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IMPACT OF INFLATION ON PER CAPITA INCOME IN EMERGING ECONOMIES: EVIDENCE FROM BRICS NATIONS

Empirical Study

Keywords
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Abstract

In this paper an attempt has been made to analyse the impact of Inflation on per capita income of emerging economies. In order to achieve the objective of the study the researchers have taken five major emerging countries of the world which are the members of BRICS. For the purpose of analysis, the data of thirteen years has been taken from 1999 to 2011. After employing the regression model, the results confirm that independent variable (inflation) does not statistically influence the dependent variable (Per Capita Income) in three countries which are India, Brazil and South Africa. However, in the other two countries (China and Russia) the findings affirm the independent variable (Inflation) does statistically influence the dependent variable (Per Capita Income).Therefore, it can be concluded that a change in the inflation rate can not necessarily bring a change in the per capita income of a country.

Introduction

BRICS is an association of five major emerging economies, namely Brazil, Russia, India, China and South Africa .It aims at encouraging commercial, political, and cultural cooperation among themselves. Initially it was a group of four countries: Brazil, Russia, India, and China (BRIC). South Africa became its member on 24th December 2010, after being formally invited by the BRIC countries to join the group. And now it is Argentina, Egypt, Iran, Nigeria, and Syria that have expressed their interest in joining the group. In 2013, the BRICS countries represented almost three billion people, with a combined nominal GDP of US$16.039 trillion (BRIC report 2014).The association has so far conducted six summits and it was during the fifth summit in South Africa where the member countries agreed to create a global financial institution which they intended to rival the western dominated IMF and World Bank. It has been now decided in the recent summit to have BRICS Bank with headquarters at Shanghai (china) with India the Medan chair of the bank. A synoptic view of the BRICS countries is given as under:-

Brazil's membership in BRICS has boosted its international standing.It helped Brazil to strengthen its relation with international economies which are set to take a leading role in 21st century.This relation will help Brazil to gain economic and political interests in the long run. BRICS has provided Brazil with a platform to engage with international system more progressively. Moreover, Brazil is home to nearly half of world's biodiversity, the over achieving sustainable development agenda is not surprisingly a national priority. Brazil has an opportunity to use mechanisms' such as BRICS Exchange Alliance for attracting investments. Brazil's inclusion in BRICS has brought a country of left corner of world map to the center. Russia is a partly European, partly Asian country. Russia has played a very important role in the formation of BRICS. It was Russia's Foreign Minister Sergey who convinced Russia and China to expand the 'RIC' (Russia, India, and China) which was a loose group and used to meet only to discuss regional security issues. Russia's role was bringing cooperation among BRICS in areas such as international financial order, science and technology, education, trade, etc.

For India, BRICS has provided immense opportunities to expand trade, investment and technology. India has exchanged ideas and experiences on food security, agriculture, Foreign aid, energy and global warming. China is the strongest power in BRICS as far as economic and financial agenda is concerned .China has played a key role in the inclusion of South Africa in 2010. China is an active participant in BRICS and has played a constructive role in the bloc. China has also succeeded to base New Development Bank in Shanghai which is established to mobilise resources for infrastructure and sustainable development projects within BRICS and other countries. South Africa became BRIC member in the year 2010. Its ship has acted as a strong brick for building Africa's growth and development. South Africa is world's latest producer of platinum, chrome, manganese and third largest gold miner thus contributing significantly to the resource pool of BRICS. BRICS is expected to emerge as alternative to World Bank in the time to come.

Review of literature

A lot of research has already been done on the macro-economic variables (especially Inflation) throughout the world so as to establish the relationship among these variables. However, in this paper, the researchers have done the review of some of the major studies so as to develop an understanding regarding the correlation of these variables.

Bulir & Glude (1995) *et.al* examined the direct link between Macro economic factors like inflation and income inequality for which they used pooled cross country and single country time series models. They concluded that level of inflation; inflation variability & variability of nominal exchange rate have a negative impact on income equality.

Barro (1991) & Fischer (1993) *et.al* made an analysis about Macro Economic determinants of Economic growth in which he examined that Macro Economic factors are important determinants of growth & in turn, growth has a great effect on Income Distribution. Earlier studies evaluated that income inequality first increases & later decreases with the average level of income. However, Barro& Fischer concluded that there is no evidence of strong relationship between income level & income inequality.

Blejer& Guerrero (1988) came up with the evidence that under-employment, inflation & Government expenditure are strongly regressive, while a depreciation of the exchange rates tends to reduce inequality.

Liu, Hsu &Younis (2008) made an analysis on Macro economic variables & the dynamic effect of public expenditure. In their analysis they examined the relationship between GDP & Public expenditure for the US data during the period 1947-2002. They concluded that growth of GDP is caused due to Government expenditure but growth of GDP does not cause expansion of Government expenditure.

Penrose (1963) undertook a study and concluded that it is capital that plays an important role in the success of manufacturing sector, and the ability of the company to raise capital depends on its

entrepreneurial ability. If the entrepreneur is able to create confidence on the part of financial institutions, the firm can easily avail credit.Schatz (1964) saw the importance of capital from a different perspective. As per Schatz, it is not capital but viable projects that lead to success. Most of the Nigerian businessmen believe that inadequate capital is the main business handicap. But Schatz, defended his argument by evidencing loan operations of Federal Loans Board which gave loans only to firms that had been well established, that execute viable business projects. As per Schatz, there should be an effective demand for capital (i.e. demand of capital for only viable projects and not merely a desire for capital (i.e. demand of capital for unworthy projects).

Solow (1956) claims that, for the growth of the economy, technological progress can play a significant role. As per Solow, capital accumulation, increases in labour force are having relatively minor effects on the economy and it is technology that can ensure a fast growth of economy. Further studies have reconfirmed the validity of Solow's view. The four Asian Tigers – Hong Kong, Korea, Singapore and Taiwan have succeeded because they have learned to use technology faster and more efficiently in their manufacturing sectors than their competitors. Ayodele (2004) states that electricity consumption is positively related to economic growth of a country and is the centre of operations. He states that electricity consumption has diverse impacts on the range of socio-economic activities and consequently the living standards of a country.

Ehiraika (2008) in his empirical study examined that increased share of manufacturing in total output has the potential to raise GDP growth and reduce growth volatility through accelerated growth given strong backward and forward linkages between the manufacturing sector and other sectors . According to his views, the design and implementation of effective industrial policies can act as a mean to achieve economic and social development goals including employment creation and poverty reduction.

Erkin (1988) proposed a new framework for New Zealand to analyse the relationship between Government expenditure & Economic growth wherein he concluded that higher Government expenditure does not decrease consumption, but raises private investment that in turn increases economic growth.

Gregoriou & Ghosh (2007) examined the impact of Government expenditure on Economic growth by using heterogeneous panel. They concluded that "larger the Government expenditure in countries, higher will be the growth". But it varies from one country to another.

Objective of the study

To examine the impact of inflation on per capita income in the fast growing economies of the world.

Hypothesis

H_0: inflation does not have statistically significant impact on per capita income.

H_a: Inflation has statistically significant impact on per capital income.

Data-Base and Methodology

In order to achieve the objective of the study, the researchers have made use of secondary data only which has been collected from the central banks of the sample countries. The reference period of thirteen years has been taken from 1999 to 2011. The researchers have employed Descriptive statistics and Linier Regression so as to ascertain the impact of inflation on per capita income of the sample countries.

Results & Discussion

The results that the researchers have got after employing regression analysis and ANOVA tests are discussed below in detail.

The results put forth by regression analysis in table 1 and ANOVA test in table 2 are discussed below:

In the case of Brazil the results confirm that there is no statistically significant relationship between per-capita income and inflation, as is evident from F value (1.203) and significance value of (.296) which is much higher than 0.05, same is verified by the t-test. The model also suggests that there is a difference between the value of R square (0.099) and the value of adjusted R Square (0.017), therefore, it can be concluded that the independent variable may be responsible for the change in per-capita income of Brazil.

In the case of China, the results depict that there is a statistically significant relationship between per-capita income and inflation which is made evident by the F value (5.065) and significance value of (0.045) which is much lower than 0.05, same is verified by t-test. The model further predicts that there will be a change of 348.33 per cent in per-capita income of inflation increases or decreases by one unit. Thus, the model suggests the independent variable explains the variance to the extent of 31.5 per cent in the dependent variable.

In the case of India, the analysis presents that there is no statistical significant relationship between per capita income and inflation which is evident from the F value (0.951) and significance value of (0.350) which is much higher than 0.05, besides, the same aspect is verified by t-test. The model also confirms a big gap between the value of R square (0.282) and the value of adjusted R square (0.080),

therefore, it can be concluded that the independent variable is redundant and other variables may be responsible.

In case of Russia, the results affirm statistically significant relationship between per capita income and inflation as is established by F value (7.732) and significance value of (0.019) which is much lower than 0.05 and same is verified by t-test. The model depicts that there will be a change of 123.12 per cent in per capital income if inflation increases or decreases by one unit. The model also suggests that the independent variable explains the variance to the extent of 43.60 per cent in the independent variable.

In case of South Africa, the results show that there is no statistical significant relationship between inflation and per capita income, as is evident from F value (0.534) and significance value of (0.480) which is higher than 0.05 which is further established by t-test. The models also depict a big gap between R square and adjusted R square which affirms that the independent value is not statistically responsible for variance in dependent variable.

Conclusion

The overall findings put forth by the study are inconclusive as out of five sample countries only two countries (China & Russia) confirm that the independent variable (Inflation) is responsible for the variation in the dependent variable (Per Capita Income) while on the other hand three countries (India, Brazil & south Africa)do not affirm any such relationship between the variables under study which implies that there are some other variables which influence the dependent variable. Thus, the present study leaves it for the future researchers to fill the gap that could not be comprehensively taken care of in the present study.

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Table 1
Model Summary

Country	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Brazil	1	.215[a]	.046	-.040	1621.083
China	1	.561[a]	.315	.253	1386.058
India	1	.282[a]	.080	-.004	611.237
Russia	1	.660[a]	.436	.380	3148.832
South Africa	1	.215[a]	.046	-.040	1621.083

a. Predictors: (Constant), inflation

Table 2
ANOVA[b]

Country	Model		Sum of Squares	df	Mean Square	F	Sig.
Brazil	1	Regression	3156348.022	1	3156348.022	1.203	.296[a]
		Residual	2.887E7	11	2624597.732		
		Total	3.203E7	12			
China	1	Regression	9730356.731	1	9730356.731	5.065	.046[a]
		Residual	2.113E7	11	1921156.381		
		Total	3.086E7	12			
India	1	Regression	355457.355	1	355457.355	.951	.350[a]
		Residual	4109711.876	11	373610.171		
		Total	4465169.231	12			
Russia	1	Regression	7.667E7	1	7.667E7	7.732	.019[a]
		Residual	9.915E7	10	9915142.194		
		Total	1.758E8	11			
South Africa	1	Regression	1402213.218	1	1402213.218	.534	.480[a]
		Residual	2.891E7	11	2627910.686		
		Total	3.031E7	12			

a. Predictors: (Constant), inflation

b. Dependent Variable: per-capita