

# AN ANALYSIS OF IMPACT OF COVID-19 PANDAMIC ON THE ECONOMY OF SAUDI ARABIA

Maysoon Khojah, Saudi Electronic University

## ABSTRACT

*Whenever global crises often put a strain on the global economy and COVID-19 has been no exception. There has been a considerable amount of panic, and a strain on the resources of the world's economy. The research herein aims to describe the economic impacts of COVID-19 on the economy of the Kingdom of Saudi Arabia. The findings indicate that the factors Employment Rate, Production Rate, Value of Shares and Exports and Imports have been affected by COVID-19 as a result of the measures put in place to combat the pandemic.*

**Keywords:** COVID-19, Saudi Arabia, Employment Rate, Production Rate, Value of Shares, Exports and Imports.

## INTRODUCTION

From an economic perspective, the performance of a nation can be influenced or stabilized by natural calamities, climate change, financial crises and emerging diseases. The outbreak of COVID-19 led to an imbalance in the economic performance of many countries by lowering their GDP.

There are several claims that COVID-19 has had a considerable influence on the economy, hence the need to establish and understand its effect on rates of unemployment and working hours lost due to sickness (Khan et al., 2021). Additionally, the pandemic has forced the closure of some industries causing many employees to take mandatory leave. COVID-19 has also significantly influenced global supply chains, since most countries have halted or reduced international travel, thus depriving the economy. Therefore, there is a need to search for a solution to the problem of lack of economic growth brought about by the pandemic (Fu et al., 2022).

The United States is one of the countries whose economy has been dramatically affected by the COVID-19 pandemic. As an example, the consumption industry, which accounts for almost 70% of the US Gross Domestic Product (GDP), is fueled by consumer spending which creates demand and leads to job growth in different professions within the economy (Mohammed et al., 2021). Consumption has reduced as businesses have closed, and others that continue to operate are holding off goods as they worry about their jobs and finances in the face of uncertainty around when the pandemic will end (Atkeson, 2020). The investment industry has also been greatly affected by the pandemic. This industry accounts for almost 20% of the US economy, but as a result of COVID-19 businesses are reducing investments and, therefore reducing economic growth and negatively impacting the economy (Khan & Minhaj, 2022). The entertainment, arts and recreation industries account for 4% of the US economy and have been greatly affected by the pandemic. Restaurants and cinemas have closed in an effort to reduce the spread of the virus, thus leading to losses in the industry and a decline in economic growth. The manufacturing industry, which accounts for a substantial percentage of the US GDP, has also faltered; many outfits in this industry lack supplies since the virus has affected global supply

chains (Khan et al., 2021). The demand for manufactured products has also reduced, and various companies in the US, such as Ford and General Motors, have temporarily closed their car factories (Khan & Minhaj, 2021). Small businesses are struggling to keep staff due to losses arising as a result of the pandemic. As a result, unemployment rates are growing daily (Cachanosky, 2017; Ceylan, 2020). The US, in particular, has been greatly hit by the pandemic, even more so than China, where the virus originated.

The Chinese economy was among those the worst hit across the globe. The country closed borders and initiated lockdowns in an effort to contain the virus; however, such measures put a considerable strain on the economy (Khan & Alhumoudi, 2022). Sources indicate that the Chinese economy contracted once again after a period of about three decades: that is, since the 1976 crackdown at Tiananmen Square. Between January and February 2020, unlike in 2019, the output from the production industry dropped by 13.5% (Davidson, 2020). The pandemic has also caused job losses in China, because of industries being closed down or operating at a fraction of their norm. In February 2020, China's unemployment rate rose to 6.2%: this percentage was slightly higher than in December 2019, where it stood at 5.2% (Davidson, 2020).

Another observable effect of COVID-19 on the Chinese economy can be seen in the very high inflation rates during the periods of panic caused by the virus. Statistics show that inflation rose to 50% during this period: citizens suffered a great deal as they were forced to acquire even basic goods at higher prices than normal (Fernandes, 2020).

The economy is a critical issue that indicates whether or not a nation or region is performing well. It, therefore, refers to the state of a given geographical area or a nation in terms of production and consumption of commodities and the money implicated. The Kingdom of Saudi Arabia's (KSA) economy has been greatly affected by the COVID-19 pandemic. Notably, the economy depends on factors such as levels of production, unemployment rates and the number of working hours, among others (Khan, 2021).

This paper proceeds as follows. Section 2 reviews the literature and develops the hypotheses. Section 3 describes the data set. Section 4 reports the empirical results. Section 5 concludes.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### Literature Review

Among the countries in the Middle East, Iran was hit hard by the COVID-19 pandemic (Daw, 2020). Iran has recorded the highest number of deaths and total infections, figures which continue to rise. As a result, there was a concern about whether the Iran government had the ability to respond to the crisis due to its economic status. In mid-April, the Iran government declared that 4,000,000 employees of a national workforce of 27,000,000 were at risk of losing their jobs if lockdown were to continue (Khan et al., 2021). The government's estimate of zero growth for the year 2020 suggests that the Iran economy would shrink by 11%.

The United Arab Emirates (UAE), sometimes referred to as Emirates, has also suffered a faltering economy following the effects of the coronavirus pandemic. UAE is best known as a tourist destination, evident by its two popular cities, Abu Dhabi and Dubai, which attract many tourists annually (Ebrahim & Memish, 2020). Other than being a tourist destination, UAE is also known for trade in oil and gold. UAE obtains a considerable revenue from air transport, as it is the home to one of the world's largest airlines, "Emirates." Furthermore, Air Arabia and Etihad are also major regional carriers in the UAE (Khan et al., 2021).

The effect on the UAE economy of the measures employed to combat the novel virus is evident. Measures included closing borders and imposing lockdowns within states. Therefore, flights were canceled, making it hard to travel in and out of the country. As a result, revenues from air travel reduced significantly. In addition, travel barriers meant that states could not receive as many tourists as before the pandemic. Some sources report, however, that the UAE airline industry was fairly well prepared to weather the storm (Khan et al., 2021).

Bahrain has an oil and natural gas supply, contributing 85% of its national income. Although the government of Bahrain tried to widen the breadth of its economy by initiating agricultural activities in rural regions some years back, low global energy prices resulted in a small deficit of the country's budget, representing 10% of its GDP in 2017. COVID-19 has hindered the country's plans to recover from its debt, despite a few oil resources and low foreign assets (Abdulla, 2020). Oil and natural gas production has been affected by the pandemic due to the lack of labor in the production field. Studies performed on 2022 indicate that the GDP will decrease by 3% and rise again the following year when the COVID-19 pandemic is resolved. Oil processing industries have shut down to avoid the spread of coronavirus, which has led to a deficit in oil and gas production, leading to a decline in the country's economy (Siddiqui et al., 2021).

The economic performance of Kuwait relies on its employment rate, investments, taxation and other macroeconomic variables. The country's economy is boosted by petroleum product exports. Production rates in industries and factories have contributed to the country's GDP through employment, and the government taxation imposed on such industries. Moreover, international trade has played a key role in stabilizing Kuwait's economy via the country's exports and imports. Economic analysts argue that the good economic performance observed in Kuwait was achieved as a result of full employment in the country, high production rates in factories, maximum trading activities, government taxation on the economic activities of the country, and high investment activities. Financial investment in stock markets via the buying and selling of shares has greatly contributed to a large GDP rate. Banks and other financial institutions also played a role in the country's economic growth by lending loans to investors and facilitating savings (Khan & Alhumoudi, 2022).

## Hypotheses Development

The COVID-19 pandemic has been hitting every state economy, business, industry and employees hard. Governments have been strengthening and facilitating their health departments, making sure they are able to deal with the sick during the COVID-19 pandemic. On the other hand, the speed and rate of infections prevented the cessation of lockdown restrictions. Due to lockdown, many businesses have not been able to employ and pay workers.

Globally, the COVID-19 outbreak has resulted in a high unemployment rate. Many people have lost their jobs following the measures put in place to contain the virus. Therefore, the following hypothesis can be used in relation to the employment rate.

***H<sub>1</sub>: COVID-19 has affected the rate of employment.***

Production rate is a measure of the amount or number of goods that can be produced by an industry, a state or a nation in a given period (Feldstein, 2017). Previous epidemics like the Black Death also resulted in a considerable recession of world economies (Siuda & Sunde, 2017). As with coronavirus, measures such as lockdowns were put in place, and movement was

restricted across the globe. Arguably such measures would have meant that there would be no workers or only a fraction of the usual number of workers working in any given industry (Siuda & Sunde, 2017). This would be expected to culminate in low production rates.

The virus has, therefore, led to a reduction in production levels. Production of industries and SMEs has declined as many have closed.

*H<sub>2</sub>: The production rate of KSA companies has been affected by the COVID-19 pandemic.*

A fall in the price of shares in a country can be caused by factors like political instabilities, natural calamities, and novel diseases that lead to an economic crisis. For example, it is accepted that the world's economic crisis of 2008 and 2009 was associated with losses in worldwide stock market values. The coronavirus pandemic has contributed to a fall in share prices in many countries, leading to low investments in stock markets (Hoque, 2017).

Many investors are afraid of investing in stock markets because of fears around fluctuating and dropping share prices. Saudi Arabia was not exempt to the negative impacts of COVID-19 on the stock market. COVID-19 has led to a fall in stock prices, causing consumers to experience a reduction in their wealth and hence a poor performance of GDP.

*H<sub>3</sub>: The COVID-19 pandemic has led to changes in the value of shares in the Saudi stock exchange market/Tadawul.*

The coronavirus pandemic is a global humanitarian crisis. As it spreads, it is putting governments under huge stress to struggle with saving lives. The availability of air cargo has been limited due to the cancellation of flights and travel bans. Due to an increase in demand for essential products, this has led to higher cost of air freight and air cargo. COVID-19 has contributed to a reduction in the exchange rate due to border restrictions, whereby imports and exports cannot take place.

*H<sub>4</sub>: Export and import quantities have changed due to the pandemic.*

## SAMPLE AND METHODOLOGY

The target population in this research comprises survey respondents anticipated to provide the required research data. In this article, the researcher made use of major companies listed in the KSA.

Saudi Arabian residents and companies made up the sample for the study. The number of respondents was 102. The respondents provided their responses via Google Forms that were sent to them via email and social media. Another sample comprised Saudi Arabian companies that provided relevant data concerning production and employment rates as a result of COVID-19.

Data collection is a way of acquiring information from all the respective sources to answer a research problem. The research focused on both primary and secondary data collection methods. For primary data collection, the researcher used the interview data, which incorporated the presentation of verbal, oral stimuli as well as direct responses. Employment rate, production and output rate, and SMEs were collected as primary data. For secondary data, the researcher involved the Saudi Arabia Government Publications, public reports, and published reports on the KSA listed companies. A stock exchange or securities exchange where traders and stockbrokers sell monetary instruments such as shares and bonds was examined. Gross Domestic Product, the total amount of goods and services provided in Saudi Arabia, was assessed to measure the

country's economy. Information on exports and imports before and after the pandemic was collected as secondary data.

## RESULTS AND DISCUSSION

### Effect of COVID-19 on Employment Rates

The Table 1 below shows responses to the COVID-19 pandemic that affected employment rates. The total number of respondents was 102 people. Thirty-one respondents (30.4%), agreed that the COVID-19 pandemic had affected employment rates. Thirteen respondents (12.7%), disagreed that the COVID-19 pandemic had affected employment rates, while 13 respondents (12.7%), responded stating that they are not sure if the COVID-19 pandemic had affected employment rates. Twenty-nine respondents (28.4%), answered that they strongly agreed that the COVID-19 pandemic had affected employment rates. The remaining 16 respondents (15%), strongly disagreed that the COVID-19 pandemic had affected employment rates.

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	31	30.4	30.4	30.4
Disagree	13	12.7	12.7	43.1
Not Sure	13	12.7	12.7	55.9
Strongly Agree	29	28.4	28.4	84.3
Strongly Disagree	16	15.7	15.7	100.0
Total	102	100.0	100.0	

### Effect of COVID-19 on Production Rate in Industries

From the results collected in the survey, most respondents agreed that industry production rates had been affected by COVID-19, with 48% of the total responses. 32.4% of the respondents strongly agreed that industry production rates had reduced as a result of the COVID-19 pandemic. However, 1% of responses strongly disagreed and disagreed with the question of whether the pandemic had affected industry production rates, while 17.6% of the respondents were not sure whether the pandemic had affected industry production rates Table 2.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	1.0	1.0
	Agree	49	48.0	49.0
	Disagree	1	1.0	50.0
	Not Sure	18	17.6	67.6
	Strongly Agree	33	32.4	100.0
	Total	102	100.0	100.0

### Effect of COVID-19 on Share Prices

The Table 3 below shows how share prices on the stock market exchange were affected by the coronavirus in Saudi Arabia. From the table, it can be seen that the number of respondents

was 102. A total of 39 respondents agreed that the number of share prices was affected by COVID-19. This represented the highest proportion of respondents, at 38.2%. Moreover, an additional 29.4% strongly agreed that the stock exchange market was affected by the pandemic. The results, therefore, show that 67.6% agreed that coronavirus affected market share prices. A small percentage of respondents disagreed with the statement that share prices were affected by coronavirus. In general, the largest percentage of respondents believe that the virus affected stock market share prices.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No Response	6	5.9	5.9	5.9
	Agree	39	38.2	38.2	44.1
	Disagree	3	2.9	2.9	47.1
	Not Sure	23	22.5	22.5	69.6
	Strongly Agree	30	29.4	29.4	99.0
	Strongly Disagree	1	1.0	1.0	100.0
	Total	102	100.0	100.0	

### Effect of COVID-19 on Exports and Imports

From the results Table 4 below, it is clear that the largest proportion of people agreed that COVID-19 impacted exports and imports (35.3%). The percentage of respondents who disagreed stood at 17.6%. Notably, 11.8% were neutral, showing those who neither agreed nor disagreed with the statement. However, 9.8% strongly agreed 24.5% strongly disagreed.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	1.0	1.0	1.0
	Agree	36	35.3	35.3	36.3
	Disagree	18	17.6	17.6	53.9
	Neutral	12	11.8	11.8	65.7
	Strongly Agree	10	9.8	9.8	75.5
	Strongly Disagree	25	24.5	24.5	100.0
	Total	102	100.0	100.0	

## DISCUSSION

Industry production rates have reduced due to COVID-19. Governments have forced industries to take extensive measures such as social distancing and shutting down operations in various branches all over the country, therefore leading to a reduction in production rates. Adhering to the directive to limit the spread of coronavirus, industries have had to introduce social distancing measures which has reduced the number of workers who can be present, thus decreasing production output and, hence, production rates in general. From Table 2 we can see that 49 respondents agreed that that production rates have reduced. Lockdowns and travel restrictions have rendered it difficult for industries to access raw materials, therefore reducing their production. The data shown in Table 2 indicates that a good percentage of respondents (32.4%) agreed and strongly agreed that industry production rates had decreased as a result of the pandemic and, thus, so had economic growth. The economic growth of KSA is directly

proportional to the production rate of its industries. Therefore, as industry production rates decrease, KSA economy growth declines.

From the analysis of market share prices, the researcher determined that COVID-19 had a great impact on the value of shares. The data reveal that share prices on the stock market in Saudi Arabia have decreased. From financial analyses of the financial market, when share prices increase, the economic performance of that particular country also increases. The value of shares in an economy thus fluctuates in accordance with the increase or decrease in GDP. The value of shares in the Saudi Arabian stock exchange market is very low, implying that many investors have been discouraged from investing. The pandemic has caused panic among investors, resulting in a decrease in the value of shares. From the descriptive table, it can be seen that GDP has a mean of 6.7% confirming that the virus affected the country's economic growth.

From the analysis of employment rate data, it is noted that the COVID-19 pandemic has affected many working people. Closures of business, companies and factories has resulted in a large number of people becoming jobless. Some companies have replaced human labor with machines, due to the government policy of maintaining social distancing in order to reduce infections. The replacement of human labor with machines has meant yet more people have lost their jobs. The total lockdown that the country imposed affected employment rates, especially in the transport sector. From the table detailing the effect of COVID-19 on employment rates it is evident that 30.4% of respondents agreed that the pandemic affected employment rates. Buses and coaches, trains and airlines, all of which are sources of revenue and employment, have been impacted. A large number of people who worked in the transport sector were forced to lockdown. The 15% of respondents who strongly disagreed that the COVID-19 pandemic affected employment rates are those who work online or health workers who are forced to continue working during the pandemic. From the analysis, it is clear that a high percentage of people have indeed been affected by the COVID-19 pandemic.

Imports and exports have also been affected. This has occurred due to restrictions at borders that affect the importation and importation of commodities, thus interfering with the balance of payments and leading to reduced economic growth. In the tourism sector, Saudi Arabia depends on international travel by tourists that earn foreign exchange hence boosting the GDP of Saudi Arabia. The results indicated that imports and exports have been considerably affected by the COVID-19 pandemic.

International traders whose jobs required them to travel overseas from Saudi Arabia had no options during lockdown and so have suffered a reduced income. In the long term, this negatively affects the economy of Saudi Arabia. Additionally, the process of import duty being collected in the form of taxes collapsed, hence reducing the government's collection, and negatively affecting the economy.

From the results, it is clear that the aforementioned independent variables have affected the economy of Saudi Arabia. The respondents' responses show that the majority of people strongly agreed that COVID-19 has affected the imports and exports of the nation and that consequently, it has affected the economy of Saudi Arabia as a whole. Similarly, the respondents strongly agreed that COVID-19 has changed the value of shares in Saudi Arabia and because the amount and value of shares is directly proportional to economic growth, a decrease in the value of shares has led to a reduction in the GDP of the country.

## CONCLUSIONS

This study aimed to determine the effect of COVID-19 on economic growth in Saudi Arabia. Economists purport that the economy is affected by many factors, which can include natural calamities and disease outbreaks. The outbreak of the coronavirus in 2019 has greatly affected the economic performance of many countries. The economic activities of many nations globally have dipped into a depression as a result of the coronavirus outbreak. People have lost their jobs, leading to an increase in the number of people living in poverty in the world. Industries have gone bankrupt because of the measures put in place to limit the spread of the coronavirus. Many businesses and SMEs of many countries have recorded poor economic performance since the outbreak began. This research focused on determining the impact of coronavirus on economic growth in KSA. It was found that the virus greatly affected the economic performance of Saudi Arabia, leading to a drop in GDP.

The analysis showed that the production sector, comprising companies and SMEs, reduced their income generation. The employment rate showed a decrease indicating that the virus caused the unemployment of many Saudi Arabian residents. Moreover, a decrease in employment will have resulted in the same impact on the GDP leading to a depression in the economy. Many companies went bankrupt, indicating that they were not prepared for such a calamity in the country. The transportation sector was negatively affected by the measures put in place to contain the virus. Transport restrictions in the country due to lockdown and social distancing measures greatly affected the demand and supply of products, hence negatively affecting GDP. The economic backbone of KSA, which is the price of crude oil, has reduced, causing an economic depression as a result of COVID-19. The economic crisis encountered in Saudi Arabia shows that the government and economists were not well prepared to deal with an outbreak such as that of COVID-19.

**Funding:** This research receive not any funding.

**Data Availability:** The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## REFERENCES

- Abdulla, Y. (2020). Firms' profitability: evidence from Bahrain and Qatar. *International Journal of Economics and Business Research*, 19(1), 70-87.
- Atkeson, A. (2020). What will be the economic impact of COVID-19 in the US? Rough estimates of disease scenarios (No. w26867). *National Bureau of Economic Research*.
- Cachanosky, N., & Salter, A.W. (2017). The view from Vienna: An analysis of the renewed interest in the Mises-Hayek theory of the business cycle. *The Review of Austrian Economics*, 30(2), 169-192.
- Ceylan, R.F., Ozkan, B., & Mulazimogullari, E. (2020). Historical evidence for economic effects of COVID-19. *The European Journal of Health Economics*, 1.
- Davidson, H. (2020). Coronavirus Deals China's Economy a 'Bigger Blow than Global Financial Crisis'. *The Guardian*.
- Daw, M.A. (2020). Coronavirus infection in Syria, Libya and Yemen; an alarming devastating threat. *Trav Med Infect Dis*, 101652.
- Ebrahim, S.H., & Memish, Z.A. (2020). Saudi Arabia's drastic measures to curb the COVID-19 outbreak: temporary suspension of the Umrah pilgrimage. *Journal of Travel Medicine*, 27(3), taaa029.
- Feldstein, M. (2017). Underestimating the real growth of GDP, personal income, and productivity. *Journal of Economic Perspectives*, 31(2), 145-64.



- Fernandes, N. (2020). Economic effects of coronavirus outbreak (COVID-19) on the world economy. Available at SSRN 3557504.
- Fu, Q., Cherian, J., Rehman, K., Samad, S., Khan, M. A., Athar Ali, M., Cismas, L. M., & Miculescu, A. (2022). Enhancing Employee Creativity in the Banking Sector: A Transformational Leadership Framework. *Sustainability, 14*(8), 4643.
- Hoque, M.E., & Yakob, N.A. (2017). Revisiting stock market development and economic growth nexus: The moderating role of foreign capital inflows and exchange rates. *Cogent Economics & Finance, 5*(1), 1329975.
- Khan, M.A. (2021). *Financial analysis of dairy companies in India A comparative study of selected companies. June..*
- Khan, M.A., & Alhumoudi, H.A. (2022). Performance of E-Banking and the Mediating Effect of Customer Satisfaction: A Structural Equation Model Approach. *Sustainability, 14*(12), 7224.
- Khan, M.A., & Minhaj, S.M. (2021). Performance of online banking and direct effect of service quality on consumer retention and credibility of consumer and mediation effect of consumer satisfaction. *International Journal of Business Information Systems, 1*(1), 1.
- Khan, M.A., & Minhaj, S.M. (2022). Dimensions of E-Banking and the mediating role of customer satisfaction: a structural equation model approach. *International Journal of Business Innovation and Research, 1*(1), 1.
- Khan, M.A., Kamal, T., Illiyan, A., & Asif, M. (2021). School students' perception and challenges towards online classes during covid-19 pandemic in india: An econometric analysis. *Sustainability (Switzerland), 13*(9).
- Khan, M.A., Khan, M.I., Illiyan, A., & Khojah, M. (2021). The economic and psychological impacts of COVID-19 pandemic on Indian migrant workers in the Kingdom of Saudi Arabia. *Healthcare (Switzerland), 9*(9).
- Khan, M.A., Roy, P., Siddiqui, S., & Alakkas, A.A. (2021). Systemic Risk Assessment: Aggregated and Disaggregated Analysis on Selected Indian Banks. *Complexity, 2021*.
- Khan, M.A., Vivek, Nabi, M.K., Khojah, M., & Tahir, M. (2021). Students' perception towards e-learning during covid-19 pandemic in India: An empirical study. *Sustainability (Switzerland), 13*(1), 1-14.
- Khan, M.A., Vivek, V., Khojah, M., Nabi, M. K., Paul, M., & Minhaj, S. M. (2021). Learners' perspective towards e-exams during covid-19 outbreak: Evidence from higher educational institutions of India and Saudi Arabia. *International Journal of Environmental Research and Public Health, 18*(12).
- Khan, M.A., Zeeshan, K., Ahmad, M.F., Alakkas, A.A., & Farooqi, M.R. (2021). A Study of Stock Performance of Select Ipos in India. *Academy of Accounting and Financial Studies Journal, 25*(6), 1-11.
- Siddiqui, M.S., Siddiqui, U.A., Khan, M.A., Alkandi, I.G., Saxena, A.K., & Siddiqui, J.H. (2021). *Creating Electronic Word of Mouth Credibility through Social Networking Sites and Determining Its Impact on Brand Image and Online Purchase Intentions in India. 1008-1024.*
- Siuda, F., & Sunde, U. (2017). Disease and Demographic Development: The Legacy of the Black Death. June 2017. Mimeo.
- Stockhammer, E. (2018). Demand regimes, financialisation and hysteresis: New Keynesian and post-Keynesian macroeconomic underpinnings of the Varieties of Capitalism (No. PKWP1809).
- Takian, A., Raoofi, A., & Kazempour-Ardebili, S. (2020). COVID-19 battle during the toughest sanctions against Iran. *Lancet (London, England), 395*(10229), 1035.
- Zhang, Y., Nie, R., Shi, R., & Zhang, M. (2018). Measuring the capacity utilization of the coal sector and its decoupling with economic growth in China's supply-side reform. *Resources, Conservation and Recycling, 129*, 314-325.

**Received:** 03-Oct-2022, Manuscript No. AAFSJ-22-12645; **Editor assigned:** 05-Oct-2022, PreQC No. AAFSJ-22-12645(PQ); **Reviewed:** 19-Oct-2022, QC No. AAFSJ-22-12645; **Revised:** 22-Oct-2022, Manuscript No. AAFSJ-22-12645(R); **Published:** 29-Oct-2022