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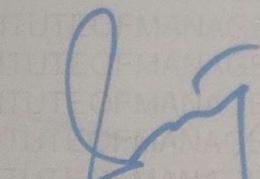
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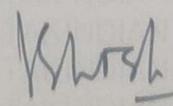
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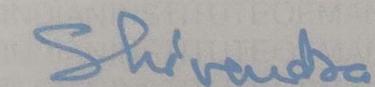
This is to certify that
SUPRIYA SARDANA
has made a poster presentation titled
"THE ROLE OF MACROECONOMIC VARIABLES IN DETERMINING THE ECONOMIC GROWTH RATE IN BRICS
NATIONS."

in the
7th PAN IIM WORLD MANAGEMENT CONFERENCE

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Prof. Shivendra Kumar Pandey
Co-convener

The Role of Macroeconomic Variables in determining the Economic Growth Rate in BRICS Nations.

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Introduction

The economic growth is defined as the rise in the real GDP of any nation (Antwi et. al., 2013). There is extensive literature available on the relation of various macroeconomic variables impacting the stock markets, GDP however there is lack of consensus on the direction of these variables (Sharma, et.al. (2011). Macroeconomic variables are considered to be the medium connecting resources, technologies and endless policies contributing to the Economic Growth of the Nation as defined by the World Bank. For growth of the nation, managing of these macro variables is a salient aspect (Mbulawa, 2015). Discussions, governing these areas have been the centre of attraction for many researchers. The present study revolves around the management and examining the role of the macroeconomic variables in the economic growth rate of BRICS nations. BRICS is one of the apparent and leading associations of countries comprising of "Brazil, Russia, India, China and South Africa). The high growth rates in the past 10 years of China, India and Russia have tempted the world's eye to the BRICS countries. These economies together are likely to become largest economic group of the world (Ranjan & Agrawal, 2011). The study revolves around determining the role of macroeconomic variables namely FDI, Government Expenditure, Inflation, Employment rate, Interest Rate extracted from the literature on the economic growth of the BRICS nations.

Methodology

Objective of the Study

The present study aims to examine the role of the macroeconomic variables (FDI, Inflation rate, Employment rate, Government final consumption expenditure, lending interest rate) in the economic growth (GDP growth rate) of the BRIC (Brazil, Russia, India, China and South Africa) countries.

Research Methodology

The Major macroeconomic indicators taken up for the present study are Foreign Direct Investment, Inflation Rate, Employment Rate and Investment in IT. The macroeconomic variables will be treated as Independent Variables and the Economic Growth rate has been measured through GDP Growth rate. The GDP growth rate is treated to be the Dependent variable. The data has been collected for a period ranging from 2000 till 2018. The data has been obtained from the World Bank website (www.worldbank.org) and BRICS data base (brics.ibge.gov.). Panel data approach has been used in the study to deal with both time series and cross sectional data. First of all, Descriptive Statistics of all the economic variables have been calculated for the period ranging from 2000 – 2018 using R Studio. The correlation matrix of all the variables has been constructed using R Studio, to study the relationship between all the variables in the model. Further, panel regression has been applied; the results for both Pooled OLS and Fixed Effect Panel Model are given. Thereafter, a test has been applied used to examine consistency of the model. The model framed for the present study is as follows:

$$G_{it} = a + b_1 FDI_{it} + b_2 INFLA_{it} + b_3 EMP_{it} + b_4 GEXP_{it} + INT_{it} + \epsilon$$

Where,

G_i is the growth rate in the GDP at its market prices.

FDI is Foreign Direct Investment i.e. measured as a per cent of GDP as in Sharma (2018), Jafari (2018), Chughtai et.al (2015), Kibira et.al (2014)

INFLA is the annual growth rate of the GDP implicit deflator as in Sharma (2018), Jafari (2018), Chughtai et.al (2015), Kibira et.al (2014)

EMP is the employment rate in the economy

GEXP is the government final consumption expenditure expressed as per cent of GDP as in Sharma (2018),

INT is the lending interest rate prevailing in the economy as in Chughtai et.al (2015), Kibira et.al (2014)

And ϵ refers to the disturbances that are uncorrelated satisfying the assumption of zero mean and variance; b_i are the coefficients of the variables in the study. The countries considered for the study are Brazil, Russia, India, China and South Africa.

Results

From, the Descriptive Statistics of all the variables in the study It has been observed that the mean value of the GDP growth rate is highest in China with 9.13% followed by India and then Russia. In employment rate China and Brazil attains the maximum values with 68.96% and 58.25% respectively. The jarque bera test has also been used in the study to test the normality of the variables. The values of jarque bera along with their p values are reported in the above table. The p values indicating the support for null hypothesis i.e. the series follows normal distribution is not rejected in all the cases except for FDI and Inflation rate for South Africa. Therefore, the variables considered are normally distributed and can be taken further for the panel regression.

Further, the correlation values obtained for studying the relationship between the variables and their p values are reported. The Null Hypothesis for the correlation matrix framed is that there is no correlation between the variables. The correlation matrix states the significant relationship of GDP with all variables in the study exists except for Inflation rate. Therefore, the variables proposed for the study are considered to be significant.

Panel Results:

Pooled Method:

Coefficients	T value	pr (> t)
(Intercept)		
8.563	3.2904	0.001435 **
`FDI (% of GDP)`		
-0.550	-5.9587	5.001e-08 ***
`Employment Rate (%)`		
0.074	2.2190	0.029031 *
`Inflation GP deflator`		
0.125	2.5532	0.012378 *
`Lending Int Rate`		
-0.058	-3.0633	0.002896 **

, the p value is less than 0.05 for the entire model, therefore the model is considered to be fit which has also been confirmed with the f stats value being high from 4. Then, analysing the calculated R and R square the values are more than 50 % which means the model framed for the study explains more than 50 % of the GDP of the BRICS economies. Next, the relationship of the variables with that of GDP is significant as the p values in respect of Betas calculated for each variable comes out to be significant. The null hypothesis that there is no impact of the macroeconomic variables on the GDP growth rate of the economy is rejected as the p values for all the cases are more than 5%.

Fixed Effect Panel Method:

Coefficients	t-value	Pr(> t)
`FDI (% of GDP)`		
0.2708	1.3020	0.196444
`Govt Final Consumption Expenditure (% of GDP)`		
-1.382	-4.5931	1.502e-05 ***
`Employment Rate (%)`		
0.165	1.4294	0.156543
`Inflation GDP deflator`		
0.1973	0.1917	0.001983 **
`Lending Int Rate`		
-0.0418	-0.9144	0.363068 ---

The above results in table 1.5 have been computed using R Studio, the overall p value is less than 5% indicating that the model is fit, which is further proved by the f statistics as the value is more than 4. Further, the p values of Government expenditure and inflation are significant indicating the significant impact of these variables on the GDP growth rate. There is not much difference between the values of R square and adjusted R square. The value of R square is large indicating that the model in the study sufficiently explain GDP growth rate of the BRICS economy.

Conclusion

The study explores various striking forces that are vital for determining the GDP (economic) economic growth rate of the BRICS nations. The correlation matrix indicates the significance of all these relations in terms of their contribution in the economic growth of the BRICS nation. The fixed effect model gives more consistent results with respect to this underlying study. The results evident a negative-significant relation of the GDP growth rate with that of the government final consumption expenditure and positive-significant relationship with that of the Inflation rate considered in the study. Therefore, as per the underlying study, the inflation and Government Final Consumption Expenditure are significant variables for determining the growth rate of the BRICS nations.

Acknowledgements

References

- Agrawal, G. (2015). Foreign direct investment and economic growth in BRICS economies: A panel data analysis. *Journal of Economics, Business and Management*, 3(4), 421-424.
- Altaee, H. H. A., Al-Jafari, M. K., & Khalid, M. A. (2016). Determinants of economic growth in the kingdom of Saudi Arabia: an application of autoregressive distributed lag model. *Applied Economics and Finance*, 3(1), 83-92.
- Antwi, S., Mills, E. F., & Zhao, X. (2013). Impact of macroeconomic factors on economic growth in Ghana: A cointegration analysis. *International journal of academic research in accounting, finance and management sciences*, 3(1), 35-45.
- Basu, T., Barik, D., & Arokiasamy, P. (2013, August). Demographic determinants of economic growth in BRICS and selected developed countries. In *XXVII IUSSP international population conference (IUSSP 2013)* (pp. 26-31).
- Biswas, S., & Saha, A. K. (2014). Macroeconomic Determinants of economic growth in India: A Time series analysis. *SOP Transactions On Economic Research*, 1(2), 54-73.
- Chen, B., & Feng, Y. (2000). Determinants of economic growth in China: Private enterprise, education, and openness. *China Economic Review*, 11(1), 1-15.
- Chughtai, M. W., Malik, M. W., & Aftab, R. (2015). Impact of Major Economic Variables on Economic Growth of Pakistan. *Acta Universitatis Danubius: Oeconomica*, 11(2).
- Garrison, C. B., & Lee, F. Y. (1995). The effect of macroeconomic variables on economic growth rates: A cross-country study. *Journal of Macroeconomics*, 17(2), 303-317.
- Hasan, R., & Barua, S. (2015). Financial development and economic growth: Evidence from a panel study on South Asian countries. *Asian Economic and Financial Review*, 5(10), 1159-1173.
- Jafari K. M. (2018). Determinants of Economic Growth in BRICS Countries: A Panel Data Analysis Approach. *International Journal of Accounting and Financial Reporting*, 8(3), 29-38.
- Kibria, U., Arshadm, M., Kamran, M., Mehmood, Y., Imdad, S., & Sajid, M. (2014). Exploring the Impact of Macro Economic Variables on GDP growth in Pakistan. *Research Journal of Management Sciences*, 3(9), 1-6.
- Kryeziu, A. (2016). The impact of macroeconomic factors in economic growth. *European Scientific Journal*, 12(7), 331 -335.
- Liu, X., Burrige, P., & Sinclair, P. J. (2002). Relationships between economic growth, foreign direct investment and trade: evidence from China. *Applied economics*, 34(11), 1433-1440.
- Mbulawa, S. (2015). Effect of macroeconomic variables on economic growth in Botswana. *Journal of Economics and Sustainable Development*, 6(4), 68-77.
- Ranjan, V., & Agrawal, G. (2011). FDI inflow determinants in BRIC countries: A panel data analysis. *International Business Research*, 4(4), 255
- Sharma, G. D., Singh, S., & Singh, G. (2011). Impact of macroeconomic variables on economic performance: An empirical study of India and Sri Lanka. Available at SSRN 1836542.
- Vijayakumar, N., Sridharan, P., & Rao, K. C. S. (2010). Determinants of FDI in BRICS Countries: A panel analysis. *International Journal of*