journal*, 33(4), 679–695. doi:10.1080/10168737.2019.1641540.
- Bandura, W. N. (2022). Inflation and finance-growth Nexus in Sub-Saharan Africa. *Journal of African Business*, 23(2), 422–434. doi:10.1080/15228916.2020.1838837.
- Bayale, N., Ali, E., Tchagnao, A.-F., & Nakumuryango, A. (2021). Determinants of renewable energy production in WAEMU countries: New empirical insights and policy implications. *International Journal of Green Energy*, 18(6), 602–614. doi:10.1080/15435075.2021.1875467.
- Benintendi, R., Gómez, E. M., De Mare, G., Nesticò, A., & Balsamo, G. (2020). Energy, environment and sustainable development of the belt and road initiative: The Chinese scenario and Western contributions. *Sustainable Futures*, 2, 100–109. doi:10.1016/j.sfr.2020.100009.
- Bishoge, O. K., Kombe, G. G., & Mvile, B. N. (2020). Renewable energy for sustainable development in sub-Saharan African countries: Challenges and way forward. *Journal of Renewable and Sustainable Energy*, 12(5), 52–72.
- Carius, F., & Job, H. (2019). Community involvement and tourism revenue sharing as contributing factors to the UN Sustainable Development Goals in Jozani–Chwaka Bay National Park and Biosphere Reserve, Zanzibar. *Journal of Sustainable Tourism*, 27(6), 826–846. doi:10.1080/09669582.2018.1560457.
- Chien, F., Sadiq, M., Nawaz, M. A., Hussain, M. S., Tran, T. D., & Le Thanh, T. (2021). A step toward reducing air pollution in top Asian economies: The role of green energy, eco-innovation, and environmental taxes. *Journal of Environmental Management*. doi:10.1016/j.jenvman.2021.113420.
- Chien, F., Hsu, C. C., Ozturk, I., Sharif, A., & Sadiq, M. (2022). The role of renewable energy and urbanization towards greenhouse gas emission in top Asian countries: Evidence from advance panel estimations. *Renewable Energy*. doi:10.1016/j.renene.2021.12.118.
- Chien, F., Zhang, Y., Sadiq, M., & Hsu, C. C. (2021). Financing for energy efficiency solutions to mitigate opportunity cost of coal consumption: An empirical analysis of Chinese industries. *Environmental Science and Pollution Research*. doi:10.1007/s11356-021-15701-9.
- Çitak, F., Uslu, H., Batmaz, O., & Hoş, S. (2021). Do renewable energy and natural gas consumption mitigate CO2 emissions in the USA? New insights from NARDL approach. *Environmental Science and Pollution Research*, 28(45), 63739–63750.
- Criado-Gomis, A., Iniesta-Bonillo, M., Cervera-Taulet, A., & Ribeiro-Soriano, D. (2020). Customer functional value creation through a sustainable entrepreneurial orientation approach. *Economic research-Ekonomska istraživanja*, 33(1), 2360–2377.
- Cui, L., Hou, Y., Liu, Y., & Zhang, L. (2021). Text mining to explore the influencing factors of sharing economy driven digital platforms to promote social and economic development. *Information Technology for Development*, 27(4), 779–801. doi:10.1080/02681102.2020.1815636.
- Feil, F., & Feijó, C. (2021). Development banks as an arm of economic policy – Promoting sustainable structural change. *International Journal of Political Economy*, 50(1), 44–59. doi:10.1080/08911916.2021.1894827.
- Girdzijauskas, S., Streimikiene, D., Grišienė, I., Mikalauskiene, A., & Kyriakopoulos, G. L. (2022). New approach to inflation phenomena to ensure sustainable economic growth. *Sustainability*, 14(1), 518–525.
- Govindan, K., Shankar, K. M., & Kannan, D. (2020). Achieving sustainable development goals through identifying and analyzing barriers to industrial sharing economy: A framework development. *International Journal of Production Economics*, 227, 107–125.
- Govindan, K., Shankar, K. M., & Kannan, D. (2020). Achieving sustainable development goals through identifying and analyzing barriers to industrial sharing economy: A framework development. *International Journal of Production Economics*, 227, 107575. doi:10.1016/j.ijpe.2019.107575.
- Güney, T. (2019). Renewable energy, non-renewable energy and sustainable development. *International Journal of Sustainable Development & World Ecology*, 26(5), 389–397.
- Güney, T., & Kantar, K. (2020). Biomass energy consumption and sustainable development. *International Journal of Sustainable Development & World Ecology*, 27(8), 762–767. doi:10.1080/13504509.2020.1753124.
- Guo, J., Lin, J., & Li, L. (2021). Building users' intention to participate in a sharing economy with institutional and calculative mechanisms: An empirical investigation of DiDi in China. *Information Technology for Development*, 27(4), 645–669. doi:10.1080/02681102.2020.1807894.
- Hu, J., Liu, Y.-L., Yuen, T. W. W., Lim, M. K., & Hu, J. (2019). Do green practices really attract customers? The sharing economy from the sustainable supply chain management perspective. *Resources, Conservation and Recycling*, 149, 177–187. doi:10.1016/j.resconrec.2019.05.042.
- Huang, S. Z., Chien, F., & Sadiq, M. (2021). A gateway towards a sustainable environment in emerging countries: The nexus between green energy and human capital. *Economic Research-Ekonomska Istraživanja*. doi:10.1080/1331677X.2021.2012218.
- Ibrahim, M., & Acquah, A. M. (2021). Re-examining the causal relationships among FDI, economic growth and financial sector development in Africa. *International Review of Applied Economics*, 35(1), 45–63. doi:10.1080/02692171.2020.1822299.
- Irandoust, M. (2021). FDI and financial development: Evidence from eight post-communist countries. *Studies in Economics and Econometrics*, 45(2), 102–116. doi:10.1080/03796205.2021.1978859.
- Jelača, M. S., Miličević, N., Bjekić, R., & Petrov, V. (2020). The effects of environment uncertainty and leadership styles on organisational innovativeness. *Engineering Economics/Inžinerinė ekonomika*, 31(4), 472–486.
- Khan, S. A. R., Qudus, M. U., Akhtar, M. H., Rafique, A., Hayat, M., Gulzar, S., & Yu, Z. (2022). Re-investigating the nexuses of renewable energy, natural resources and transport services: A roadmap towards sustainable development. *Environmental Science and Pollution Research*, 29(9), 13564–13579. doi:10.1007/s11356-021-16702-4.
- Khoshnevis Yazdi, S., & Ghorchi Beygi, E. (2018). The dynamic impact of renewable energy consumption and financial development on CO2 emissions: For selected African countries. *Energy Sources, Part B: Economics, Planning, and Policy*, 13(1), 13–20. doi:10.1080/15567249.2017.1377319.
- Koirala, B. S., & Pradhan, G. (2020). Determinants of sustainable development: Evidence from 12 Asian countries. *Sustainable Development*, 28(1), 39–45.
- Laukkanen, M., & Tura, N. (2020). The potential of sharing economy business models for sustainable value creation. *Journal of Cleaner Production*, 253, 120–128.
- Leung, X. Y., Xue, L., & Wen, H. (2019). Framing the sharing economy: Toward a sustainable ecosystem. *Tourism Management*, 71, 44–53.
- Li, T., Li, A., & Guo, X. (2020). The sustainable development-oriented development and utilization of renewable energy industry—A comprehensive analysis of MCDM methods. *Energy*, 212, 118–124. doi:10.1016/j.energy.2020.118694.
- Li, Y. (2021). FDI facilitating sustainable development in and out of an emerging market: is foreign participation a necessary condition for emerging market firms to catch up globally? *The palgrave handbook of corporate sustainability in the digital era* (pp. 335–354). Springer.
- Lisha, L., & Abdullah, N. H. B. (2021). The relationship between tourism development and sustainable development goals in Vietnam. *Cuadernos de Economía*, 44(124), 42–49.
- Liu, Z., Yin, T., Surya Putra, A. R., & Sadiq, M. (2022). Public spending as a new determinant of sustainable development goal and green economic recovery: Policy perspective analysis in the Post-Covid ERA. *Climate Change Economics*. doi:10.1142/S2010007822400073.
- Liu, Z., Lan, J., Chien, F., Sadiq, M., & Nawaz, M. A. (2022). Role of tourism development in environmental degradation: A step towards emission reduction. *Journal of Environmental Management*. doi:10.1016/j.jenvman.2021.114078.



- Lyaskovskaya, E., & Khudyakova, T. (2021). Sharing Economy: For or against Sustainable Development. *Sustainability*, 13(19), 12–25. doi:10.3390/su131911056.
- Mahadevan, R. (2018). Examination of motivations and attitudes of peer-to-peer users in the accommodation sharing economy. *Journal of Hospitality Marketing & Management*, 27(6), 679–692. doi:10.1080/19368623.2018.1431994.
- Mahmood, F., Qadeer, F., Saleem, M., Han, H., & Ariza-Montes, A. (2021). Corporate social responsibility and firms' financial performance: A multi-level serial analysis underpinning social identity theory. *Economic Research-Ekonomska Istraživanja*, 1-39, 2447–2468.
- Méndez-Picazo, M. T., Galindo-Martín, M. A., & Castaño-Martínez, M. S. (2021). Effects of sociocultural and economic factors on social entrepreneurship and sustainable development. *Journal of Innovation & Knowledge*, 6(2), 69–77.
- Majid, M. (2020). Renewable energy for sustainable development in India: Current status, future prospects, challenges, employment, and investment opportunities. *Energy, Sustainability and Society*, 10(1), 1–36.
- Mbratana, T., Fotié, A. K., & Amba, M. C. O. (2021). Foreign direct investment and financial development in Africa: A causality assessment in the frequency domain. *The Journal of International Trade & Economic Development*, 30(5), 685–706. doi:10.1080/09638199.2021.1892164.
- Meng, Q., Chu, L., Li, Z., Chen, J., Du, J., & Wu, C. (2020). Cooperation performance of multi-organisations operating in a sharing economy: Game theory with agent-based modelling. *International Journal of Production Research*, 58(22), 7044–7057. doi:10.1080/00207543.2019.1693650.
- Mukhtarov, S., Aliyev, S., Mikayilov, J. I., Ismayilov, A., & Rzayev, A. (2021). The FDI-CO2 nexus from the sustainable development perspective: The case of Azerbaijan. *International Journal of Sustainable Development & World Ecology*, 28(3), 246–254. doi:10.1080/13504509.2020.180447.
- Nurwani, N., Amal, B. K., Adisaputera, A., & Ridwan, M. (2020). The creativity of society making ritual becomes show art: Transformation of ratok bawak meaning on Minangkabau society, Indonesia. *Creativity Studies*, 13(2), 437–448.
- Oanh, N. T. N., Trung, N. K. Q., Chi, N. T. K., Hang, T. X., Thi, U. H. N., Lien, D. T. T., & Hang, N. M. (2021). Factors affecting performance of small and medium-sized enterprises in Vietnam. *International Journal of Economics and Finance Studies*, 13(1), 284–317.
- Ojogiwa, O. T. (2021). The crux of strategic leadership for a transformed public sector management in Nigeria. *International Journal of Business and Management Studies*, 13(1), 83–96.
- Østergaard, P. A., Duic, N., Noorollahi, Y., Mikulcic, H., & Kalogirou, S. (2020). *Sustainable development using renewable energy technology*: 146 (pp. 2430–2437). Elsevier.
- Qamruzzaman, M., & Jianguo, W. (2020). The asymmetric relationship between financial development, trade openness, foreign capital flows, and renewable energy consumption: Fresh evidence from panel NARDL investigation. *Renewable Energy*, 159, 827–842.
- Pilgrimienė, Z., Banytė, J., Dovalienė, A., Gadeikienė, A., & Korzilius, H. (2021). Sustainable Consumption Patterns in Different Settings. *Engineering Economics*, 32(3), 278–291.
- Pintuma, S., & Anyawong, W. (2021). The effect of green supply chain management practices on environmental, operational and organizational performances of seafood manufacturers in Thailand. *International Journal of eBusiness and eGovernment Studies*, 13(2), 33–48.
- Richterová, E., Richter, M., & Sojková, Z. (2021). Regional eco-efficiency of the agricultural sector in V4 regions, its dynamics in time and decomposition on the technological and pure technical eco-efficiency change. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 16(3), 553–576.
- Rojek-Adamek, P. (2021). The role of sharing creative ideas: Professional designers about their work. *Creativity Studies*, 14(2), 521–534.
- Roncaglia de Carvalho, A., Ribeiro, R. S. M., & Marques, A. M. (2018). Economic development and inflation: A theoretical and empirical analysis. *International Review of Applied Economics*, 32(4), 546–565. doi:10.1080/02692171.2017.1351531.
- Sadiq, M., Ngo, T. Q., Pantamee, A. A., Khudoykulov, K., Ngan, T. T., & Tan, L. L. (2022). The role of environmental social and governance in achieving sustainable development goals: Evidence from ASEAN countries. *Economic Research-Ekonomska Istraživanja*. doi:10.1080/1331677X.2022.2072357.
- Sadiq, M., Amayri, M. A., Paramaiah, C., et al. (2022). How green finance and financial development promote green economic growth: Deployment of clean energy sources in South Asia. *Environmental Science and Pollution Research*. doi:10.1007/s11356-022-19947-9.
- Sadorsky, P. (2021). Wind energy for sustainable development: Driving factors and future outlook. *Journal of Cleaner Production*, 289, 125–139. doi:10.1016/j.jclepro.2020.125779.
- Shah, S. H. H., Noor, S., Lei, S., Butt, A. S., & Ali, M. (2021). Role of privacy/safety risk and trust on the development of prosumption and value co-creation under the sharing economy: A moderated mediation model. *Information Technology for Development*, 27(4), 718–735. doi:10.1080/02681102.2021.1877604.
- Sharma, S. K. (2020). Financial development and Economic growth in selected Asian economies: A dynamic panel ARDL test. *Contemporary Economics*, 14(2), 201–219.
- Similä, J., Soininen, N., & Paukku, E. (2022). Towards sustainable blue energy production: An analysis of legal transformative and adaptive capacity. *Journal of Energy & Natural Resources Law*, 40(1), 61–81. doi:10.1080/02646811.2021.1875687.
- Štreimikienė, D., & Ahmed, R. R. (2021). Corporate social responsibility and brand management: Evidence from Carroll's pyramid and triple bottom line approaches. *Technological and Economic Development of Economy*, 27(4), 852–875.
- Thuy, L. T., Diu, T. T. P., Hoan, N. D., Ninh, V. V., & Nga, N. T. T. (2021). Factors affecting intention to purchase organic agriculture products among Vietnamese. *AgBioForum*, 23(2), 1–12.
- Ucal, M., & Xydis, G. (2020). Multidirectional relationship between energy resources, climate changes and sustainable development: Technoeconomic analysis. *Sustainable Cities and Society*, 60, 10–22. doi:10.1016/j.scs.2020.102210.
- van Zanten, J. A., & van Tulder, R. (2021). Towards nexus-based governance: Defining interactions between economic activities and Sustainable Development Goals (SDGs). *International Journal of Sustainable Development & World Ecology*, 28(3), 210–226. doi:10.1080/13504509.2020.1768452.
- Villavicencio Calzadilla, P., & Mauger, R. (2018). The UN's new sustainable development agenda and renewable energy: The challenge to reach SDG7 while achieving energy justice. *Journal of Energy & Natural Resources Law*, 36(2), 233–254. doi:10.1080/02646811.2017.1377951.
- Xie, L., Cheshmehzangi, A., Tan-Mullins, M., Flynn, A., & Heath, T. (2020). Urban entrepreneurialism and sustainable development: A comparative analysis of Chinese eco-developments. *Journal of Urban Technology*, 27(1), 3–26. doi:10.1080/10630732.2019.1680940.
- Yang, H., & Xia, L. (2022). Leading the sharing economy: An exploration on how perceived value affecting customers' satisfaction and willingness to pay by using DiDi. *Journal of Global Scholars of Marketing Science*, 32(1), 54–76. doi:10.1080/21639159.2020.1808833.
- Yurui, L., Xuanchang, Z., Zhi, C., Zhengjia, L., Zhi, L., & Yansui, L. (2021). Towards the progress of ecological restoration and economic development in China's Loess Plateau and strategy for more sustainable development. *Science of The Total Environment*, 756, 143–156. doi:10.1016/j.scitotenv.2020.143676.
- Zha, J., Tan, T., Yuan, W., Yang, X., & Zhu, Y. (2020). Decomposition analysis of tourism CO2 emissions for sustainable development: A case study of China. *Sustainable Development*, 28(1), 169–186. doi:10.1002/sd.1980.
- Zhao, F., Zhang, S., Du, Q., Ding, J., Luan, G., & Xie, Z. (2021). Assessment of the sustainable development of rural minority settlements based on multidimensional data and geographical detector method: A case study in Dehong, China. *Socio-Economic Planning Sciences*, 78, 101–112. doi:10.1016/j.seps.2021.101066.
- Zhao, L., Zhang, Y., Sadiq, M., Hieu, V. M., & Ngo, T. Q. (2021). Testing green fiscal policies for green investment, innovation and green productivity amid the COVID-19 era. *Economic Change and Restructuring*. doi:10.1007/s10644-021-09367-z.
- Zygmunt, J. (2020). The effect of changes in the economic structure on entrepreneurial activity in a transition economy: The case of Poland. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 15(1), 49–62.