

# Impact of Inflation on Poverty: A case of BRIC Economies

by

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## Abstract

**Aim:** The current research is conducted to evaluate the impact of inflation on poverty considering the case of the BRIC economies. The BRIC economies are the countries which include Brazil, Russia, India and China. The poverty and inflation is considered to be the worldwide issue and the BRIC countries has also been indicated to face such issues.

**Method:** The research is conducted using the quantitative research design. The data collection method used in this study is the secondary data where the data has been taken from the World Development Indicators for the period of 2000-2020 for the four BRIC countries. Since the data is panel including time series and different cross sections, hence, panel data regression has been applied where the GLS regression has been considered to be most appropriate considering the diagnostic issues in the data set.

**Findings:** The GLS regression outcomes has indicated that the poverty tends to have the significant and positive relationship with the inflation rate. The policy recommendations and future directions are also presented in the study.

**Keywords:** *Poverty, Inflation, BRIC countries*

## 1. Introduction

Inflation and poverty are two serious challenges of the BRIC countries – Brazil, Russia, India, and China – countries that occupy a great deal of attention in the contemporary world economy (Das and Chatterjee , 2019). These nations, though realizes economic growth at high rates, faces high inflation which makes poverty levels worse. Brazil inflation rates always lead to an increase in the cost of living, thus more and more people are being pushed to the poverty brinks and Russia’s current economic up and down and its prices that have gone high affects the low income earners(Liefert et al.,2019). India and China have relatively young populations and

growing middle classes; however, both bear high levels of poverty that are likely to be worsened by inflation as it reduces purchasing power and increases the inequality gap (Kanbur et al.,2021). It is important to deliberate on how such factors as inflation and poverty affect these economies since they are determinants of economic stability as well as other facets of life such as poverty.

There is ample literature that may interest the connection between inflation and poverty, with varied results depending on the context present. According to the study, inflation tends to have a significant impact on poverty levels since the poor are more exposed to rising prices given that a higher proportion of their income is taken up by the necessities (Paul and Sharma, 2019). Inflation may slow down the economic growth and also leads to widening income inequalities in the society. The context of BRIC economies explain how factors such as inflation has impacted on poverty levels hence the need for policy changes (Doğanalp et al.,2021). The purpose of this paper is to explore the causes of inflation and its effects on poverty in the context of the BRIC economies, with particular focus on the mechanisms in question and their results. Consequently, the study seeks to establish policy implications that can decrease the extent of inflation on these susceptible groups in these progressive economies.

## **2. Literature Review**

The term BRIC refers to the economic alliance made up of Brazil, Russia, India, and China. South Africa entered in BRIC alliance in 2010. Due to low labor and manufacturing expenses, economists anticipate those countries would be dominant producers of industrial products, services, and raw materials by 2050 (Doğanalp & Aslan, 2021). As per the Fantom & Serajuddin (2016) poverty is the condition of deficiency in one's well-being that has multiple aspects. Low salaries and the difficulty in obtaining the essential products and services essential for a respectable lifestyle. Furthermore, Siyan & Adolphus (2016) argue that poverty also includes poor health care and schooling, limited accessibility to safe drinking water and hygiene, a lack of basic protection, a lack of freedom of speech, and a lack of capability and opportunities to improve person's lifestyle.

Doğanalp & Aslan (2021) state that in BRIC economies, poverty and inflation exist in a variety of structural settings. In terms of economics, Russia is in the perfect situation. However, the phases of urbanisation, industrialisation, and the 2nd demographic change have been successfully done, with minimal indications of irregular employment and societal load. This set of criteria, which are important for determining the state's level of modernisation transformation, show that overall poverty in Russia is only apparent and not widespread (Younsi & Bechtini, 2020). Furthermore, Raghutla & Chittedi (2022) in their analysis shows that Brazil has medium economic performance measures and significant natural rise and societal impact ratings across a big proportion of the urban populations. Brazilian poverty could be attributed to the country's extremely massive urban community that was both unemployed and working unofficially, as well as an out-of-control birthrate in a substantial portion of the demographic. In addition, Mohanty & Sethi (2019) argue that china has the highest GDP growth rate per capita of the BRIC economies, as well as the fastest coordinated modernisation process developments. This is the social segment that has generally been more vulnerable to poverty as modernisation changes develop.

Siyan & Adolphus (2016) pointed out that even though India has emulated more higher economic values compared with the other economies of the BRIC, it has relatively fewer indicators of economic development. Globalization findings: The economic nature of the country includes a population density that is largely rural and farmers; other challenges that are associated with the country include hidden high unemployment rate in the non- farming sector. There is also substantial natural resource rent growth, rising social needs, and problems due to its status as an emerging economy in transition. Younsi & Bechtini (2020) agree with these dynamics stating that poverty in the rural areas has persisted and that recipients of jobs offers look for them in urban areas for better opportunities. Collectively, all these points go a long way in explaining India's peculiar set of economic characteristics within the context of the BRIC architecture and its development path in the context of shifting demographics and economic achievement paradigms.

As per the study performed by Dabalen & Nguyen (2020) found that consumer price indexes (CPIs) are crucial techniques for analysing poverty changes in Africa. Since country CPIs

are used to represent nominal consumption estimations using household assessments in absolute values as well as the baseline year of the global poverty threshold, international poverty assessments depends on them. Moreover, experts believe that CPIs will not often accurately reflect fluctuations in living costs. The findings of their analysis reveals that the coefficient of LNCPI is near to 0.67. Furthermore, research data show that CPI has a significant and positive relationship with poverty which is measured by POBPL. Furthermore, one percent point's gain in the CPI corresponds to a 0.67 % growth in the POPBPL. For example, a 1% spike in the CPI could results in a 0.67 % gain in the percentage of the people residing in poverty.

The natural logarithm of GDP per Capita (described as the entire financial valuation of all finished products and commodities made and traded on the marketplace inside a nation throughout a given year, distributed by the entire population of that nation), that indicates the percent changes in GDP per Capita through period (Liddle, 2017). Furthermore, Arndt & Tarp (2016) in their analysis investigated the association among GDP per capita and poverty. The analysis, primarily focused on Sub-Saharan Africa, showed that increases with per capita GDP had only minimally improved the level of poverty in the country during the last two decades. In economies like Burkina Faso, the growing elasticity of poverty (the ratio during which poverty decreases with each % increase in GDP per capita) were only.54. The researcher claim that common notions that rapid GDP per capita development has a significant impact on poverty conditions are incorrect; empirical data shows that GDP per capita development has a lower impact on poverty than previously assumed.

External debt refers to the proportion of a nation's overall debts that is owing to creditors overseas the nation. Governments and companies can all be debtors. Furthermore, one of the study conducted by Ekpo & Udo (2015) have been using external debt as a proportion of GDP as an indicator of capacity to pay and found that the capacity to pay has enhanced for the nations studied, as a higher percentage indicates that a nation will have difficulty generating sufficient revenue to perform its external commitments. A lower External Debt as a Percentage of GDP has the opposite effect. The findings of their analysis reveals that, a 1% growth in foreign debt leads to a 1% growth

in people's poverty levels. Because of the rising foreign debt, poor people's buying behaviors are changing.

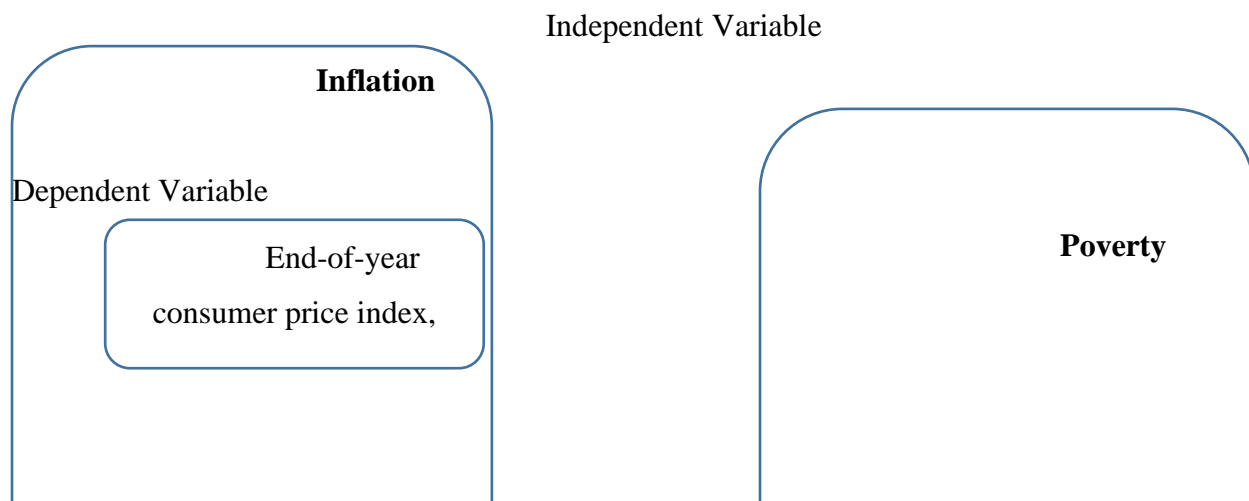
H1: There is a significant impact end of the year CPI on POBPL

H2: There is a significant impact of Natural logarithm of GDP per capita on POBPL

H3: There is a significant impact of Interests on external debts as a proportion of GDP on POBPL

There are various theories and paradigms for addressing with economic concerns such as poverty and inflation. These theories have been reported to be offered for controlling poverty and inflation in BRIC economies, as well as to meet the ethical principles to be fulfilled in community (Chiu & Wang, 2015). The investigator also discussed the stakeholder theory, which is founded on describing the perspectives of lawmakers, authorities, and other guidelines for defending the economic growth of the nation. Moreover, the stakeholder theory could be described as the state's perspective on developing policies to reduce inflation and poverty, as well as developing methods of operational processes that can incorporate debates and guidelines in economies to improve long-term outcomes of countries (Sama-Lang & Zesung, 2016).

Hence the Figure 1 depicts the variables used to determine the impact of inflation on poverty in the BRIC economies. Inflation has been the analysis independent parameter. These parameter are controlled by a number of factors, including the end-of-year consumer price index (LNCPI), GDP per capita (LNGDPPC), and interest on external debts as a percentage of GDP (INTPMT). Moreover, the analysis dependent parameter is poverty, which is measured using the percentage of persons living in poverty (POBPL).



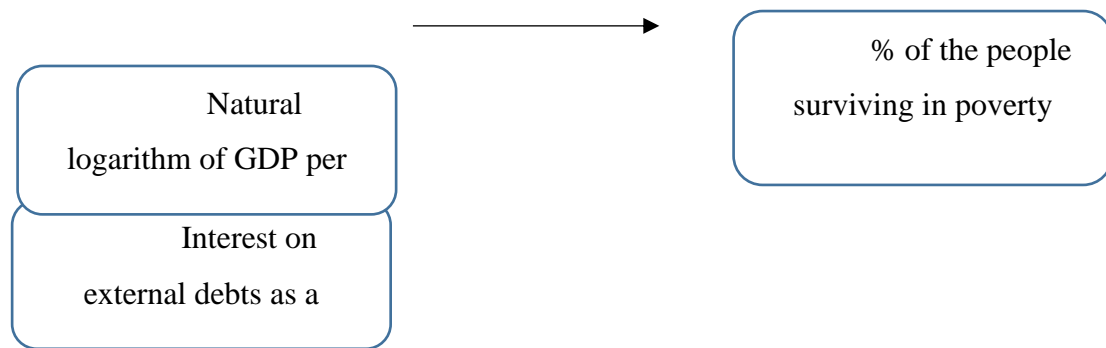


Figure 1: Conceptual Framework

### 3. Methodology

The main objective of this investigation article is to comprehend the impact of inflation on poverty in BRIC economies using a quantitative approach. Moreover, the quantitative methodology was adopted since it enables the investigator to evaluate the parameters employed in the report's conceptual framework. The current analysis was undertaken by adopting the positivist philosophy, since the type of the study being used by the investigator is quantitative. The investigator in the present investigation adopted the deductive method for evaluation, because the investigator had already developed the hypothesis to be investigated. This method is effective for determining the impact of inflation on poverty in BRIC economies.

For the purpose of achieving the research's objectives, the researcher depended on secondary data. The researcher used secondary information to get the information for the independent predictors and dependent parameters in this investigation report. All of the information was gathered for this analysis from the World Bank data bases. The information was gathered between 2000 and 2020. This time frame was considered in order to obtain enough data

to evaluate the impact of rising prices on poverty in BRIC economies. Brazil, Russia, India, and China are the economies that are being considered.

Moreover, the researcher used Stata software to evaluate the impact of inflation on poverty in the BRIC economies. Furthermore, the investigator used multivariate regression assessment, panel data analysis, allowing for national random effects, fixed effects, and dynamic panel data analysis including fixed and random effects. The investigator also examines the impact of inflation on poverty in groupings of economies based on their revenue levels (Ngozwana, 2018). This was used to evaluate the association among independent and dependent parameters in analysis in order to arrive at a valid conclusions and findings. For the investigator to explore the association among the parameters and explore the influence of inflation on poverty in the BRIC economies, this type of investigation is essential. As a result, secondary information was adopted since it enabled the investigator to study the research issue while being satisfied in the validity and dependability of the information obtained from the World Bank databases. The independent and dependent parameters has been adopted by the researcher in the current analysis listed below.

$$POBPL_{i,t} = C + \beta_1 LNCPI + \beta_2 LNGDPPC + \beta_3 INTPMT + \varepsilon$$

C= Constant

POBPL= % of the people surviving in poverty

LNCPI= End-of-year consumer price index, natural logarithm (CPI)

LNGDPPC= Natural logarithm of GDP per capita

INTPMT= Interest on external debts as a proportion of GDP

#### 4. Results

##### *Descriptive statistics*

Variable	Obs	Mean	Std. Dev.	Min	Max
Consumer Price Index	84	105.3581	39.00	30.76	186.86
LNGDP per Capita	84	8.259524	1.01	6.1	9.7
Poverty headcount ratio (% of population)	84	38.17305	30.92657	1.48	128.244

Lending Interest rate	84	18.60524	17.17007	4.35	67.08
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The above table shows the descriptive statistics of the data. The main purpose of this type of statistical tool is to provide a comprehensible summary of the. The table shows that there were a total of 84 observations that were analysed with respect to the BRIC countries, which are Brazil, Russia, India and China. The above table shows that mean, standard deviation, minimum, and maximum value of the data set. It can be seen that the mean value of consumer price index is 105.35 whereas the standard deviation is 39.00. This means that the mean value of consumer price index can increase or decrease by 39.00. Similarly the mean of GDP per capita is 8.26 whereas the standard deviation is 1.01 which means that the mean can increase or decrease by 1.01. The poverty headcount ratio (% of population) showed that an average of 38.17% of the population of all the four countries. The value had a standard deviation of around 31% which means that the mean value can increase or decrease by 31%. The lending interest had a mean value of 18.61% which means that all the 4 countries had an average of 18.61% interest rate. However this value could be increased or decreased by 17.17% which is denoted by standard deviation.

### *Correlation analysis*

	Poverty			
	Consumer Price Index	headcount ratio (% of population)	LNGDP per Capita	Lending Interest rate
Consumer Price Index	1			
Poverty headcount ratio (% of population)	-0.22*	1		
LNGDP per Capita	0.43*	-0.62*	1	
Lending Interest rate	-0.12	-0.16	0.23*	1



The above table shows the correlation analysis of the data set. Correlation is one of the statistical tools which is used to identify the relationship between different variables that are used in the research. The correlation analysis helps the researcher to identify significance level and strength between the different variables. The threshold value is 0.05 which means that any value less than 0.05 shows that the relationship is significant. It can be seen that the correlation coefficient between poverty ratio and consumer price index is -0.22 which is greater than 0.05 which means that there is an insignificant relationship between the two variables. Similarly, the correlation coefficient between GDP per capita and consumer price index is 0.43 which is also greater than 0.05 indicating an insignificant relationship. The correlation coefficient between GDP per capita and poverty headcount ratio is -0.62 which is less than 0.05 but has a negative sign. This shows that the relation between these two variables is significant but negatively. Similarly the coefficient of relationship between consumer price index and lending interest rate is -0.12 which indicates that the relationship is significant because it is less than 0.05 but have a negative sign. Similar is the case with the relationship between poverty headcount and lending interest rate. However, the coefficient of relationship between GDP per capita and lending interest rate is 0.23 which is greater than 0.05 which means that the relationship is insignificant.

### *HAC t-Stats*

Heteroskedasticity is the full form of HAC t-stats. The term HAC is a broader term that included heteroskedasticity and auto correlation. It has been identified by Sun (2013) that to run regression analysis on panel data, it is important to check whether the data set had heteroskedasticity and autocorrelation or not. The results of the following test will provide a direction as to which model for regression should be applied. The heteroskedasticity was tested using modified Walt Test by the researcher. The null hypothesis of the modified Walt test is that the data is not contaminated with the issue of heteroskedasticity.

chi2 -4 =	67922.93
Prob>chi2 =	0.000

The above table shows the results of the modified Walt test and it can be seen that the figure is  $0.000 > 0.05$ . This suggests that the null hypothesis of the model should be rejected which signifies that there is an issue heteroskedasticity in the data set.

F(1 3) =	169.653
Prob > F =	0.001

Next, it is important to check the data for autocorrelation in the data. For this the researcher will use the Woolridge test. The null hypothesis for this test also states that there will not be an issue of autocorrelation in the data. The above table shows that the figure is 0.001 which is lower than 0.05 which indicates that the null hypothesis should not be accepted. This indicates that the data set has an issue related to autocorrelation as well. Based on the above findings and the finding of the study conducted by Kim and Sun (2011), it is suggested that in a data that has an issue related to autocorrelation and heteroskedasticity cannot be tested using the OLS model. Rather, this type of data will be tested using the GLS model.

### ***Regression model***

Regression analysis is another statistical tool which is used by the researchers to determine whether there is an impact of the independent variable on the dependent variable or not. The threshold for testing the impact is 0.05. This means that any value less than 0.05 will indicate a significant impact.

Poverty headcount ratio (% of population)	Coefficient	Std. Err.	z	P> z	[95% Conf. Interval]
Consumer Price Index	0.0105468	0.0328	-0.32	0.748	-0.07483 0.05374
LNGDP per Capita	-21.31986	1.691025	-12.61	0.000	-24.6342 -18.0055
Lending Interest rate	0.0271571	0.025786	1.05	0.292	-0.02338 0.077697
_cons	214.4583	13.74863	15.6	0.000	187.5115 241.4052

The above table shows the regression model for this research where the dependent variable is poverty headcount ratio (% of population). It can be seen that the consumer price index has a p-value of 0.748 which is higher than 0.05 this indicates that consumer price index does not show a significant impact on poverty headcount ratio. The variable GDP per capita has a p value of  $0.000 < 0.05$ . This indicates that GDP per capita has a significant impact on poverty headcount ratio. On the contrary, the lending interest rate has a p value of  $0.292 > 0.05$  which indicates that the lending interest rate does not have a significant impact on poverty headcount ratio.

## 5. Discussion

The main of the research was to determine whether inflation has an influence on the poverty in BRIC countries or not. Biggemann and Fam (2011) have identified that the reason for grouping together Brazil, Russia, India and China is that these countries are most likely to become an influential bloc on the economy of the world. These countries have still not formed any political alliance however, in 2009, the countries initiated a series of annual international summits. Since the countries have a strong and growing economy, it is most likely that even a small change in macro-economic factors will have an effect economy and the country as a whole. The results of this study indicate that only GDP per capita have a significant impact on the poverty headcount ratio of the four countries. However, the consumer price index and lending interest rate do not show an important impact on poverty. The findings of this study are contradictory to the results of the study conducted by Anafo and Naatu (2014) that highlighted that inflation was positively correlated with poverty. The results of the study have high amount of significance because the researcher did not only focus on a certain type of countries, however, it focussed on countries with different income levels to have a better understanding of the relationship. Even after the analysis of countries belonging to low income levels as well as high income levels countries, it was found that inflation has similar impacts on poverty levels in these countries. Similarly the study conducted by Talukdar (2012) evaluated the impact of inflation on the standard of living of low income countries like Ghana. It was observed that Ghana is one of the countries of the world than have quiet high inflation rates. This was found to be having an adverse effect on the standard of

living of the people living in the country. The results of the data analysis of this research showed that most of the people were compelled to lower their standards of living in order to maintain a lifestyle. Hence the results of this study were also found to be contradicting to the results of the current study.

## **6. Conclusion**

This above conducted study was mainly based on evaluating the impact of inflation on poverty in the BRIC countries. It was identified that inflation and poverty are two of the major problems in the economic world. It was also identified that one of these drive the other one and most of the studies have suggested that when inflation rises, it is bound that more of the people are pushed beneath the poverty line. To conduct an analysis of the main aim of this research the researcher collected data 20 the years from 2000 to 2021 for the countries Brazil, Russia, India and China. The data was then analysed using Stata software and different tests such as descriptive, correlation and regression analysis. The results indicated that only GDP per capita had a significant impact on the poverty headcount ratio. However, Consumer Price Index and lending interest rate does not have any significant influence on the poverty headcount. The researcher further provided a set of recommendations and future implications that can help the legislative bodies as well as future researchers. A set of limitations were also highlighted that could provide areas to be explored in future researches.

## **7. Limitations and Future Directions**

The study was limited in a way that it includes the 22 years period for the four countries and hence the results cannot be generalized for the larger population. Since, these issues are being faced by the most of the developing countries especially in the period of financial crisis being faced today, hence, the future researchers must consider more developing countries to have the more generalized and better outcome of the research. Furthermore, the research has also set limited number of variables and more variables are required to be checked that can impact on the inflation. There are many variables that have the impact on the poverty as well that are also required to be

checked. Hence, the future researchers are recommended to have the wider set of variable in the model and make the model more robust.

## 8. References

- Anafo, S.A. and Naatu, V.A.K.F., 2014. The impact of inflation on the standard of living: A case study of Navrongo in the upper east region of Ghana. *Methodology*, 6(29), pp.106-115.
- Arndt, C., McKay, A., & Tarp, F. (2016). *Growth and poverty in sub-Saharan Africa* (p. 528). Oxford University Press.
- Biggemann, S. and Fam, K.S., 2011. Business marketing in BRIC countries. *Industrial Marketing Management*, 40(1), pp.5-7.
- Browne, J., & Hood, A. (2016). *Living standards, poverty and inequality in the UK: 2015-2016 to 2020-2021* (No. R114). IFS Report.
- Chiu, T. K., & Wang, Y. H. (2015). Determinants of social disclosure quality in Taiwan: An application of stakeholder theory. *Journal of business ethics*, 129(2), 379-398.
- Dabalén, A., Gaddis, I., & Nguyen, N. T. V. (2020). CPI bias and its implications for poverty reduction in Africa. *The Journal of Economic Inequality*, 18(1), 13-44.
- Das, S.G. and Chatterjee, R., (2019). Economic Development and Competitiveness: A Comparison among BRICS. *IMI konnect*, 8(1), pp.1-21.
- Doğanalp, N., Ozsolak, B., & Aslan, A. (2021). The effects of energy poverty on economic growth: A panel data analysis for BRICS countries. *Environmental Science and Pollution Research*, 28(36), 50167-50178.
- Doğanalp, N., Ozsolak, B., & Aslan, A. (2021). The effects of energy poverty on economic growth: a panel data analysis for BRICS countries. *Environmental Science and Pollution Research*, 28(36), 50167-50178.
- Ekpo, A. H., & Udo, E. (2015). External Debt, Growth and Poverty Reduction in a Failing State: Nigeria, 1970-2011. *Journal of Business and Economics*, 6(5), 944-951.
- Fantom, N. J., & Serajuddin, U. (2016). The World Bank's classification of countries by income. *World Bank Policy Research Working Paper*, (7528).

- Ha, J., Kose, M. A., & Ohnsorge, F. (2019). Understanding inflation in emerging and developing economies. World Bank Policy Research Working Paper, (8761).
- Kanbur, R., Wang, Y. and Zhang, X., (2021). The great Chinese inequality turnaround. *Journal of Comparative Economics*, 49(2), pp.467-482.
- Kim, M.S. and Sun, Y., 2011. Spatial heteroskedasticity and autocorrelation consistent estimation of covariance matrix. *Journal of Econometrics*, 160(2), pp.349-371.
- Liddle, B. (2017). Urbanization and inequality/poverty. *Urban Science*, 1(4), 35.
- Liefert, W.M., Liefert, O., Seeley, R. and Lee, T., (2019). The effect of Russia's economic crisis and import ban on its agricultural and food sector. *Journal of Eurasian Studies*, 10(2), pp.119-135.
- Meo, M. S., Khan, V. J., Ibrahim, T. O., Khan, S., Ali, S., & Noor, K. (2018). Asymmetric impact of inflation and unemployment on poverty in Pakistan: new evidence from asymmetric ARDL cointegration. *Asia Pacific Journal of Social Work and Development*, 28(4), 295-310.
- Mohanty, S., & Sethi, N. (2019). Outward FDI, human capital and economic growth in BRICS countries: an empirical insight. *Transnational Corporations Review*, 11(3), 235-249.
- Ngozwana, N. (2018). Ethical dilemmas in qualitative research methodology: Researcher's reflections. *International Journal of Educational Methodology*, 4(1), 19-28.
- Paul, M. and Sharma, P., (2019). Inflation rate and Poverty: Does poor become poorer with inflation?. Available at SSRN 3328539.
- Raghutla, C., & Chittedi, K. R. (2022). Energy poverty and economic development: evidence from BRICS economies. *Environmental Science and Pollution Research*, 29(7), 9707-9721.
- Sama-Lang, I., & Zesung, N. A. (2016). The stakeholder theory of corporate control and the place of ethics in OHADA: The case of Cameroon. *African Journal of Business Ethics*, 10(1).
- Siyan, P., Adegioriola, A. E., & Adolphus, J. A. (2016). Unemployment and inflation: Implication on poverty level in Nigeria.

- Siyan, P., Adegioriola, A. E., & Adolphus, J. A. (2016). Unemployment and inflation: Implication on poverty level in Nigeria.
- Sun, Y., 2013. A heteroskedasticity and autocorrelation robust F test using an orthonormal series variance estimator. *The Econometrics Journal*, 16(1), pp.1-26.
- Talukdar, S.R., 2012. The effect of inflation on poverty in developing countries: A panel data analysis (Doctoral dissertation).
- Yolanda, Y. (2017). Analysis of factors affecting inflation and its impact on human development index and poverty in Indonesia.
- Younsi, M., & Bechtini, M. (2020). Economic growth, financial development, and income inequality in BRICS countries: does Kuznets' inverted U-shaped curve exist?. *Journal of the Knowledge Economy*, 11(2), 721-742.