

A Comparative Study of Vikasit Bhrath and Russia

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ABSTRACT

This paper titled “A Comparative Study of Vikasit Bharath And Russia” aims to analyses the GDP and Inflation of India and Russia by using statistical tools such as mean, median, correlation, standard deviation and forecast the GDP using regression up to 2050, and found that India is dominating in respect of GDP volume posted higher and followed by Russia, in respect of average GDP growth rate reported higher by India and followed by Russia, GDP average per capita is dominating by Russia and followed by India, whereas Inflation at CPI reported higher by Russia and followed by India, a strictly delicate balance was maintained between GDP and Inflation by India, and followed by Russia respectively, it is hardly need to maintain adjustable balance between Inflation and GDP, and fueling to various segments by taking strong fiscal and monetary policy a head to achieve targeted GDP volume in the future.

Keywords : Macro, Inflation, Growth Rate, delicate, Parameters, Regression

INTRODUCTION

India has had a long-standing and reliable partnership with Russia. One of the main pillars of India's foreign policy has been the development of relations with Russia. With increased levels of cooperation in nearly all areas of the bilateral relationship, including political, security, trade and economy, defence, science and technology, and culture, India-Russian ties have taken on a qualitatively new character since the signing of the "Declaration on the India-Russia Strategic Partnership" in October 2000. The Strategic Partnership was upgraded to a "Special and Privileged Strategic Partnership" during the Russian President's visit to India in December 2010. It is a top priority for both governments to make the economic partnership a solid foundation of the bilateral partnership, similar to other areas of cooperation between Russia and India. The two countries' presidents agreed in December 2014 to aim for US\$30 billion in bilateral trade by 2025.

Data from the Russian Federal Customs Service indicates that, in 2016, bilateral trade was valued at US\$ 7.71 billion (a 1.5% decrease from 2015), with US\$ 2.39 billion coming from exports to India and US\$ 5.32 billion going to imports from Russia. India's top exports include machinery, tea, coffee, and tobacco, as well as pharmaceuticals. Pearls, valuable and semi- precious stones and metals, nuclear power equipment, electrical gear and equipment, mineral oil and products, iron and steel, and optical, surgical, and precision equipment are among the main imports from Russia. Russia and India are looking into a number of strategies to increase their bilateral commerce. Implementing the International North-South Transport Corridor, signing an FTA between India and the Eurasian Economic Union (EaEU), and operationalizing the Green Corridor" project which has already advanced to an advanced stage are some significant initiatives that could significantly increase bilateral trade.

What is GDP and Its Growth rate

Gross Domestic Product is the ultimate value of the goods and services produced within the geographic limits of a country in a year. GDP growth rate is an indicator of the economic performance of a country, is a product of $\frac{P1-P0}{P0} \times 100$

P1= Current Value of GDP

P0= Previous Value of GDP

Inflation (CPI)

Inflation is measured in terms of consumer price index

Need and Importance of the Study

It is need to study the trends of GDP of India and Russia as it is most important emerging economies in the world, is India becoming dominate the Russia up to a 2050.

Objectives

1. To analyze and compare the GDP of India and Russia in US Billion and Trillion dollars
2. To study the GDP Growth rate of the India and Russia
3. To examine and compare the GDP per capita of India and Russia in US Dollar
4. To examine and compare the inflation trends of India and Russia
5. To estimate and analyze the GDP of India and Russia up to 2050

Hypotheses

It is proposed to test the following hypotheses in the study

- H01= There is no significant difference in the GDP values and average GDP, between India and Russia
- H02= There is no significant difference in the GDP Growth rates of India and Russia
- H03= There is no significant difference in the GDP per capita of India and Russia
- H04= There is no Significant difference in the average inflation rates between the India and Russia
- H05= There is no Significant relationship exist between the GDP and Inflation of the country
- H06= There is no Significant change in the GDP estimation up to 2050 between the India and Russia

RESEARCH METHODOLOGY

Data source

The required secondary data have been obtained from the World Bank website. The analysis is made with the help of such Descriptive Statistics as Mean, Standard Deviation and skewness etc.,

METHODOLOGY

Mean/Average The central tendency is the average value of the series. This is the most commonly stated feature of a series. The formula to compute mean is given in equation

$$\bar{X} = \frac{\sum X}{N}$$

Correlation

$$r = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum (X - \bar{X})^2} \sqrt{\sum (Y - \bar{Y})^2}}$$

Where, \bar{X} = mean of X variable

\bar{Y} = mean of Y variable

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2} \quad b = \frac{\sum y - m(\sum x)}{n}$$

Regression- Least Square Method $Y = mx + b$

Standard Deviation

$$s = \sqrt{\frac{\sum(X - \bar{x})^2}{n - 1}}$$

Limitations

1. The analyses were based on the secondary data any limitations pertaining to them would significantly affect the accuracy of the results.
2. Projection of GDP using Regression analysis is subject to changes in economic, political, fiscal, and monetary policy of that country, this method exhibits only the relationship between the two variables.
3. The cause and effects of certain uncontrolled factors are not taken into consideration

Study Period and Scope

The study covers a time bound from 2000 to 2022 by taking around 23 years. The study is restricted to Russia and India only

Data Analysis

This section discusses the GDP of the India and Russia in US billion dollars, detailed GDP values in current market prices at US dollar, GDP per capita at US Dollar, and GDP Growth rates as well as Inflation rates in detailed manner. These macro-economic indicators are described using descriptive statistics like mean, median, correlation, and standard deviation

ANALYSIS OF GDP OF INDIA AND RUSSIA

Table-I GDP of India And Russia in Billion Dollar at current prices

YEAR	RUSSIA	INDIA
2000	260	468
2001	307	485
2002	345	515
2003	430	608
2004	591	709
2005	764	820
2006	990	940
2007	1300	1220
2008	1660	1200
2009	1220	1340
2010	1520	1680
2011	2050	1820
2012	2210	1830
2013	2290	1860
2014	2060	2040
2015	1360	2100
2016	1280	2290
2017	1570	2650
2018	1660	2700
2019	1690	2840
2020	1490	2670
2021	1840	3150
2022	2240	3390
Average	1353	1710
Max	2290	3390
Min	260	468
Standard deviation	635	892

Source: World Bank Published Data and compiled using MS Excel

Above table-I represents the GDP values in terms of US billion dollars, Indian economy is entered into 1.2 trillion dollar GDP in the year 2007, India GDP is attained 3.39 Trillion Dollar during the 23 years study period, Russia at the beginning GDP is around 307 billion dollar and went into 1.3 Trillion dollar during 2007 and at the end 2022 it shown 2.24 trillion dollar GDP reported with little fluctuations after 2015 onwards,

Average GDP in US billion dollars over 23 years are reported in the above table-I India 1710, Russia 1353 and Maximum GDP posted during study period is India (2022) 3390, Russia (2013) 2290.

ANALYSIS OF GDP GROWTH RATES OF INDIA AND RUSSIA

Table-II GDP Growth rates of India and Russia - Annual percentage Growth rates

YEAR	INDIA	RUSSIA-
2000	3.8	10
2001	4.8	5.1
2002	3.8	4.7
2003	7.9	7.3
2004	7.9	7.2
2005	7.9	6.4
2006	8.1	8.2
2007	7.7	8.5
2008	3.1	5.2
2009	7.9	-7.8
2010	8.5	4.5
2011	5.2	4.3
2012	5.5	4
2013	6.4	1.8
2014	7.4	0.7
2015	8	-2
2016	8.3	0.2
2017	6.8	1.8
2018	6.5	2.8
2019	3.9	2.2
2020	-5.8	-2.7
2021	9.1	5.6
2022	7	-2.1
AVERAGE GROWTH RATE	6.07	3.30
Correlation co.ef. between India and Brazil		
Correlation co.ef. between India and Russia		0.16
Correlation co.ef. between India and China		
Correlation co.ef. between India and SA		
MAX	9.1	8.5
MIN	-5.8	-7.8
Median	9.1	4.3

Source: World Bank national accounts data, and OECD National Accounts data files

From the above table II, it is found that series of GDP Growth rates of India and Russia (Russia and India) over a span of 23 years from its inception of 2000-01. The average growth rates of India and Russia are reported as follows Russia **3.30**, It is found that highest average growth rate was reported India 6.07 comparatively Russia

During the study period of 23 years maximum growth rate was reported 9.1 by India in the year of 2021, and Russia 8.5 in 2007, With respect to maximum growth rate also posted by India,. Similarly, least growth rate reported in India in the year of 2020 is -5.8 percent negative growth and Russia 2009, -7.8 percent. Correlation quotient between India and Russia is 0.16 positively correlated

IMF estimated global average growth rate for the year 2022 it is 3.2, India surpassed the global average growth rate and Russia reported average growth rates which are lower than the global growth rate of 3.6

GDP per Capital at Current US Dollar of India and Russia

Table-III GDP per Capital at Current US Dollar of India and Russia and followed by Per Capita Growth Rate

YEAR	RUSSIA	Growth Rate= $\frac{P1-P0}{P0} \times 100$	INDIA	Growth Rate= $\frac{P1-P0}{P0} \times 100$
2000	1771		442	
2001	2100	19	450	2
2002	2377	13	469	4
2003	2975	25	544	16
2004	4102	38	624	15
2005	5323	30	710	14
2006	6920	30	802	13
2007	9101	32	1022	27
2008	11635	28	993	-3
2009	8562	-26	1097	10
2010	10675	25	1350	23
2011	14311	34	1449	7
2012	15420	8	1431	-1
2013	15974	4	1438	0
2014	14095	-12	1560	8
2015	9313	-34	1590	2
2016	8704	-7	1714	8
2017	10720	23	1958	14
2018	11287	5	1974	1
2019	11536	2	2050	4
2020	10194	-12	1913	-7
2021	12593	24	2238	17
2022	15345	22	2388	7
Average per capita and Growth rate	9349	12	1313	8

Source: World Bank published data in the website and compiled using MS Excel

From the above Table-III is depicted GDP per capita in US Dollar, during the period from 2000 to 2022 of the India and Russia, Russia per capita in US Dollar, during the period from 2000 to 2022, has reported least per capita in 2000 US Dollar 1771, and highest per capita is reported in the year 2013 US Dollar 15974 and 23 years average per capita reported

in US Dollar 9349, and average Growth rate of Russia during study period is 12 per cent it is 1st place when compare it to India, the highest growth rate is posted in the year 2004 i.e. 38 per cent and least growth rate is reported in the year 2015 at -34 per cent.

India per capita in US Dollar is depicted in the above table, least per capita in 2000 US Dollar 442, and highest per capita is reported in the year 2022 US Dollar 2388 and 23 years average per capita reported in US Dollar 1313, and average Growth rate of India during study period is 8 per cent it is lower compare to Russia, the highest growth rate is posted in the year 2007 i.e. 27 per cent and least growth rate is reported in the year 2020 at -7 per cent.

INFLATION RATES OF INDIA AND RUSSIA

Table-IV Inflation rates of India and Russia -(Consumer Price Index CPI)

	YEAR	INDIA	RUSSIA
	2000	4	20.8
	2001	3.8	21.5
	2002	4.3	15.8
	2003	3.8	13.7
	2004	3.8	10.9
	2005	4.2	12.7
	2006	5.8	9.7
	2007	6.4	9
	2008	8.3	14.1
	2009	10.9	11.6
	2010	12	6.8
	2011	8.9	8.4
	2012	9.5	5.1
	2013	10	6.8
	2014	6.7	7.8
	2015	4.9	15.5
	2016	4.9	7
	2017	3.3	3.7
	2018	3.9	2.9
	2019	3.7	4.5
	2020	6.6	3.4
	2021	5.1	6.7
	2022	6.7	13.8

Mean		6.15	10.10
Max		12.00	21.50
Min		3.30	2.90
Median		5.10	9.00
Correlation Between I And B			
Correlation Between I And R			-0.22
Correlation Between I And C			
Correlation Between I And S			

Source: World Bank Published Data In The Website And Compiled Using MS Excel

During the study period over 23 years from the inception of India and Russia formation they are reported inflation rates in the Table-IV above were taken from World Bank published data. The inflation always triggers the GDP of various as inflation grows the growth rate obviously fall. It is a natural phenomenon between GDP and inflation even though in certain circumstances maybe they are positively co related; the above table shows average inflation over the 23 years of span the India and Russia reported as India 6.15, Russia 10.10, respectively. The highest inflation rates have been posted by Russia consequently India 6.15, the maximum inflation during the study period was reported highest by Russia 21.50 in 2001 later India in 2010, Least inflation rate, during the study period reported by India 3.30 in 2017 Russia 2.90 in 2018 respectively. Correlation between India and Russia having negatively co related.

IMF estimated global average inflation rate for the year 2022 is 8.8, Russia inflation is surpassed the global average inflation rate and India have reported average inflation rates which is lower than the global inflation rate of 8.8.

RELATIONSHIP BETWEEN GDP RATE AND INFLATION RATE

Table V-Relationship between GDP Rate and Inflation Rate

Year	India		Russia	
	Gdp GrowthRate	Inflation Rate -Cpi	Gdp GrowthRate	Inflation Rate -Cpi
2000	3.8	4	10	20.8
2001	4.8	3.8	5.1	21.5
2002	3.8	4.3	4.7	15.8
2003	7.9	3.8	7.3	13.7
2004	7.9	3.8	7.2	10.9
2005	7.9	4.2	6.4	12.7
2006	8.1	5.8	8.2	9.7
2007	7.7	6.4	8.5	9
2008	3.1	8.3	5.2	14.1
2009	7.9	10.9	-7.8	11.6
2010	8.5	12	4.5	6.8

2011	5.2	8.9	4.3	8.4
2012	5.5	9.5	4	5.1
2013	6.4	10	1.8	6.8
2014	7.4	6.7	0.7	7.8
2015	8	4.9	-2	15.5
2016	8.3	4.9	0.2	7
2017	6.8	3.3	1.8	3.7
2018	6.5	3.9	2.8	2.9
2019	3.9	3.7	2.2	4.5
2020	-5.8	6.6	-2.7	3.4
2021	9.1	5.1	5.6	6.7
2022	7	6.7	-2.1	13.8
	Correlation	0.02		0.25

Source: World Bank published data in the website and compiled using MS Excel

The above Table V is depicted that there is no strong correlation existed between the GDP rate and Inflation rate of that country, as seen in the above table 0.02 correlation coefficient is reported by India it reflect that there is no correlation between GDP and Inflation rate they are two separate parameter, it seems to be no relation, but there is delicate relation between these two, whereas Russia GDP and Inflation correlation showing 0.25 positive correlation it indicates that as GDP moves up the inflation tend to be move up and vice versa, similarly China also 0.19 positive correlation is reported it also indicate the sameas Russia.

Projected GDP in US Billion Dollars up to 2050 using Regression Least Square Method

Table-VI Projected GDP in US Billion Dollars up to 2050 using Regression Least Square Method

Year	India	Russia
2023	3310	2249
2024	3443	2324
2025	3576	2398
2026	3710	2473
2027	3843	2548
2028	3976	2622
2029	4110	2697
2030	4243	2771
2031	4376	2846
2032	4510	2921

2033	4643	2995
2034	4776	3070
2035	4910	3145
2036	5043	3219
2037	5176	3294
2038	5310	3369
2039	5443	3443
2040	5576	3518
2041	5710	3593
2042	5843	3667
2043	5976	3742
2044	6110	3816
2045	6243	3891
2046	6376	3966
2047	6510	4040
2048	6643	4115
2049	6776	4190
2050	6910	4264

Source: Compiled data analysis using MS Excel formula

Chart –II Projection of GDP of India and Russia up to 2050 using Regression LSM

Projected GDP Values have been shown in the above Table VI and Chart II that India in the year 2023 to be reported GDP values are 3.3 US Trillion Dollars in 2030 it is around 4.2 US Trillion Dollars, in the year 2040 it is 5.5 US Trillion Dollars and 2050 it is 6.9 US Trillion Dollars if there is same tendency in the Fiscal and Monetary policy continued up to 2050 and other economic and political conditions are assumed to be no major changes.

Similarly, Russia GDP is projected as 2023 2.2 US Trillion Dollar, in 2030 it could be reached 2.7, in 2040 it is reached to 3.5 and in 2050 it is 4.2 US trillion dollar, subject to economic and political policy of that country, In respect of GDP Projections during the 30 years using linear regression Least Square method, India 1st and Russia 2nd place in the GDP values in terms of US Billion and Trillion dollar.

FINDINGS AND CONCLUSION

H01= There is no significant difference in the GDP values and average GDP, between of India and Russia

It is found that the null hypothesis 01 is rejected as there is a significant difference is found in the GDP values during the study period of 23 years between **India and Russia** it might depends on fiscal and monetary policy of that country as well

GDP contributors of house hold consumptions, Private investment, Government Expenditure and Net exports of that country may vary, it is resulted that there is a huge difference is found in respect of all the.

H02= There is no significant difference in the GDP Growth rates of India and Russia

Rejected Null hypothesis in respect of Growth rates, there is a significance difference is found in respect of average growth rate between the due to economic and political policies as well as economic cycles of that may lead to take difference in the growth rates of GDP over the India and Russia

H03= There is no significant difference in the GDP per capita and Growth rate of all the India and Russia

Null hypothesis is rejected in respect of all the India and Russia as there is a significant difference is found between with respect to per capita in US dollar, as well as all the growth rates of GDP per capita.

H04= There is no Significant difference in the average inflation rates between the India and Russia

The Null hypothesis is rejected and accepted the alternative hypothesis that there is a significant difference is found between **India and Russia** respect of Inflation rates, inflation is a rising price level in the goods and services of that country it is tuned by monetary policy of that country, so its varies country to country, if inflation rate is more than key rates of that country obviously held more in order to control it by tightening monetary policy

H05= There is no Significant relationship is found between the GDP and Inflation of India and Russia

Here the null hypothesis is not rejected as there is no significant relationship is found between the GDP rate and Inflation rate of that country over the 23 years of span, there is very neutral and delicate relationship is found. Countries must have to maintain the balance between the Inflation and GDP, as inflation is move up then the monetary policy is tightened, as inflation is come down then the monetary policy is liberalized in order to trigger the inflation in line with GDP growth

H06= There is no Significant change in the GDP estimation up to 2050 between the India and Russia

It is found that there is significant change in the GDP projections up to 2050 between them. Hence, the null hypothesis is rejected and accepts the alternative hypothesis as there are huge differences is found between.

CONCLUSION

India is dominating in respect of GDP volume posted higher and followed by Russia, in respect of average GDP growth rate reported higher by India and followed by Russia, GDP average per capita is dominating by Russia and followed by India, whereas Inflation at CPI reported higher by Russia and followed by India, a strictly delicate balance was maintained between GDP and Inflation by India, and followed by Russia respectively during study period of 23 years, it is hardly need to maintain a delicate balance between Inflation and GDP, and fueling to various sectors by initiating strong fiscal and monetary policy a head to achieve targeted GDP volume in the future to take India first or second largest economy in the world

The IMF has estimated the GDP of India stood at 10 trillion US Dollar to be attained at 2030, it is possible only when the rising of contributors of GDP like C+I+G+ Net Exports, as well as standard Fiscal and Monetary policy of the government is led to achieve the estimated target of 10 US trillion economy, projection of GDP as per the time series analysis using regression (LSM) is 4.2 US trillion Dollar in the year 2030, 5.5 trillion dollar in the year 2040 and 6.9 in the year 2050.

It is need to achieve real growth rate higher every year by year, it's only the way to achieve IMF and other agencies expected growth, fiscal policy measures to support vulnerable s specially it is need to improve massive exports rather than imports, the industries which are boosting to exports like Textile, Spice, Petroleum products, Tea, Jewellery, Dairy products, emerging industries like Pharmaceutical, Automobile, Renewable Energy, and others to address the adverse impact of climate change are needed to secure to strong and sustainable growth in GDP, in tackling with front-loaded monetary policy tightening to address elevated inflation amid also a big challenge in front, it is need to make balance between GDP and Inflation is a big challenge to India as well as many initiatives are to be taken in respect of improvement of constituents of GDP in greater way to reach India become top in the world

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