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Trade Openness of Indian Economy during Pre and Post liberalized era

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ABSTRACT

Trade openness is measured in terms of exports incremented by imports as a share of Gross Domestic product of a country and distinctly refers to the inward and outward orientation of the Economy of a Nation. Numerous findings have established a broad-spectrum and positive association between trade openness and growth on average, but several of them are flawed by operational inadequacies and significant inexplicable dissimilarity in the results. The Indian Economy has experienced downturn and economic dynamics through due course of time. After Trade Liberalization policy implementations in India the scenario of Indian Trade and Economy changed significantly. My study is to identify the differences between changes in India's trade before and after trade liberalization and compare the pre and post intensity of trade openness of liberalized India. It has been clearly identified that there is remarkable difference in volume of exports and imports before and after the advent of trade liberalization and as a result their share to the Gross Domestic product has also shown significant difference Pre and Post liberalization Era. The future forecast of Trade Openness ortrays a positive depiction in the Indian Economy altogether.

Keywords: Trade openness, Gross domestic Product, Trade liberalization, Indian Economy.

INTRODUCTION

Trade (both imports and exports) is vital to any successful modem economy and is crucial for the competitiveness of the Indian economy in the long run. Referring to large body of evidences, exposed firms can exercise significant competition and comparative advantages when they have international competition. The structure of Indian economy has undergone significant changes since 1991 which majorly includes changes in International trade. After the structural reforms in India, the exports and imports have considerably increased which has positively impacted the Gross Domestic Product. India is one of the G20 Nations and her GCI rank has been estimated to be 71 among the rest of the world (G20 India Secretariat,2015).

In terms of Economic literature the word 'Openness' has been under common usage since 1980s. Most of the times openness itself signifies Trade Openness is an indicator, which will be influenced by trade policies adopted by India and also the result of multilateral trade negotiations, and by the wider macro economic state of the world economy. Restrictive trade policy will inhibit other countries from sending exports and accepting imports from the country, which practices it. According to dominating economic theory, this restrictiveness, this absence of openness, will result into of slowing the economic development or growth. Inversely, trade openness will have an economic effect of increasing economic development and growth.

Taking the example of growth in Ghana's Economy, alteration of trade policies and promoting trade openness showed notable improvements. From 1960 to 1980 the restrictive Economic policy structure followed by Ghana stagnated its growth to far less than projection but later trade openness was favored which instigated the Growth of the Nation (Karen P.L Hardison January 2015).

The affiliation between economic growth and openness may have differences in degree and intensity if they are measured Pre-Post liberalization of World Economies (Aksoy and Salinas, 2004). However there are evidences adverse as stated by VasilikiPigka-Balanika (Erasmus School of Economics 2006) in Sub-Saharan African Regions.Increased Trade Openness led to negative development and did not contribute to positive economic growth. An example from history depicts, in the year 2008-2009 adverse developments in the world global market has impacted in terms of subprime crisis the financial institutions in United States of America, European Union etc and intensified ambiguity gushed into economic catastrophe of international magnitudes. It may bring into light the fact that trade openness and its bearing on global economy can be termed as a boon and a bane as well.

In distinguishing budding impact of trade openness in the Indian Economy,it had been crucial to focus on altering trade policy regimes. After liberalization of Indian Trade services have provided new opportunities since 2003-2004 after advent of new avenues (trades of software and commercial services).The study I have tried to study the trade openness of Indian Economy during different time periods. The analytical content and empirical analysis mainly focuses on the period of 1970 to 1991 (Pre liberalization) and 1992 to 2013 (Post liberalization) in India. The research question concentrated in my study is "whether there is a significant difference between trade openness Pre - Post liberalization era".

The portion of exports of goods and services to Gross Domestic Product has increased from 6% in 1981 to 8.5% in 1991,whereas after liberalization in 1991 the share has considerably increased to 13.2% in 2001 and 24.8% in 2013 (World Bank database,2015). The share of imports of goods and services to GDP has decreased from 8.7% in 1981 to 8.5% in 1991,whereas after liberalization in 1991 the share considerably increased to 13.6%in2001 and28.4%in2013 (WorldBank database,2015).

ABRIEF SURVEY OFLITERATURE:

There are various reasons for countries to engage themselves in international trade and motives to expand their exports and imports are unassumingly gains from trade. The nations look forward to benefit from their complement relativity in production and thus the theory of Economist David Ricardo applies impeccably eventually corroborating that nations import and exports have extraordinary correlation with the methods of producing in a relatively better way. Economies of scale in production might be another reason for countries to try to determine for openness in the world global market. Both of these intentions majorly mirror the real world pattern of International commerce and flourishing trade openness (Krugman and Obsfield, 2006). Mentioning earlier theories of trade, a special reference of Haberler (1936), Viner (1937), Mundell (1960), Bhagwati (1963), and Schumpeter (1954) is crucial to determine the survey based study on International trade carried out by the Neo-classical Economists.

The classical Economists have very distinctly provided theories on Trade and Adam Smith (1776), J.S Mills (1917) have stipulated literatures on the basis of which the International trade theories have evolved. Eventually the Neo-classical Economists have rested their observations and findings on opportunity costs and indifference curve, A.P Lemer (1953), Meade (1955) and Haberler (1955), whereas the modem concepts rests upon factor endowment concepts reviewed and surveyed by Heckscher (1919) and Ohlin (1933).

Mention of some relevant research work has been provided as follows:

1) **Hammouda, Jallab (2011)** examined the relationship between trade liberalization, trade openness and growth alone, but their research can be enriched by comparing the development experiences of Africa and Asia. According to his conclusions forthcomingopinion should turn towards exploration for optimal amalgamations between liberalization and control in order to stimulate growth and intensify the competitiveness of developing economies.

2) **Chuhdhary et al (2010)** studiedthe relationship between trade liberalization leading to trade openness and economic growth in Indiaby Granger causality test. Results of this study disclosed that in long run liaison between growth of human capital and trade liberalization is noteworthy and affirmativealthough in short run labor force also ominously contribute to growth.

3) Mitra, Pradeep K-, (2009) studied Criticisms of the neoclassical model include the fact that the prediction of convergence fails for poorer countries (some have grown extremely rapidly, while others have experienced absolute declines in living standards), and that the rate of technological change is influenced by recognizable economic factors. Thus, in the last decade or so endogenous growth theories have emerged. There are many varieties of endogenous growth theory, emphasizing variously R&D spending, human capital, leaming-by-doing, technological spillovers, and the underlying technology of production.

4) **Andesen and Babula (2008),** have found a link between trade openness and long run economic growth of countries. They have evaluated the most quoted rational probes of the affiliation between

worldwide trade and economic growth and more realistic evaluates of the linkage amongst trade and efficiency/productivity growth.

5) **Chen and Gupta** (2006) have argued and proved that International trade openness create knowledge spillovers, augments productivity and improves human capital. This will help economies to continually grow and will help to provide the production units in an economy, increasing returns to scale respectively.

6) **Srinivansan (1999)** gave examples of early growth models where trade liberalization resulted into effective increase in exports and imports of a nation which in turn led to elevated trade openness. He drew conclusions from the old Harrod-Domar Model, where effective trade openness resulted into effective rate of growth in a developing Economy.

OBJECTIVE OF THE STUDY:

1) To estimate the trade openness of Indian Economy during Pre and Post liberalized era.

2) To compare the impact of trade openness of pre and post liberalized era on the growth of Indian Economy.

DATAAND METHODOLOGY

In this section I have tried to undertake empirical investigations of my two main hypothesis, there is significant difference between trade openness before and after economic liberalization in the Indian Economy and the impact of trade openness on the Indian Economic growth is significantly different in the two segmented periods (viz; 1970-1991, 1992-2013).The kind of association between trade openness and Economic Growth depends on nature of the economy and open economy trade have led to faster growth rates in countries (Kruger 1997). Rodriguez and Rodrik (2001) have proved overstated relationship between outward economic orientation and growth than inward alignment and GDP. The data set used in my research is panel data consisting of India's exports and imports of goods and services and Gross domestic product from the year 1970 to 2013 respectively. The unit of measurement is US million dollars. The data has been collected from the World Bank and UNCTAD. Empirical testing of impact of trade openness on growth provides evidences of post liberalization performance of trade of the Indian Economy. Subsequent forecasting and residual based test gives evidences of expected increment of growth rate and trade openness in the Indian Economy until he future decade. To address issues, my study adopts heterogeneous approach drawing corollary from empirical literature of the Indian Economy. The approach used in study incorporates: Index of Trade Openness, Regression (OLS method), paired t test and time series least square analysis to forecast.

Null Hypothesis:

H_{01}= There is no significant difference in pre and post liberalized trade openness in the Indian Economy.

H_{02} = There is no significant difference in impact of pre and post liberalized trade openness on the growth performance of the Indian Economy.

Index and model:

Particularly for evaluating difference in openness in Pre and Post liberalization period I have used paired t test. For economic growth I have chosen to take Gross Domestic product (Nominal) and it is my major dependent variable. Trade openness is calculated with the help of index as follows:

Index:-

$$\text{Trade Openness} = \frac{\text{Exports} + \text{Imports}}{\text{GDP}}$$

Trade openness (TO) is the major independent variable and the periods used are 1970 to 1991 and 1992 to 2013 respectively to differentiate between the impact of Trade openness on GDP in the pre and post liberalization period.

The models are specified as follows:

$$(GDP)_{t=1970\text{-}1991} = \delta + \alpha_1 (TO)_{t=1970\text{-}1991} + \varepsilon \text{.....I}$$
$$(GDP)_{t=1972\text{-}2013} = \theta + \gamma_1 (TO)_{t=1992\text{-}2013} + \omega \text{.....II}$$

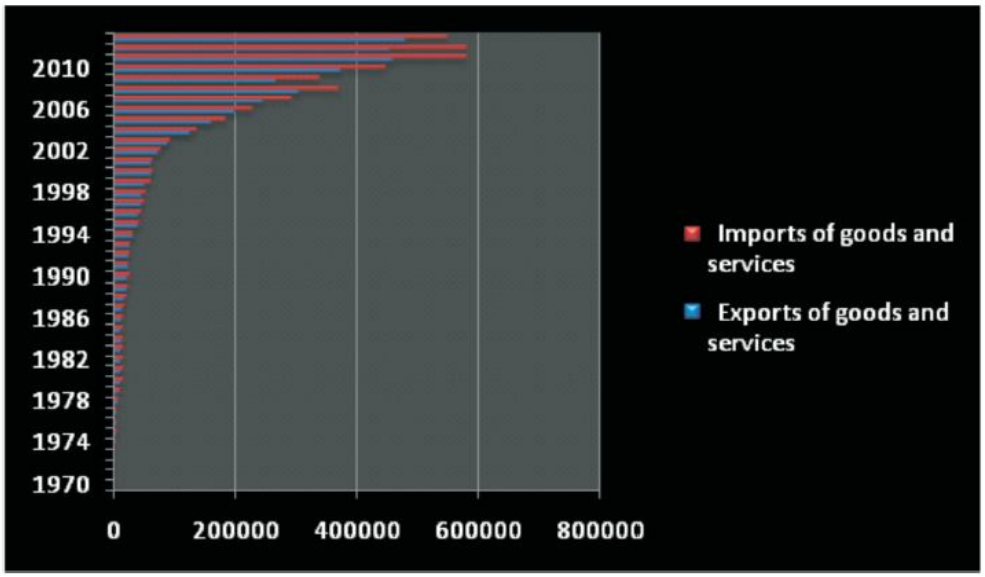
GDP= Gross Domestic Product
TO= Trade Openness
δ = Intercept(t=l970-l99l)
α_1 = Coefficient of TO(t=970-1991)
ε = Error Term(t=l970-1991)
θ=Intercepts (t=1992-2013)
γ_1=Coefficient of TO(t=1992-2013)
ω= Error Term (t=1992-2013)

In each model I have run regressions to identify the difference in the impact of trade openness on the Indian Economic growth (GDP) on two different segmented periods identified.

RESULTS AND INTERPRETATION:

Trade liberalization in Indian Economy is an epic structural change and there has been massive changes in volume of exports and imports thus mounting the trade openness of the nation. This has heightened the Gross Domestic Product whatsoever and in due course of time the statistics and time series data collected from 1970 to 2013 has shown a very significant increase in the Gross Domestic Product.

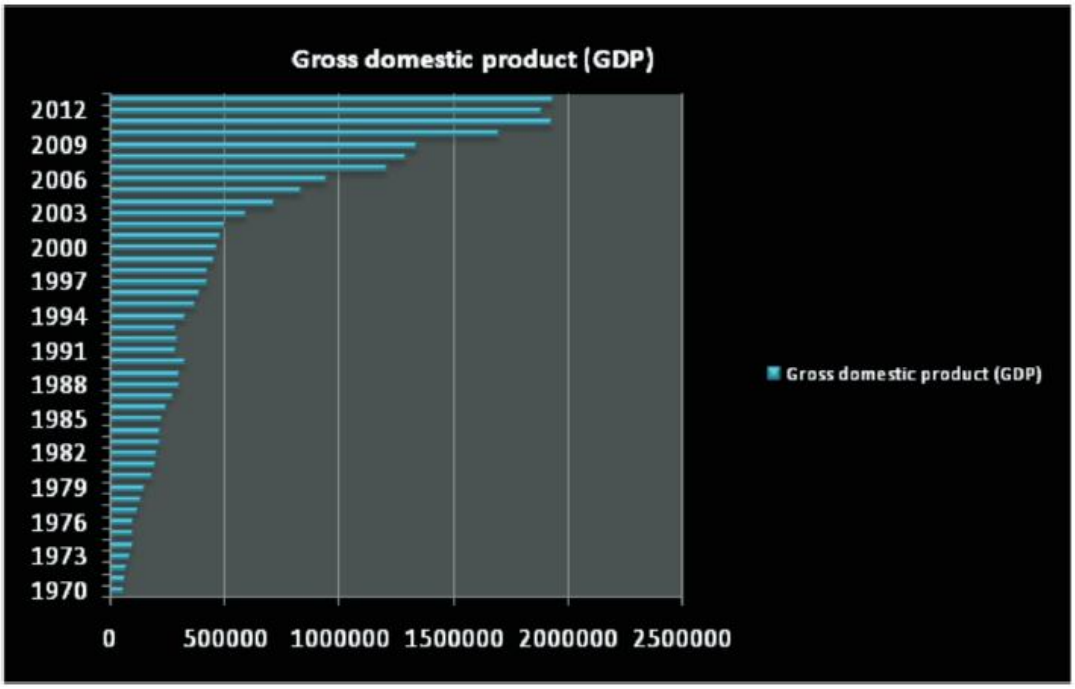
Figure I: Trend in Export and import in India during 1970-2013 (Source: UNCTAD, 2015)



During 1970 exports and imports of goods and services in the Indian Economy accounted for 2362.34 USD millions and 2429.78 USD millions respectively which was 3.8% and 3.9% of the GDP of India. The trend consistently increased and reached upto 24745.88 USD millions and 24819.35 USD millions in 1991 when the Indian exports and imports constituted to 7% and 8.5% of the GDP. This was the time of structural reforms in the Indian Economy as a bail out for supporting the historical situation of three weeks imports supporting foreign exchange reserves. As far it is incidentally clear that volume and value of Indian Exports

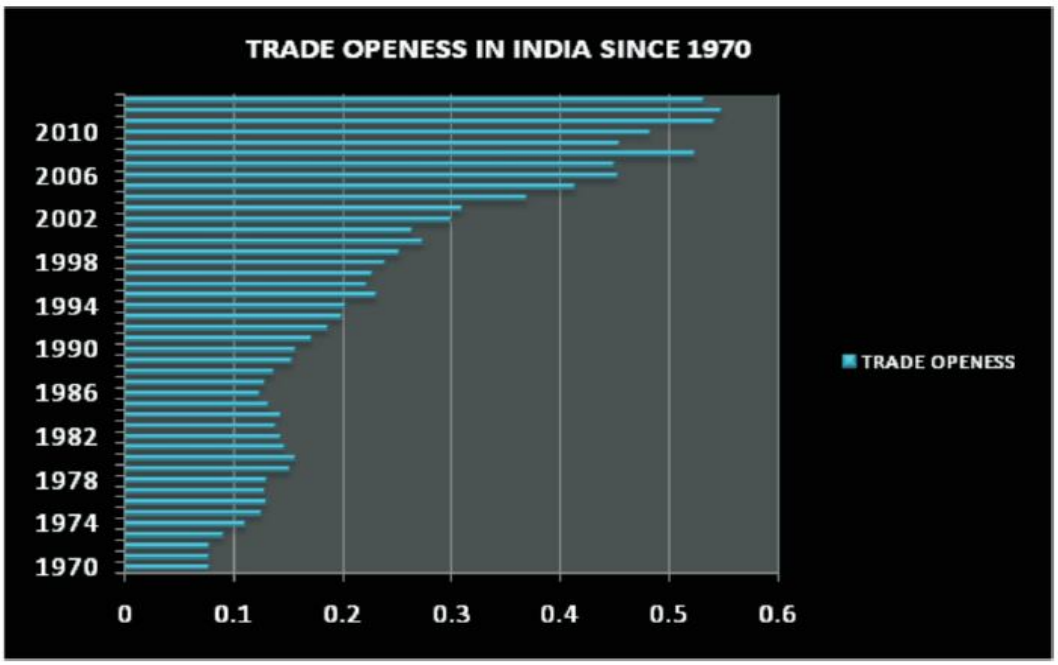
and Imports increased considerably and reached upto 61618.79 millions USD and 65919.39 millions USD which was 13.22% and 14.15% of the Indian GDP in 2001. Another decade of change and the statistics of 2014 reveal that exports and imports now constitute to 25% and 28.4% of the Indian GDP.

Figure II: Trend in Gross Domestic Product in India during 1970-2013 (Source: UNCTAD, 2015)



After thirty years of Independence the Indian Gross Domestic Product had heightened to a remarkable 61470 million USD (1970) and showed consistent increment until 1991 when the Indian GDP decreased from 326795 million to 289681 million USD and herein as the advent of the Liberalization, Privatization and Globalization policies to restore the Indian Economic Growth and Development. The present statistics reveals the GDP figures have considerably increased to 1937797 millions USD in 2013 and India boasts current growth rate of 7% approximately in 2015.The structural policy changes in the Indian Economy have positively boosted the exports and imports of the Indian Economy along with a very positive boost in the Gross Domestic Product which is not only the most important indicator of the Economic position of a nation but also mirror of a nation providing image of her among rest of the world.

Figure III: Trend in Trade openness in India during 1970-2013 (Sources: UNCTAD, 2015)



Since four long decades the Indian trade majorly writhed from austere bureaucratic and unrestricted controls. The Indian Economy not withstanding the benefits of trade maj orly experienced balance deficit chiefly due to high internal demand leading to less export surplus and competition in the global market. The series of reforms initiated by the Government of India liberalized and globalized the economy and espoused openness. In the figure above it is noticeable that trade openness numerals ranged from 0.077 in 1970 to 0.16 in 1990 whereas the post liberalization performance of trade have overwhelmingly improved and ranged from 0.19 in 1992 to 0.31 2003 and 0.53 in 2014 respectively. There exists a significant difference in numerals of trade openness and the pre and post liberalization performance of trade is considerable.

Output I

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	$TO_{t=1970\text{-}1991}$	.1288	22	.02663	.00568
	$TO_{t=1992\text{-}2013}$	.3487	22	.12868	.02743

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	$TO_{t=1970\text{-}1991}$ & $TO_{t=1992\text{-}2013}$	22	.660	.001

Paired Samples Test

		Paired Differences					T	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	$TO_{t=1970-1991}$-$TO_{t=1992-2013}$	-.21987	.11289	.02407	-.26993	-.16982	-9.135	21	.000

To test my first hypothesis I have incorporated paired t test to identify the difference in means of trade openness during two identified time periods (viz; pre and post liberalization era). The first Null Hypothesis is rejected, so taking into contemplation the alternative hypothesis, there is significant difference in pre and post liberalized trade openness in the Indian Economy.

Output II: Regression Analysis

1) Regression Statistics	
Multiple R	0.747590328
R Square	0.558891298
Adjusted R Square	0.536835863
Standard Error	58822.96884
Observations	22

ANOVA

	df	*ss*	*MS*	*F*	*Significance F*
Regression	1	87681021060	87681021060	25.34029805	6.35789E-05
Residual	20	69202833272	3460141664		
Total	21	1.56884E+11			

	Coefficients	*Standard Error*	*tStat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-131734.871	63331.42081	2.080087093	0.050589196	263841.8995	372.1574661	263841.8995	372.1574661
TRADE OPENESS	2426346.465	481999.9084	5.033914784	6.35789E-05	1420912.277	3431780.653	1420912.277	3431780.653

Substituting the values of the coefficients of regression in equation I we get the following result:

$$(GDP)_{t=1970-1991} = -131734.871 + 2426346.465(TO)_{t=1970-1991} + \varepsilon \ldots\ldots \text{III}$$

$\delta = -131734.871$

$\alpha_1 = 2426346.465$

2) Regression Statistics	
Multiple R	**0.948910968**
R Square	**0.900432025**
Adjusted R Square	**0.895453626**
Standard Error	**187966.7115**
Observations	**22**

ANOVA

	df	***SS***	***MS***	***F***	***SignificanceF***
Regression	**1**	**6.39033E+12**	**6.39033E+12**	**180.8677989**	**1.76934E-11**
Residual	**20**	**7.0663E+11**	**35331484629**		
Total	**21**	**7.09696E+12**			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	**639657.6366**	**118148.0881**	**5.414032902**	**2.67372E-05**	**886110.2291**	**393205.044**	**886110.2291**	**393205.044**
TRADE OPENESS	**4287038.563**	**318769.5016**	**13.44870994**	**1.76934E-ll**	**3622097.036**	**4951980.089**	**3622097.036**	**4951980.089**

Substituting the values of the coefficients of regression in equation II we get the following result:

$(GDP)_{t=1992-2013} = 639657.6366 + 4287038.563\ (TO)_{t=1992-2013} + \omega$…….IV

θ **=639657.6366**

γ_1 **=4287038.563**

The comparison between the two regression analysis gives us imperative insight about the impact of trade openness on the Gross Domestic Product especially before and after the advent of the major series of structural reforms in the Indian Economy. The value of coefficient of determination in the analysis of balance III is 0.55 whereas in that of analysis of equation IV the value of coefficient of determination is 0.9.The regression model III accounts for 55% of the variance while regression model IV accounts for 90%. The greater discrepancy or variance that is accounted for by the regression ideal the closer the data points are to the fitted regression line. In broad-spectrum, the greater the R^2 value, the well the model fits the data. The third equation indicates that the model explains only 55% variability of the retort data about its mean, whereas in the fourth equation model explains 90% variability of the retort data about its mean.

Evidently true the degree of bearing of t openness on the Gross Domestic product of the Indian Economy through the post liberalization phase (1992 to 2013) is much higher than the impact chronicled before liberalization (1970-1991). The value of ai **is 2426346.465** while the value of γ_1 **is 4287038.563** which sharply indicates the grander impact of post liberalized trade openness on GDP them pre liberalized performance of trade on growth. The indicators also show the vaster dependence of growth on pe rformance of trade in the Indian Economy during the pre liberalized period (δ = **-131734.871)** while it is identifiable that there are many other factors which are driving the positive growth in the Indian economy altogether after the series of structural reforms in the economy (θ **=639657.6366).**

The second hypothesis in my study is thus put to test and result declares the rejection of the null hypothesis and acceptance of the alternative, there is a significant difference in impact of pre and post liberaliz ed trade openness on the growth performance of the Indian Economy and that the impact is greater in post liberalized era.

Further to extend my study I have found trend values of trade openness and hence forecasted the expected trade openness in the Indian Economy upto 10 years till 2025.

Figure IV: Trend Values of trade openness since 1970 to 2013

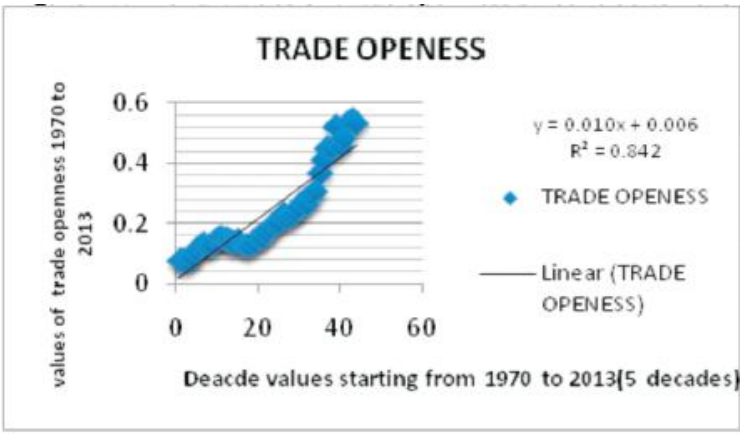
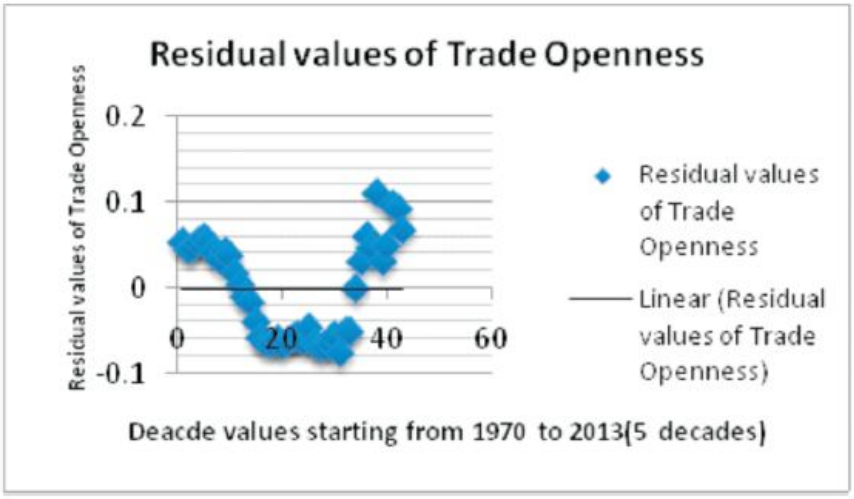


Figure IV and V:

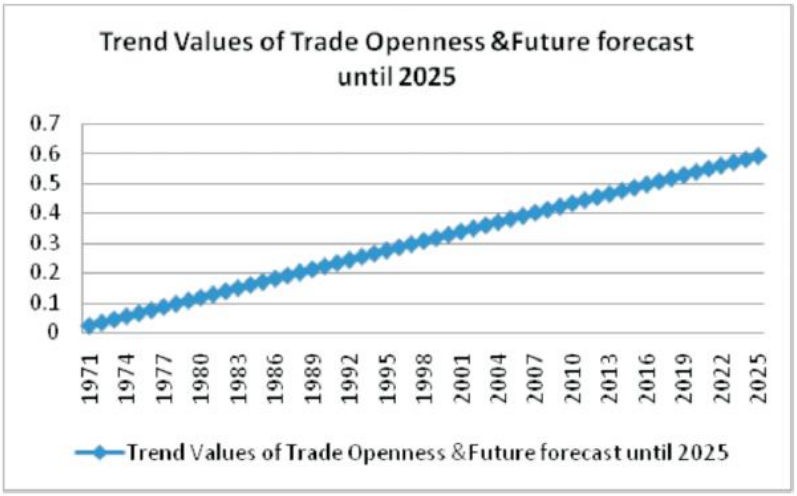
Usually R2 cannot determine the bias of coefficient estimates and predictions if any, and hence assessing residual plot is ominously necessary. Plotting the values of x in the linear equation, y-a+bx the trend values are thus mapped and its deviation from the actual gives us the residual plot whatsoever. The actual values furthermore have suffered being below the expected trend before trade liberalization and had suffered during the second decade of our study (1990's), but in the third decade and so on the numerals showed an increasing residual trend and henceforth the actual values of trade openness befitted more than the anticipated trend.

Figure V: Residuals of trade openness since 1970 to 2013



The residual values (deviation of trend values from the actual) show significant differences in actual and expected values of trade openness.

Figure VI: Trend and forecast of future values of trade openness



Trend Values of Trade Openness SFuture forecast until 2025

The future forecast of the trade openness shows consistent increase and thus is a sign of positive growth and development for the Indian Economy.

CONCLUSION

Trade liberalization has been extremely protuberant constituent of policy advice to an extraordinarily developing country like India during the last four decades. It may be asserted from the supposition that Economic Growth is perhaps the most imperative advantage originated from it. There can be another inference drawn from the study which prominently states that there has been improvement in exports and imports of our mighty nation after the series of structural reforms taken place during 1991.

Thus providing with a beneficial insight that trade openness has improved after the trade liberalization which has in turn indorsed competition in home and global market and also stimulated proficient allotment of resources in the Economy. My study also proclaims the future trend of positive trade openness in the Indian Economy and thus to sum up my study I have tried to validate the two objectives I have contemplated.

India has been farther open to the world and avowals an increase in trade openness after the Economic liberalization and that India's growth has been quite ominous and has been affected more during the time of post liberalization Economy than the pre era.

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ANNEXURE

YEAR	TRADE OPENESS	X =t- 1992	X(squared)	XY	Trend Values of Trade Openness &Future forecast until 2025	Residual values of Trade Openness
1971	0.077959854	-21	441	-1.637156939	0.02377	0.054189854
1972	0.078601456	-20	400	-1.572029118	0.03427	0.044331456
1973	0.090869665	-19	361	-1.726523641	0.04477	0.046099665
1974	0.110355748	-18	324	-1.986403473	0.05527	0.055085748
1975	0.124788428	-17	289	-2.121403274	0.06577	0.059018428
1976	0.129860852	-16	256	-2.077773639	0.07627	0.053590852
1977	0.12847321	-15	225	-1.927098148	0.08677	0.04170321
1978	0.130896731	-14	196	-1.83255423	0.09727	0.033626731
1979	0.15123762	-13	169	-1.966089062	0.10777	0.04346762
1980	0.156091087	-12	144	-1.87309305	0.11827	0.037821087
1981	0.147216403	-11	121	-1.619380428	0.12877	0.018446403
1982	0.143794495	-10	100	-1.437944946	0.13927	0.004524495
1983	0.139276375	-9	81	-1.253487378	0.14977	-0.010493625
1984	0.143282011	-8	64	-1.146256085	0.16027	-0.016987989
1985	0.131334951	-7	49	-0.919344658	0.17077	-0.039435049
1986	0.124599169	-6	36	-0.747595017	0.18127	-0.056670831
1987	0.128231678	-5	25	-0.641158389	0.19177	-0.063538322
1988	0.137309605	-4	16	-0.54923842	0.20227	-0.064960395
1989	0.153660847	-3	9	-0.46098254	0.21277	-0.059109153
1990	0.15650234	-2	4	-0.313004679	0.22327	-0.06676766
1991	0.171102573	-1	1	-0.171102573	0.23377	-0.062667427
1992	0.186467678	0	0	0	0.24427	-0.057802322
1993	0.198790928	1	1	0.198790928	0.25477	-0.055979072
1994	0.202128796	2	4	0.404257592	0.26527	-0.063141204
1995	0.230249072	3	9	0.690747215	0.27577	-0.045520928
1996	0.221818253	4	16	0.88727301	0.28627	-0.064451747
1997	0.227785045	5	25	1.138925223	0.29677	-0.068984955
1998	0.239377934	6	36	1.436267603	0.30727	-0.067892066
1999	0.252761277	7	49	1.769328936	0.31777	-0.065008723
2000	0.273816846	8	64	2.190534769	0.32827	-0.054453154
2001	0.264071781	9	81	2.376646028	0.33877	-0.074698219
2002	0.299661369	10	100	2.996613692	0.34927	-0.049608631
2003	0.310134576	11	121	3.411480341	0.35977	-0.049635424
2004	0.368574635	12	144	4.422895625	0.37027	-0.001695365
2005	0.413051901	13	169	5.36967471	0.38077	0.032281901
2006	0.45297793	14	196	6.341691018	0.39127	0.06170793
2007	0.448761924	15	225	6.731428861	0.40177	0.046991924
2008	0.522694852	16	256	8.363117639	0.41227	0.110424852
2009	0.454769632	17	289	7.731083742	0.42277	0.031999632
2010	0.482389225	18	324	8.683006058	0.43327	0.049119225
2011	0.540779505	19	361	10.27481059	0.44377	0.097009505
2012	0.547323564	20	400	10.94647128	0.45427	0.093053564
2013	0.532260955	21	441	11.17748006	0.46477	0.067490955
2014		22			0.47527	
2015		23			0.48577	
2016		24			0.49627	
2017		25			0.50677	
2018		26			0.51727	
2019		27			0.52777	
2020		28			0.53827	
2021		29			0.54877	
2022		30			0.55927	
2023		31			0.56977	
2024		32			0.58027	
2025		33			0.59077	