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Investigation of the South African Economy Performance: A Pre, During and Post Covid-19 Era Assessment

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Abstract: The COVID-19 brought disruptions and decline in the economic performance of many countries most especially countries that are less resilient to economic disruptions. Thus, the purpose of this study is to investigate the economic performance of South Africa before, during and after the COVID-19 periods. To measure the economic performance of the South Africa during these periods, secondary data was employed and grouped as follows: national income and prices, labour market, Savings and investment, fiscal position, money and credit, and balance of payments. The descriptive analysis, correlation analysis as well as Wilcoxon signed-rank test were carried out on the dataset using the Statistical Package for Social Science (SPSS) 2022 version. The results obtained indicated some improvements in certain economic indicators such as gross national savings, Gross Domestic Product (GDP), export and import growth as well as gross reserves during the COVID and post COVID periods. Nevertheless, the country witnessed a decline in performance of some economic indicators such as employment rate, public investment, public savings, unit labour rate, gross government debt, annual consumer price inflator, broad money, credit to private sector, current account balance and terms of trade for all the periods. The results further indicate a gradual improvement in the areas of private investment, revenue, expenditure and lending, overall, primary and structural balances after the COVID-19 era. The findings obtained in this study may assist the government, public and private sectors to make informed decisions to promote South Africa's economic development and resilience.

Keywords: Economic development, Economic Indicators and performance, Economic resilience

Introduction

South Africa moved into the covid-19 pandemic era with significant risks and vulnerabilities. Some of these risks and vulnerabilities include high fiscal deficit, decline in revenues, increasing public debt profiles, unemployment, and inequality issues (IMF Report, 2022). Many small and medium scale enterprises most especially the state owned enterprises battled with sustainability issue which weighed on public finances, thereby increasing the pressure on government expenditure. However, efforts were made to address these risks and vulnerabilities through fiscal policies, and development of resilient financial institutions (most especially the banking sector). This is to forestall any increase in public debt and alleviate the risk of insolvency by the financial sector and the national economy. The South African financial institutions were among the key players that played a decisive role in cushioning the negative impact of covid-19 on the South African economy. The Report of the South African National Treasury Policy (2011) indicated that the South African financial institutions are the heart of country's economy because they provide financial services sector and also impacts the lives of the citizens positively. The services of these financial institutions allow people to make daily

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economic transactions, save and preserve wealth in order to meet the present and needs. Not only that, they also insure against unforeseen situations or disaster. At the macroeconomy level, the financial institutions enable economic growth through job creation, development of vital infrastructure and support sustainable development of the country and the citizens (National Treasury Policy Report, 2011). The South African financial sector is a large and multifaceted in nature. It comprises of the banks, insurance companies, collective investment schemes, state owned financial institutions, pension funds and the South African Reserve bank. The banks account for almost 120% of the Gross Domestic Product (GDP), while the five largest banks namely Standard bank, FirstRand, ABSA, Nedbank and Investec account for almost 90% estimated at approximately R5.8 trillion. (Statista Report, 2022). The report of the International Monetary Fund (2019) described the South African financial institutions as developed, sophisticated and resilient. Moyo (2018) indicated that the South African banking sector is competes favourably with other banking sector globally. According to the Financial Sector Conduct Authority (FSCA, 2021), the South African credit market is highly developed and formally provides credit to almost half of the South African population. Thus, indicating the strength of the South African financial institution.

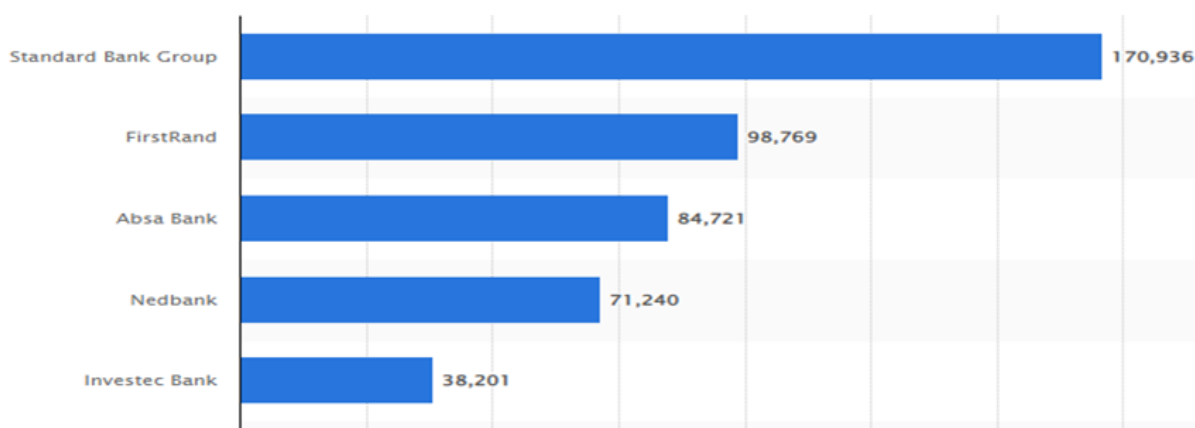


Figure 1. Leading banks in South Africa as of 2022, by assets. Source: Statista report (2022)

Figure 1. Shows the five biggest banks in South Africa according to their assets. The share of the total assets of the South African financial institutions at the end of 2020 is shown in Figure 2.

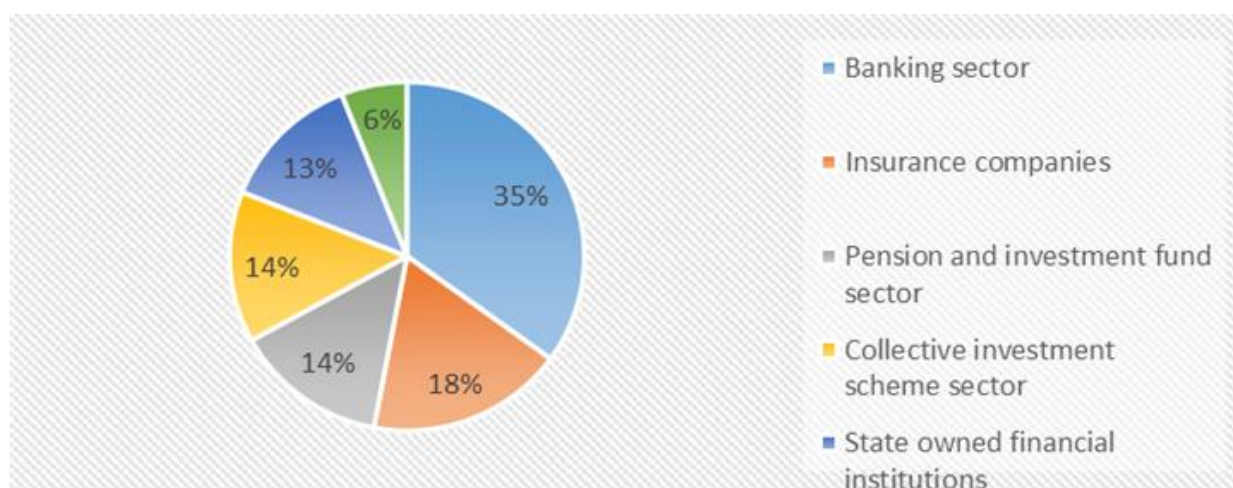


Figure 2. The structure of the South African financial institutions by the end of 2020, Source: International monetary fund (IMF, 2022)

According to the IMF report (2022), the banking sector account for the largest share of the total asset of the financial institution representing 35%. The insurance industry is the second largest industry in the South African financial institution after the banks accounting for 18% of the total asset of the financial institution. However, there is significant variation in the risk profiles of the insurance industry. The pension and investment funds sector as well as the collective investment scheme sector represent a major part of the financial institution each accounting for 14% of the total asset of the financial institution. The state owned financial institutions account for 13% of the total asset of the financial institution while the South African Reserve Bank (SARB) account for the least percent (6%) of the total asset of the South African financial institution. This implies that the South

African financial institution is dominated by the banking sector, insurance industry as the pension and investment funds sector. The Financial Technology sector known as the (Fintech) sector focuses primarily on payments, lending activities, support to business-to-business etc. is small but rapidly growing. The oversight function performed to the financial sector is robust and this reflects the commitment to supervision and implementation of international practices and standards. However, the dynamic and challenging business environment demands more supervision and full implementation of the market conduct framework (IMF, 2022).

The South African banking sector is regulated by the South Africa Reserve Bank (SARB) (SARB, 2020). The SARB protects the South African currency's value by regulating the activities of the South African banks and financial institutions to ensure that their in order to ensure a balanced, and sustainable economic growth (SARB, 2020). Thus, the SARB serves as a common platform that regulates the activities of the South African banks and financial institutions in line with the Banks Act (No. 94 of 1990), or the Mutual Banks Act (No. 124 of 1993) (SARB, 2020).

The implementation of emerging digital technologies and innovation has helped the financial institutions in South Africa to combat disruption resulting from natural sources such as the pandemic and cyberattacks amongst others. The digital innovations deliver new and cost effective operating models that is integrated into the organisation's business processes (PwC Report, 2019). This promotes seamless delivery of quality services to the customers both physically and remotely (PwC Report, 2019). The sophistication of the South African financial institution was demonstrated by its resilience during the covid-19 pandemic resulting in minimal disruption. Customers now embrace mobile digital payments and other online platforms for transactions. According to FSCA (2021), the total value of cash payments made between 2019 and 2020 decreased by 1.3% from an average of R12.5 trillion to R12.4 trillion due to the national lockdowns due to covid-19. In the same vein, card payments accounts for 38% of the total volume of transactions made in 2020. There was an expected drop in payment activity in March and April 2020, but as lockdowns eased, consumers began transacting again, as illustrated in the figure below. FSCA (2021), reported that customers preferred contactless transactions in 2020 compared to 2019. Following the post covid-19 era, many customers have gotten accustomed to remote and online banking. This seems easy and fast when there is stable Internet connection but with the risk of cyberfraud. The increase in the number of digital payment method has been driven by the exponential growth in online transactions since the outbreak of covid-19 pandemic in March 2020 which led to incessant lockdowns. People opted more for contactless transactions as well as remote and online banking which resulted to an increase in the volume of transactions carried out on the debit or credit cards. This also led to an increase in the number of fraud cases relating to debit or credit card (PwC report, 2020). As part of the measures to combat this, the banking industry introduced the virtual cards that is digitally driven to make payments. Since 2020, the South African banking industry has consistently witnessed growth in the use of virtual cards, for instance, in 2020, standard bank reported a 400% increase in the number of virtual cards issued to customers, while FNB reported over R1 billion in the payments with the use of the virtual cards. Compared to other forms of digital payments such as credit cards, the use of the virtual card is considered as a safe means of transaction. It is a unique payment card having its number generated digitally and can allow customers to make payments or shop online without any exposure of the card details. This prevents the fraudsters from accessing the confidential information on the card (FSCA, 2021). The leading financial institutions appear liquid in their baseline with adequate capital or cash flows but they may face capital depletion due to financial stress in the absence of proper supervision, and policy framework implementation. Although the impact of Covid-19 on the financial institutions has been contained, but there is a need to ensure the sustainability of the financial institutions in South Africa. This is due to the increasing nature of the risks they are faced with. Some of these risks include: lack of fiscal reforms, fiscal contingencies from poor performing state-owned enterprises, cyber-attack, public sector indebtedness, sovereign risk, global financial instability amongst others (IMF, 2022). According to the Global Financial Stability Report (2020), capital flow into South Africa is becoming increasingly volatile due to a major decline in foreign participation in the domestic market that was worsened during the covid-19 era. However, a strong domestic investor base seems to offset this volatility. Thus, the dynamic business environment necessitates thorough supervision, and governance and the incorporation of the climate change risks in financial stress testing framework. In addition, the financial sector may benefit from reforms to foster market entry and increase capital market financing (IMF, 2022).

Mongale and Monkwe (2015) indicated that some of the variables that influence economic sustainability and growth in South Africa include real GDP, export, import and infrastructure investment amongst others. Mongale *et al.* (2018) further identified credit extensions, leasing finance, and household saving as some of the variables that influences the South African economy. Authors such as Mahlo (2011), Mongale *et al.* (2013), Amusa (2014) and Chipote and Tseyage (2014), concurred that the level of domestic savings in countries such as South Africa is necessary for economic growth if the savings are directed towards profitable and appropriate

investment opportunities. According to the authors, these variables are interrelated and can influence economic growth, either positively or negatively. Some authors also opined that the level of a country's export is one of the leading indicators of economic indicators (Westphal, 2002; Palley 2011; Shahid, 2013; Maswanganyi, 2014). However, not many studies have investigated the performance of the South African economy in relation to some of the identified indicators. This is the focal area of the study with the aim to highlight the performance of the South African economy before, during and after COVID-19 periods.

The study also aims to make implementable recommendations on how the economic status of South Africa can be more sustainable. The findings obtained in this study may assist the government, public and private sectors to make an informed decisions on the areas where improvements are needed to promote South Africa's economic development and resilience.

Methodology

To measure the economic performance of the South Africa, the South African economic indicators compiled by the IMF (2022) from 2016-2021 (estimated dataset) and 2022-2023 (projected dataset) were used in this study as the secondary source of data. The economic indicators were grouped as follows: national income and prices, labour market, Savings and investment, fiscal position, money and credit, and balance of payments. These selected economic indicators are indices that summarises the economic activities in South Africa. They are useful in analysing the country's economic performance and in projecting into the future performance

Furthermore, since the financial institutions are the heart of the South African's economy, the economic indicators can be used to evaluate the performance of country's financial markets and institutions as well as the standard of living of people in the country. Thus, experts can employ the economic indices and the findings obtained in this study to assess the strengths, weaknesses and vulnerabilities of the financial institutions in the country. This is crucial to policy formulation and implementation, development and implementation of regulatory frameworks and projection of future performance of the financial institutions and economic soundness of the country.

38 quantitative variables between 2018 and 2023 were employed in this study and multiple regression analysis was carried out. The selected economic indicators are presented in Table 1. The dataset was analyses using the Statistical Package for Social Science (SPSS) 2022 version. First the descriptive analysis including the mean and standard deviation were carried out to provide basic information about variables in the dataset and to highlight the possible relationships between variables. This will allow expert to view at a glance the economic performance of the country. Secondly, the correlation matrix analysis was carried out. The essence of the correlation matrix is to investigate whether there is a relationship between the economic indicators. The existence of a relationship between the variables implies that the performance of one could enhance an increase or decrease in the performance of the other as it relates to the economic well-being of the country. A correlation value of -1 indicates that there is a perfectly negative linear correlation between two variables, while a value of 0 indicates.

That there is no linear correlation between two variables. On the other hand, a correlation value of 1 indicates that there is perfectly positive linear correlation between two variables (*Qadri et al., 2023*). In addition, the Wilcoxon signed-rank test was carried out on paired samples in order to determine whether there is a statistical difference between the samples or not. When the p value > 0.05 , the null hypothesis is accepted and conclusion is made that there may be no significant difference between the paired variables at 95% confidence level. On the contrary, when the p value < 0.05 , the null hypothesis is rejected and conclusion is made that there is a statistical difference between the paired variables (*Qadri et al., 2023*).

The variables are paired according to the years of the dataset. For instance the economic indicator data set from 2008-2019 is referred to as the "pre-covid era" while the one from 2020-2021 is tagged "covid era". Conversely, the dataset from 2022-2023 is tagged "post covid era".

The following are the assumptions underlying the Wilcoxon signed-rank test:

1. The dependent variable (economic performance) is measured on a continuous level.
2. The independent variables (economic indicators) are related groups.

Table 1. South Africa's economic indicators

Variable	Description	Variable	Description
National income and prices		Money and credit	
X ₁	Real GDP	X ₂₂	Broad money
X ₂	Real GDP per capital	X ₂₃	Credit to private sector
X ₃	Real domestic demand	X ₂₄	Repo rate
X ₄	GDP deflator	X ₂₅	3 month treasury bill interest rate
X ₅	Consumer Price Inflator (Annual average)	Balance of payments	
X ₆	Consumer Price Inflator (end of period)	X ₂₆	Current account balance
Labour market		X ₂₇	Current account balance (%) of GDP
X ₇	Unemployment rate	X ₂₈	Export growth
X ₈	Unit labour cost	X ₂₉	Import growth
Savings and investment		X ₃₀	Terms of trade
X ₉	Gross national saving	X ₃₁	Overall balance
X ₁₀	Public saving (including public enterprise)	X ₃₂	Gross reserve
X ₁₁	Private saving	X ₃₃	Gross reserve in percent of ARA (Without CFM)
X ₁₂	National investment (including inventories)	X ₃₄	Gross reserve in percent of ARA (With CFM)
X ₁₃	Public investment	X ₃₅	Total external debt (% GDP)
X ₁₄	Private investment	X ₃₆	Nominal effective exchange rate (period average)
Fiscal position		X ₃₇	Real effective exchange rate
X ₁₅	Revenue	X ₃₈	Exchange rate
X ₁₆	Expenditure and net lending		
X ₁₇	Overall balance		
X ₁₈	Primary balance		
X ₁₉	Structural balance		
X ₂₀	Gross government debt		
X ₂₁	Government bond yield		

ARA (Accessing Reserve Adequacy); CFM (Capital Flow Management). Source: IMF Report (2022)

Results and Discussion

Table 2 presents the descriptive statistics of the dataset employed. The variation in the dataset can be observed at a glance in Table 2. The standard error measures the variability of the economic indicators and can be used to estimate the accuracy, and consistency of the samples. The smaller the magnitude of the standard error, the more representative the sample is in relation to the overall population and vice versa (Kenton, 2022). The standard deviation measures the amount of variance or dispersion of the data dispersed around the mean. The standard deviation statistic is useful in determining the validity of the data based on the number of data points displayed (Kenton, 2022). The higher value the value of the standard deviation and variance of a particular dataset, the more dispersed the observations (or data points) around the mean (Yeo & Cacciatore, 2017).

Table 2. The descriptive statistics of the dataset employed

Variables	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉
Mean	0.6333	-0.7500	1.1500	4.5667	4.2333	4.3000	31.5000	4.3667	14.2667
Std. error	1.55578	1.59515	1.98036	0.43640	1.9944	0.28868	1.46310	0.13581	0.47796
Std. deviation	3.81086	3.00730	4.85088	0.106896	0.48854	0.70711	3.58385	0.33267	1.17075
Variance	14.523	15.267	23.531	1.143	0.239	0.5000	12.844	0.111	1.371
Variables	X ₁₀	X ₁₁	X ₁₂	X ₁₃	X ₁₄	X ₁₅	X ₁₆	X ₁₇	X ₁₈
Mean	-0.5000	14.7667	14.8167	3.9500	10.3333	25.9167	32.8500	-6.8500	-2.5833
Std. error	0.76681	1.16638	0.59521	0.20777	0.24313	0.27497	0.79614	1.03851	0.96451
Std. deviation	1.87830	2.85704	1.45797	0.50892	0.59554	0.67355	1.95013	2.54382	2.36256
Variance	3.2528	8.163	2.126	0.259	0.355	0.454	3.803	6.471	5.582

Variables	X ₁₉	X ₂₀	X ₂₁	X ₂₂	X ₂₃	X ₂₄	X ₂₅	X ₂₆	X ₂₇
Mean	-4.6167	65.5500	9.5500	6.3500	3.3333	5.0750	5.6500	-2.5500	-0.5667
Std. error	0.30046	3.82333	0.23274	0.90213	1.08341	0.91139	0.87797	4.01769	1.02198
Std. deviation	0.73598	9.36520	0.46547	2.20975	2.65380	1.82277	1.75594	9.84129	-2.50333
Variance	0.542	87.707	0.217	4.883	7.043	3.323	3.083	96.851	6.267
Variables	X ₂₈	X ₂₉	X ₃₀	X ₃₁	X ₃₂	X ₃₃	X ₃₄	X ₃₅	X ₃₆
Mean	0.7500	2.8500	2.3833	0.0833	56.7833	77.0167	84.6167	46.5667	-2.0000
Std. error	3.27473	4.61727	2.45131	0.28916	1.34745	1.50895	1.72538	2.08689	4.18290
Std. deviation	8.02141	11.30995	6.00447	0.70828	3.30056	3.69617	4.22631	5.11182	8.36580
Variance	64.343	127.915	36.054	0.502	10.894	13.662	17.862	26.131	69.987
Variables	X ₃₇	X ₃₈							
Mean	0.5000	14.4250							
Std. error	4.28622	0.15478							
Std. deviation	8.57244	0.30957							
Variance	73.487	0.098							

Table 3. Presents the correlation matrix of the economic indicators. The table highlights the pair of variables that have a relationship with each other (significant correlation) at 0.01 level (2-tailed) and at 0.01 level (2-tailed)

Table 3. The correlation matrix of the economic indicators

Var	X ₂	X ₃	X ₄	X ₅	X ₆	X ₈	X ₁₈	X ₂₉	X ₃₁	X ₃₅	X ₃₆	X ₃₇
X ₁	1.000	0.988	0.981	0.892	0.898	0.832	0.962	0.983	0.847	0.879	0.957	0.988
X ₂	0.988**	1.000	0.972**	0.866*	0.893*	0.856*	0.971**	0.978**	0.867*	0.853*	0.966*	0.994**
X ₃	0.981**	0.972**	1.000	0.894*	0.839*	0.856*	0.900*	0.993**	-	-0.878*	-	0.975*
X ₄	0.892*	0.866*	0.894*	1.000	0.897*	0.943**	0.818*	0.871*	-	-0.998**	-	-
X ₅	0.898*	0.893*	0.839*	0.897*	1.000	-	0.932**	0.862*	-	-0.881*	-	-
X ₆	0.832*	0.856*	0.856*	0.943**	-	1.000	-	-	-	-0.955**	-	-
X ₈	0.993**	0.971**	0.900*	0.818*	0.932**	-	1.000	0.929**	0.813*	-	0.998**	-
X ₁₈	0.983**	0.978**	0.993**	0.871*	0.862*	-	0.929**	1.000	-	0.850*	0.964*	0.995*
X ₂₉	0.847*	0.867*	-	-	-	-	0.813*	-	1.000	-	-	0.960*
X ₃₁	0.879*	0.853*	-0.878*	-0.998**	-0.881*	-0.955**	-	0.850*	-	1.000	-	-
X ₃₅	0.957*	0.966*	-	-	-	-	0.998**	0.964*	-	-	1.000	0.981*
X ₃₆	0.988*	0.994**	0.975*	-	-	-	0.986*	0.995*	0.960*	-	0.981*	1.000
Var	X ₂₅	X ₃₀										
X ₁₄	0.963*	0.895*										
Var	X ₁₃	X ₂₀	X ₃₂	X ₃₃	X ₃₄							
X ₇	0.884*	0.878*	0.906*	0.920**	0.919**							
Var	X ₁₁	X ₁₄	X ₁₅	X ₂₆	X ₂₇							
X ₉	0.898*	-0.836*	-0.823*	0.950**	0.932**							
Var	X ₈	X ₁₁	X ₁₂	X ₁₄	X ₁₅	X ₁₆	X ₁₇	X ₁₈	X ₂₂	X ₂₄	X ₂₆	X ₂₇
X ₁₀	0.874*	-0.962**	0.988**	0.858*	0.839*	0.945**	0.974**	0.922**	-0.818*	0.965**	-0.908*	-0.929**
Var	X ₉	X ₁₀	X ₁₂	X ₁₄	X ₁₅	X ₁₆	X ₁₇	X ₁₈	X ₂₄	X ₂₅	X ₂₆	X ₂₇
X ₁₁	0.898*	-0.962**	-0.972**	0.907*	-0.889*	0.864**	-0.922**	-0.929**	-	-0.990**	0.986**	0.993**
Var	X ₈	X ₁₀	X ₁₁	X ₁₄	X ₁₅	X ₁₆	X ₁₇	X ₁₈	0.999**			
X ₁₂	0.822*	0.988**	0.972**	0.907*	0.822*	-0.954**	0.985**	0.970**	0.983*	-0.939**	-0.956**	
Var	X ₇	X ₁₄	X ₁₉	X ₂₀	X ₃₂	X ₃₃	X ₃₄					
X ₁₃	-0.884*	0.818*	0.900*	-0.939**	-0.965**	-0.935**	-0.941**					
Var	X ₉	X ₁₀	X ₁₁	X ₁₂	X ₁₄	X ₂₆	X ₂₇	X ₃₈				
X ₁₅	-0.823*	0.839*	-0.889*	0.822*	0.826*	-0.858*	-0.876*	-0.978*				
Var	X ₂₅	X ₃₀										
X ₄	-0.963*	0.895*										
Var	X ₈	X ₁₀	X ₁₁	X ₁₂	X ₁₄	X ₁₇	X ₁₈	X ₂₆	X ₂₇			
X ₁₆	-0.882*	-0.945**	0.864*	-0.954**	-0.835*	-0.988*	-0.952**	0.812*	0.837*			
Var	X ₈	X ₁₀	X ₁₁	X ₁₂	X ₁₄	X ₁₆	X ₁₈	X ₂₄	X ₂₆	X ₂₇		
X ₁₇	0.858*	0.974**	-0.922**	0.985**	0.895*	-0.988*	0.966**	0.951*	0.877*	-0.902*		
Var	X ₈	X ₁₀	X ₁₁	X ₁₂	X ₁₆	X ₁₇	X ₂₂	X ₂₆	X ₂₇	X ₃₅		
X ₁₈	0.914*	0.992**	-0.929**	0.970**	-0.952**	0.966**	-0.835*	-0.863*	-0.885*	-0.827*		
Var	X ₁₃	X ₁₄	X ₂₀	X ₂₄								
X ₁₉	0.900*	0.846*	-0.980**	0.968**								

Var	X7	X13	X19	X24	X25	X32	X33	X34						
X20	0.878*	-0.939**	-0.980**	-0.989*	-0.964*	-0.852*	0.827*	0.832*						
Var	X18													
X21	0.960*													
Var	X10	X18	X24	X30										
X22	-0.818*	-0.835*	-0.975*	0.912*										
Var	X23													
X31	0.819*													
Var	X10	X11	X12	X14	X17	X19	X20	X21	X25	X26				
X24	0.965*	-0.999**	0.983*	0.991**	0.951*	0.968*	-0.989*	-0.975*	0.986*	-0.993*				
Var	X4	X11	X14	X20	X24	X26	X27							
X25	-0.963*	-0.990**	0.991*	-0.964*	0.986*	-0.998**	-0.998**							
Var	X9	X10	X11	X12	X14	X15	X16	X17	X24	X25	X27			
X26	0.950*	-0.900**	-0.986**	-0.939**	-0.915*	-0.858*	0.812*	-0.863*	-0.985*	-0.998**	-0.998**			
Var	X9	X10	X11	X12	X14	X15	X16	X17	X18	X24	X25	X25		
X27	0.932**	-0.929**	0.993**	-0.956**	-0.929**	-0.876*	-0.873*	-0.902*	-0.885*	-0.993**	-0.998**	-0.998**		
Var	X9	X10												
X30	0.895*	0.912*												
Var	X7	X13	X20	X33	X34									
X32	0.906*	-0.965**	0.852*	0.986**	0.990**									
Var	X7	X13	X20	X33	X34									
X33	0.920*	-0.935**	0.827*	0.986**	1.000**									
Var	X7	X13	X20	X33	X34									
X34	0.919**	-0.941**	0.832*	1.000**	0.990**									
Var	X15	X21												
X38	-0.978*	0.960*												

Legend: ** Correlation is significant at 0.01 level (2-tailed), * Correlation is significant at 0.05 level (2-tailed)
 Source: Statistical computation obtained from SPSS

Table 4 presents the test statistics in terms of the Z-test value and asymptotic significance (2-tailed) while Table 5 presents the outcome of the Wilcoxon signed-rank test carried out. The results presented in both Tables 4 and 5 were used to determine the performance of the economic indicators before, during and after the COVID-19 pandemic.

Table 4. The test statistics

S/N	Economic Indicator	Pre-COVID & during COVID era		during COVID & Post COVID era		Pre-COVID & post COVID era	
		Z-Value	P-value	Z-Value	P-value	Z-Value	P-value
1.	Real GDP	-0.447 ^b	0.665	-0.447 ^b	0.665	-1.342 ^b	0.180
2.	Real GDP per capital	-0.447 ^b	0.665	-0.447 ^b	0.665	-1.342 ^b	0.180
3.	Real domestic demand	-0.447 ^b	0.665	-0.447 ^b	0.665	-1.342 ^b	0.180
4.	GDP deflator	-1.342 ^b	0.180	-1.342 ^b	0.180	-0.447 ^b	0.665
5.	Consumer Price Inflater (Annual average)	-0.447 ^b	0.665	-1.342 ^b	0.180	-0.447 ^b	0.665
6.	Consumer Price Inflater (end of period)	-0.447 ^b	0.665	-0.447 ^b	0.665	-0.447 ^b	0.665
7.	Unemployment rate	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
8.	Unit labour cost	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
9.	Gross national saving	-1.414 ^c	0.157	-1.342 ^b	0.180	-1.342 ^b	0.180
10.	Public saving (including public enterprise)	-1.414 ^c	0.157	-1.342 ^b	0.180	-1.342 ^b	0.180
11.	Private saving	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
12.	National investment (including inventories)	-1.342 ^b	0.180	-1.342 ^b	0.180	-0.447 ^b	0.665
13.	Public investment	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
14.	Private investment	-0.447 ^b	0.665	-0.447 ^b	0.665	-1.342 ^b	0.180
15.	Revenue	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
16.	Expenditure and net	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180

	lending						
17.	Overall balance	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
18.	Primary balance	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
19.	Structural balance	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
20.	Gross government debt	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
21.	Government bond yield	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
22.	Broad money	-1.414 ^c	0.157	-1.342 ^b	0.180	-1.342 ^b	0.180
23.	Credit to private sector	-1.414 ^c	0.157	-0.447 ^b	0.665	-0.447 ^b	0.665
24.	Repurchase agreement (Repo) rate	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
25.	3 month treasury bill interest rate	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
26.	Current account balance	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
27.	Current account balance (%) of GDP	-1.342 ^b	0.180	-1.342 ^b	0.180	-0.447 ^b	0.665
28.	Export growth	-0.447 ^b	0.665	-0.447 ^b	0.665	-0.447 ^b	0.665
29.	Import growth	-0.447 ^b	0.665	-0.447 ^b	0.665	-1.342 ^b	0.180
30.	Terms of trade	-1.342 ^b	0.180	-0.447 ^b	0.665	-1.342 ^b	0.180
31.	Overall balance	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
32.	Gross reserve	-1.342 ^b	0.180	-1.342 ^b	0.180	-0.447 ^b	0.665
33.	Gross revenue in percent of ARA (Without CFM)	-0.447 ^b	0.665	-1.342 ^b	0.180	-1.342 ^b	0.180
34.	Gross revenue in percent of ARA (With CFM)	-1.342 ^b	0.180	-1.342 ^b	0.180	-1.342 ^b	0.180
35.	Total external debt (% GDP)	-0.447 ^b	0.665	-1.342 ^b	0.180	-0.447 ^b	0.665
36.	Nominal effective exchange rate (period average)	-1.342 ^b	0.180	-0.447 ^b	0.665	-1.342 ^b	0.180
37.	Real effective exchange rate	-1.342 ^b	0.180	-0.447 ^b	0.665	-1.342 ^b	0.180
38.	Exchange rate	-1.342 ^b	0.180	-0.447 ^b	0.665	-1.342 ^b	0.180

Legend

- a. Wilcoxon signed rank test
- b. Based on negative ranks
- c. Based on positive ranks

Table 5. Results of the wilcoxon signed-rank test

Economic indicator (Variable)	Ranks	Pre-COVID & During COVID era			During COVID & Post COVID era			Pre-COVID & post COVID era			Remarks
		N	Mean rank	Sum of ranks	N	Mean rank	Sum of ranks	N	Mean rank	Sum of ranks	
Real GDP	Negative ranks	1 ^a	2.00	2.00	1 ^a	2.00	2.00	0 ^a	0.00	0.00	No statistical difference in the real GDP by comparing the pre-COVID and COVID era as well as COVID and post COVID era.
	Positive ranks	1 ^b	1.00	1.00	1 ^b	1.00	1.00	2 ^b	1.50	3.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			

											However, the real GDP improved slightly when comparing the pre-COVID to the post-COVID era
Real GDP per capital	Negative ranks	1 ^a	2.00	2.00	1 ^a	2.00	2.00	0	0.00	0.00	No statistical difference in the real GDP per capital by comparing the pre-COVID and COVID era as well as COVID and post-COVID era. However, the real GDP per capital improved slightly when comparing the pre-COVID to the post-COVID era.
	Positive ranks	1 ^b	1.00	1.00	1 ^b	1.00	1.00	2 ^b	1.50	3.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Real domestic demand	Negative ranks	1 ^a	2.00	2.00	1 ^a	2.00	2.00	0 ^a	0.00	0.00	No statistical difference in the real domestic demand by comparing the pre-COVID and COVID era as well as COVID and post-COVID era. However, there is an improvement in the real domestic demand by comparing the pre-COVID to the post-COVID era
	Positive ranks	1 ^b	1.00	1.00	1 ^b	1.00	1.00	2 ^b	1.50	3.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
GDP deflator	Negative ranks	0 ^a	0.00	0.00	2 ^a	1.50	3.00	1 ^a	2.00	2.00	GDP deflator increased by comparing the pre-COVID and COVID era. However, the value of GDP deflator decreased slightly when comparing the
	Positive ranks	2 ^b	1.50	3.00	0 ^b	0.00	0.00	1 ^b	1.00	1.00	
	Ties	0 ^c			0 ^c			0 ^c			

	Total	2		2		2					COVID era to the post COVID era as well as the pre-COVID to the post-COVID era
Consumer Price Inflation (CPI, Annual average)	Negative ranks	1 ^a	2.00	2.00	0 ^a	0.00	0.00	1 ^a	1.00	1.00	For CPI (annual average), there is no statistical difference by comparing the pre-COVID and COVID era (In other words, no significant changes in the process of goods and services). However, it increased when comparing the COVID era to the post-COVID era. There is no statistical difference by comparing the pre-COVID to the post-COVID era.
	Positive ranks	1 ^b	1.00	1.00	2 ^b	1.50	3.00	1 ^b	2.00	2.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Consumer Price Inflation (CPI, end of period)	Negative ranks	1 ^a	2.00	2.00	1 ^a	1.00	1.00	1 ^a	1.00	1.00	No statistical difference in the CPI (end of the period) by comparing all the periods (pre, COVID and post-COVID periods).
	Positive ranks	1 ^b	1.00	1.00	1 ^b	2.00	2.00	1 ^b	2.00	2.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Unemployment rate	Negative ranks	0 ^a	0.00	0.00	0 ^a	0.00	0.00	0 ^a	0.00	0.00	There is an increase in the rate of unemployment by comparing all the periods (pre, COVID and post-COVID periods).
	Positive ranks	2 ^b	1.50	3.00	2 ^b	1.50	3.00	2 ^b	1.50	3.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Unit labour cost	Negative ranks	2 ^a	1.50	3.00	2 ^a	1.50	3.00	2 ^a	1.50	3.00	There is a decrease in the unit labour cost by comparing all the periods (pre, COVID and post-COVID periods).
	Positive ranks	0 ^b	0.00	0.00	0 ^b	0.00	0.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			

Gross national saving	Negative ranks	0 ^a	0.00	0.00	0 ^a	0.00	0.00	0 ^a	0.00	0.00	There is an increase in the gross national saving by comparing all the periods (pre, COVID and post-COVID periods).
	Positive ranks	2 ^b	1.50	3.00	2 ^b	1.50	3.00	2 ^b	1.50	3.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Public saving (including public enterprise)	Negative ranks	2 ^a	1.50	3.00	2 ^a	1.50	3.00	2 ^a	1.50	3.00	There is a decrease in the public saving (including public enterprise) by comparing all the periods (pre, COVID and post-COVID periods).
	Positive ranks	0 ^b	0.00	0.00	0 ^b	0.00	0.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Private saving	Negative ranks	0 ^a	0.00	0.00	0 ^a	0.00	0.00	0 ^a	0.00	0.00	There is an increase in the private saving by comparing all the periods (pre, COVID and post-COVID periods).
	Positive ranks	2 ^b	1.50	3.00	2 ^b	1.50	3.00	2 ^b	1.50	3.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
National investment (including inventories)	Negative ranks	0 ^a	0.00	0.00	2 ^a	1.50	3.00	1 ^a	2.00	2.00	There was an increase in the national investment (including inventories) by comparing the pre and COVID periods. However, there is a decrease in the national investment by comparing the COVID era to the post COVID era. There is no statistical difference by comparing the pre-COVID to the post-COVID era.
	Positive ranks	2 ^b	1.50	3.00	0 ^b	0.00	0.00	1 ^b	1.00	1.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Public investment (including public enterprise)	Negative ranks	2 ^a	1.50	3.00	2 ^a	1.50	3.00	2 ^a	1.50	3.00	There is a decrease in the public investment (including
	Positive ranks	0 ^b	0.00	0.00	0 ^b	0.00	0.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			

	Total	2		2		2		2			public enterprise) by comparing all the periods (pre, COVID and post-COVID periods).
Private investment	Negative ranks	2 ^a	1.50	3.00	0 ^a	0.00	0.00	2 ^a	1.50	3.00	There was a decrease in the private investment by comparing the pre-COVID and the COVID periods. Private investment increased by comparing the COVID era to the post-COVID period. However, the value is yet to reach the level it was during the pre-COVID period
	Positive ranks	0 ^b	0.00	0.00	2 ^b	1.50	3.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Revenue (including grant)	Negative ranks	2 ^a	1.50	3.00	0 ^a	0.00	0.00	2 ^a	1.50	3.00	There was a decrease in the revenue (including grant) by comparing the pre-COVID and the COVID periods. Private investment increased by comparing the COVID era to the post-COVID period. However, the value is yet to reach the level it was during the pre-COVID period
	Positive ranks	0 ^b	0.00	0.00	2 ^b	1.50	3.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Expenditure and net lending	Negative ranks	2 ^a	1.50	3.00	0 ^a	0.00	0.00	2 ^a	1.50	3.00	There was an increase in the expenditure and lending by comparing the pre-COVID and the COVID periods. Expenditure and lending decreased by
	Positive ranks	0 ^b	0.00	0.00	2 ^b	1.50	3.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			

											comparing the COVID era to the post-COVID period. However, the value is yet to drop to the level it was during the pre-COVID period
Overall balance	Negative ranks	2 ^a	1.50	3.00	0 ^a	0.00	0.00	2 ^a	1.50	3.00	There was a decrease in the overall balance by comparing the pre-COVID and the COVID periods. The overall balance improved by comparing the COVID era to the post-COVID period. However, the value is yet to reach the level it was during the pre-COVID period.
	Positive ranks	0 ^b	0.00	0.00	2 ^b	1.50	3.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Primary balance	Negative ranks	2 ^a	1.50	3.00	0 ^a	0.00	0.00	2 ^a	1.50	3.00	There was a decrease in the primary balance by comparing the pre-COVID and the COVID periods. The primary balance improved by comparing the COVID era to the post-COVID period. However, the value is yet to reach the level it was during the pre-COVID period.
	Positive ranks	0 ^b	0.00	0.00	2 ^b	1.50	3.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Structural balance (percent of potential GDP)	Negative ranks	2 ^a	1.50	3.00	0 ^a	0.00	0.00	2 ^a	1.50	3.00	There was a decrease in the structural balance by comparing the pre-COVID and the COVID periods. The structural balance improved by comparing the
	Positive ranks	0 ^b	0.00	0.00	2 ^b	1.50	3.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			

											COVID era to the post-COVID period. However, the value is yet to reach the level it was during the pre-COVID period.
Gross government debt	Negative ranks	2 ^a	1.50	3.00	2 ^a	1.50	3.00	2 ^a	1.50	3.00	There is an increase in the gross government debt profile by comparing all the periods (pre, COVID and post-COVID periods).
	Positive ranks	0 ^b	0.00	0.00	0 ^b	0.00	0.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Government bond yield	Negative ranks	0 ^a	0.00	0.00	1 ^a	2.00	2.00	1 ^a	2.00	2.00	Government bond yield increased by comparing the pre-COVID era to the COVID era. There is no statistical difference between the COVID and post-COVID era as well as the pre and post-COVID periods.
	Positive ranks	2 ^b	1.50	3.00	1 ^b	1.00	1.00	1 ^b	1.00	1.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Broad money	Negative ranks	0 ^a	0.00	0.00	2 ^a	1.50	3.00	2 ^a	1.50	3.00	Broad money (Amount of money in the national economy both in the liquid and less liquid form) increased by comparing the pre-COVID to the COVID era. However, it decreased significantly by comparing the COVID era to the post-COVID era). By comparing the pre and post-COVID periods, the amount of broad money
	Positive ranks	2 ^b	1.50	3.00	0 ^b	0.00	0.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			

												was found to decrease
Credit to private sector	Negative ranks	2 ^a	1.50	3.00	2 ^a	1.50	3.00	2 ^a	1.50	3.00		Credit to private sector decreased slightly by comparing the pre-COVID to the COVID era. By comparing the COVID-era to the post-COVID era as well as the pre-COVID to the post-COVID era, credit to private sector decreased significantly
	Positive ranks	0 ^b	0.00	0.00	0 ^b	0.00	0.00	0 ^b	0.00	0.00		
	Ties	0 ^c			0 ^c			0 ^c				
	Total	2			2			2				
Repurchase agreement (Repo) rate	Negative ranks	2 ^a	1.50	3.00	1 ^a	2.00	2.00	1 ^a	2.00	2.00		Repurchase agreement decreased by comparing the pre-COVID era to the COVID era. There is no statistical difference between the COVID and post-COVID era as well as the pre and post-COVID periods.
	Positive ranks	0 ^b	0.00	0.00	1 ^b	1.00	1.00	1 ^b	1.00	1.00		
	Ties	0 ^c			0 ^c			0 ^c				
	Total	2			2			2				
3 month treasury bill interest rate	Negative ranks	2 ^a	1.50	3.00	1 ^a	2.00	2.00	1 ^a	2.00	2.00		3 month treasury bill interest rate decreased by comparing the pre-COVID era to the COVID era. There is no statistical difference between the COVID and post-COVID era as well as the pre and post-COVID periods
	Positive ranks	0 ^b	0.00	0.00	1 ^b	1.00	1.00	1 ^b	1.00	1.00		
	Ties	0 ^c			0 ^c			0 ^c				
	Total	2			2			2				
Current account balance	Negative ranks	0 ^a	0.00	0.00	0 ^a	0.00	0.00	0 ^a	0.00	0.00		Current account balance increased significantly by comparing the pre-COVID to the COVID era
	Positive ranks	2 ^b	1.50	3.00	2 ^b	1.50	3.00	2 ^b	1.50	3.00		
	Ties	0 ^c			0 ^c			0 ^c				
	Total	2			2			2				

											but decreased significantly by comparing the COVID era to the post-COVID era. However, the current account balance was better in the post-COVID era compared to the pre-COVID era
Current account balance (%) of GDP	Negative ranks	0 ^a	0.00	0.00	0 ^a	0.00	0.00	0 ^a	0.00	0.00	Current account balance as a percent of the GDP increased significantly by comparing the pre-COVID to the COVID era but decreased significantly by comparing the COVID era to the post-COVID era. However, the current account balance as a function of the GDP was better in the post-COVID era compared to the pre-COVID era
	Positive ranks	2 ^b	1.50	3.00	2 ^b	1.50	3.00	2 ^b	1.50	3.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Export growth	Negative ranks	1 ^a	2.00	2.00	0 ^a	0.00	0.00	0 ^a	0.00	0.00	There was no statistical difference in the export growth by comparing the pre-COVID and COVID era. However, export growth increased by comparing the COVID era to the post-COVID era and the pre-COVID to the post-COVID era.
	Positive ranks	1 ^b	1.00	1.00	2 ^b	1.50	3.00	2 ^b	1.50	3.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Import growth	Negative ranks	1 ^a	2.00	2.00	0 ^a	0.00	0.00	0 ^a	0.00	0.00	There was no statistical difference in the import growth by
	Positive ranks	1 ^b	1.00	1.00	2 ^b	1.50	3.00	2 ^b	1.50	3.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			

	Total	2			2			2			comparing the pre-COVID and COVID era. However, import growth increased by comparing the COVID era to the post-COVID era and the pre-COVID to the post-COVID era.
Terms of trade	Negative ranks	0 ^a	0.00	0.00	2 ^a	1.50	3.00	2 ^a	1.50	3.00	Terms of trade improved by comparing the pre-COVID to the COVID era. It however decreased by comparing the COVID to the post COVID era. The terms of trade was also found to be better during the pre-COVID era compared to the post-COVID era
	Positive ranks	2 ^b	1.50	3.00	0 ^b	0.00	0.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Overall balance of (Percent GDP)	Negative ranks	1 ^a	2.00	2.00	2 ^a	1.50	3.00	2 ^a	1.50	3.00	No statistical difference in the overall balance by comparing the pre-COVID to the COVID era. However, the overall balance decreased by comparing the COVID era to the post-COVID era as well as the pre-COVID to the post-COVID era
	Positive ranks	1 ^b	1.00	1.00	0 ^b	0.00	0.00	0 ^b	0.00	0.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Gross reserve	Negative ranks	0 ^a	0.00	0.00	0 ^a	0.00	0.00	0 ^a	0.00	0.00	There is an increase in the gross reserve by comparing all the periods (pre, COVID and post-COVID periods).
	Positive ranks	2 ^b	1.50	3.00	2 ^b	1.50	3.00	2 ^b	1.50	3.00	
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
Gross reserve in percent of	Negative ranks	0 ^a	0.00	0.00	0 ^a	0.00	0.00	0 ^a	0.00	0.00	There is an increase in the

ARA (Without CFM)	Positive ranks	2 ^b	1.50	3.00	2 ^b	1.50	3.00	2 ^b	1.50	3.00	gross reserve by comparing all the periods (pre, COVID and post-COVID periods).
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
	Negative ranks	0 ^a	0.00	0.00	0 ^a	0.00	0.00	0 ^a	0.00	0.00	
Gross reserve in percent of ARA (With CFM)	Positive ranks	2 ^b	1.50	3.00	2 ^b	1.50	3.00	2 ^b	1.50	3.00	There is an increase in the gross reserve by comparing all the periods (pre, COVID and post-COVID periods).
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
	Negative ranks	0 ^a	0.00	0.00	2 ^a	1.50	3.00	1 ^a	2.00	2.00	
Total external debt (% GDP)	Positive ranks	2 ^b	1.50	3.00	0 ^b	0.00	0.00	1 ^b	1.00	1.00	The total external debt increased slightly by comparing the pre-COVID COVID era to the COVID era. It however decreased by comparing the COVID era to the post-COVID era. There was no statistical difference in the total external debt by comparing the pre-COVID and post-COVID era
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
	Negative ranks	0 ^a	0.00	0.00	1 ^a	2.00	2.00	1 ^a	2.00	2.00	
Nominal effective exchange rate (period average)	Positive ranks	2 ^b	1.50	3.00	1 ^b	1.00	1.00	1 ^b	1.00	1.00	Nominal effective exchange rate improved by comparing the pre-COVID era to the COVID era. There is no statistical difference between by comparing the COVID and post-COVID periods as well as pre-COVID and post-COVID periods.
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
	Negative ranks	0 ^a	0.00	0.00	1 ^a	2.00	2.00	1 ^a	2.00	2.00	
Real effective exchange rate	Positive ranks	2 ^b	1.50	3.00	2 ^b	1.50	3.00	2 ^b	1.50	3.00	Real effective exchange rate
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
	Negative ranks	0 ^a	0.00	0.00	0 ^a	0.00	0.00	0 ^a	0.00	0.00	

	Positive ranks	2 ^b	1.50	3.00	1 ^b	1.00	1.00	1 ^b	1.00	1.00	improved by comparing the pre-COVID era to the COVID era. There is no statistical difference between by comparing the COVID and post-COVID periods as well as pre-COVID and post-COVID periods.
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
	Negative ranks	0 ^a	0.00	0.00	1 ^a	2.00	2.00	1 ^a	2.00	2.00	
Exchange rate	Positive ranks	2 ^b	1.50	3.00	1 ^b	1.00	1.00	1 ^b	1.00	1.00	Exchange rate improved by comparing the pre-COVID era to the COVID era. There is no statistical difference between by comparing the COVID and post-COVID periods as well as pre-COVID and post-COVID periods.
	Ties	0 ^c			0 ^c			0 ^c			
	Total	2			2			2			
	Negative ranks	0 ^a	0.00	0.00	1 ^a	2.00	2.00	1 ^a	2.00	2.00	

Source: Statistical analysis results obtained from SPSS

The results presented in Table 4 indicated that the country performance improved significantly during the COVID and post COVID periods for some economic indicators such as gross national savings, Gross Domestic Product (GDP), export and import growth as well as gross reserves. Nevertheless, the country witnessed a decline in performance for all periods (Pre-COVID, COVID and post COVID periods) for some economic indicators such as employment rate, public investment, public savings, unit labour rate, gross government debt, annual consumer price inflator, broad money, credit to private sector, current account balance and terms of trade.

The results obtained from the statistical analysis further indicated that the COVID-19 pandemic impact negatively on the performance of some economic indicators such as private investment, revenue, expenditure and lending, overall, primary and structural balances. However, the post-COVID era witnessed a gradual improvement in these economic indicators but significant improvement is still required to reach the levels they were before the COVID-19 pandemic. The findings in this study agree significantly with existing reports which indicated the effect of the COVID-19 pandemic on the South African macroeconomy (Arndt *et al.*, 2020; IMF report, 2022).

Conclusion

The purpose of this study was to investigate the economic performance of South Africa before, during and after the COVID-19 periods. This was achieved with the use of secondary data that captured South Africa's performance in the areas of national income and prices, labour market, Savings and investment, fiscal position, money and credit, and balance of payments. The descriptive analysis, correlation analysis as well as Wilcoxon signed-rank test were carried out on the dataset using the Statistical Package for Social Science (SPSS) 2022 version. The results obtained indicated some improvement in certain economic indicators such as gross national

savings, Gross Domestic Product (GDP), export and import growth as well as gross reserves during the COVID and post COVID periods. Nevertheless, the country witnessed a decline in performance of some economic indicators such as employment rate, public investment, public savings, unit labour rate, gross government debt, annual consumer price inflator, broad money, credit to private sector, current account balance and terms of trade for all the periods. The results further indicate a gradual improvement in the areas of private investment, revenue, expenditure and lending, overall, primary and structural balances after the COVID-19 era. This study contributes empirically to the understanding of the economic status of South Africa. The findings obtained in this study may assist the government, public and private sectors to make an informed decisions on the areas where improvements are needed to promote South Africa's economic development and resilience.

Recommendations

Based on the outcome of this study, the following are recommended as part of the measures that can promote the sustainability and resilience of the South Africa economy.

- i. Increase financial inclusion, capital flow and access to finance
- ii. Improve financial institutions oversight
- iii. Improve the competitiveness and efficiency of the financial institutions
- iv. Development and implementation of climate financing frameworks
- v. Strengthen liquidity management and systemic liquidity practices.
- vi. Review repurchase agreement and improve the repurchase markets.
- vii. Encourage both local and foreign investors

Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPESS journal belongs to the authors.

Acknowledgements or Notes

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