



Impact of Components of Globalisation on the Economic Growth in India: An Empirical Study

Shikha Gupta¹ and Nand Kumar²

Abstract

Globalisation is a multidimensional concept covering three aspects namely, economic, social and political. The present study analyses the impact of the above mentioned three main sub-indices of globalisation (Economic globalisation index, Social globalisation index and Political globalisation index) on the Annual rate of growth Gross Domestic Product (GDP_{rt}) of India. Data collected from UNCTAD and KOF globalisation index (expressing globalisation) has been used for the time span of 46 years (1971-2016), in an econometric model. The results suggest that economic and political globalisation exhibit positive linkages with the GDP growth rates, however social globalisation has a negative impact on the economic growth. The study is relevant to Indian policy makers and managers planning to expand on global frontiers.

Keyword: Economic Growth, Globalisation, Granger Causality, Ordinary Least Square.

Introduction

Globalization constitutes a multiplicity of linkages and interconnections that transcend the nation states. It defines a process through which events, decisions and activities in one part of the world can come to have a significant consequence for individuals and communities in quite distant parts of the globe. (Anthony McGrew, 1990).

Defining globalisation is a complex task as it should reflect the multidimensionality of the concept. (Philip G. Cerny, 1997) defined globalisation as a set of economic and political structures and processes deriving from the changing character of the goods and assets that comprise the base of the international political economy. Increase in globalisation is reflected by the openness of developing and emerging nations. India being a pertinent fragment of the emerging nations, experienced globalisation and its benefits, facing along with it, the opportunities and threats.

Globalisation has become a part of our lives. Presence of globalisation is witnessed with the ease in access to goods and services manufactured abroad in one's own nation. Globalisation is a convoluted and multidimensional phenomenon which has been affecting every sphere of trade and growth.

The assessment of linkages between globalisation and economic growth has always been seeking attention of various researchers, policy makers and hence it becomes relevant and desirable to assess the impact of globalisation on the economic growth. The relationship between the two is strong and is required to be studied from time to time as it serves as a very crucial issue in framing economic policies for growth and trade.

-
1. Research Scholar, Delhi Technological University
 2. Associate Professor, Delhi Technological University

Impact of Components of Globalisation on the Economic Growth in India: An Empirical Study

Expressing the impact of globalisation on economic outcomes is critical as it is difficult to measure globalisation and further assessing its impact on the different facets of economic growth. The multidimensionality of concept of globalisation has been simplified by Dreher (2006, 2008) suggesting a globalisation index including three sub globalisation indices: economic, social and political indices.

Caselli (2006) also mentioned three similar dimensions of globalisation, however with some differences in the sub-dimensions. The present study used this approach (KOF index) and aimed to highlight the impact of globalisation on the Indian economy, by analysing the effect of economic, social and political indices on economic growth (Real Gross Domestic Product, per capita) during 1971-2016.

No systematic positive or negative relationship of globalisation and economic growth has supported by previous empirical analysis, however it has been believed that globalisation and economic growth are positively related to each other. It still remains a controversial issue and its net effect still remains puzzling.

The structure of the paper is as follows: Introduction is followed by the review of the relevant literature. The third section of the paper discusses the data and its sources and the methodology undertaken. Further the empirical model is specified followed by the analysis of the findings and discussion on the research implication and is finally concluded with the future scope of extensions.

Literature Review

(Anthony McGrew, 1990; Robertson, 1992; Albrow, 1997; & Guillen, 2001) suggested various definition of globalisation and calling it rather a process leading to greater interdependence and mutual awareness among various units in the world.

(Philip G. Cerny, 1997; Caselli, 2006; Dreher, 2006, 2008) further reflected upon the multidimensionality of the concept and broadly suggested that globalisation can be prorated into the economic, social and political aspects.

(Alesina et al., 1994; Garrett, 2001; Milanovic, 2003; Woo, 2009; Adit and Gassebner, 2010) contributed to literature in assessing the benefits globalisation has brought to economic growth. (Aghion and Williamson, 1998; World Bank, 2002; James, 2002) have analysed the relationship between globalisation and various factors like growth, poverty, technology, inequality, etc

(Dollar, Kraay, 2002; Stiglitz, 2004) analysed developing countries witnessing rapid growth because of globalisation and also suggested that it can have adverse effects if not managed properly. Stiglitz also mentioned eight channels through which adverse effects take place.

(Dreher, 2006, 2008) introduced KOF index of globalisation to analyse the impact of globalisation on the economic growth of 123 countries, dividing globalisation index into Social, Political and Economic globalisation indices. Robustness of the index has been checked by many researchers.

(Afzal, 2007; Shaikh and Shah, 2008) examined in their study the positive impact of globalisation on macroeconomic performance. (Chang and Lee, 2010) examined the impact on economic growth of OECD countries, (Rao et al., 2011) for 21 low income African countries and (Leitão, 2012) for American economy. (Aka, 2006) assessed the relationship between openness and globalisation on economic growth in Côte d'Ivoire, using VAR model.

(Mustascu and Fleischer, 2011) investigated globalisation in Romania and its impact on economic growth of Romania, suggesting a unidirectional causality running from economic growth to globalisation. (Morita et al., 2015; Iovitu et al., 2015) suggested globalisation as the engine for economic growth. (Ray, 2012) found similar results for India.

The studies on the impact of globalisation on economic growth are numerous but the dynamic nature of globalisation requires a time to time reevaluation of the process and its effects that follows. The aim of the present study is to fill the gap in limited literature in Indian context, indicating the trends for the new phenomenon and policy frameworks.

Data

Annual rate of growth of GDP (GDP_{rt}) of India has been taken for 46 years (1971-2016) from the UNCTAD data centre. The three globalisation indices have been obtained from the KOF data base of the Swiss Economic Institute. The components of the globalisation indices are Economic Globalisation Index (EGI) (35%), Political Globalisation Index (PGI) (28%) and Social Globalisation Index (SGI) (38%).

The data on economic integration consists of Actual flows (50%) and trade Restrictions (50%). Actual flows are measured with the help of Trade, 23%; Foreign Direct Investment, 29%; Portfolio investment, 27% and Income payments to foreign nationals, 22% (all in percentage of GDP). Restrictions consists of the Hidden import barriers, 20%; Mean tariff rate, 30%; Taxes on International trade (in percentage of current revenue, 24% and Capital account restrictions, 26%.

The data on Political engagement is assessed using the number of embassies in a country, 28%; Membership in international Organisations-34% and participation in the UN security Council missions, 32%.

The data on social globalisation is calculated on the basis of Data on personal contact (24%), Data on information flows (39%) and the Data on cultural proximity (37%). Data on personal contact is assessed using the outgoing telephone traffic-31%; Transfers (in percentage of GDP) ,9%; International Tourism, 1%; Telephone average costs of call to USA ,33% and Foreign population (in percentage of total population), 26%.

Data on information flow is based on the telephone mainlines (per 1000 people), 18%; Internet hosts (per capita), 15%; Internet users (as a share of populations), 18%; Cable television (per 1000 people), 16%; Daily newspapers (per 1000 people), 16% and Radios (per 1000 people), 17%. Data on cultural proximity is based totally on the number of Mc Donald's restaurant (per capita).

All indices range between 0 (not globalised) and 10 (globalised).

Methodology

Annual rate of growth of GDP is assumed to be a function of Globalisation index, ceteris paribus.

$$GDP_{rate} = f(GI) \quad (i)$$

Where, GI is the overall globalisation index.

To test the effect of all the components, the following equation is used:

$$GDP_{rate} = C + \beta_1 EGI + \beta_2 PGI + \beta_3 SGI + \varepsilon$$

where: C is a constant (intercept), GDP_{rate} is the annual rate of growth of the GDP. EGI is the Economic Globalisation Index, PGI is the Political Globalisation Index, SGI is the Social Globalisation Index and β_1 , β_2 and β_3 are their respective regression coefficients to be estimated and ε is the error term.

To check the stationarity of the model, Unit root Test is conducted with ADF test. The model is estimated using OLS. Complying to the basic assumptions of OLS the model is checked for the Auto-correlation and homoscedasticity. Further, Granger causality test is undertaken.

Data has been processed using Eviews 9.0 software.

Results and Findings

The unit root test are results are as follows:

Table 1: Unit Root for with Augmented Dickey Fuller (ADF) test

Variable	With Intercept	With Intercept & Trend	Without Intercept & Trend	Level of stationarity
GDPrate	-5.75402***	-7.32806***	-0.8574*	Level
EGI	-2.60394*	-2.48363*	-2.28185***	1 st Difference
PGI	-8.54912***	-8.50592***	-7.61335***	1 st Difference
SIGI	-4.90807***	-4.85202***	-4.59251***	1 st Difference

Note: ***, **, * suggests stationary at 1%, 5% and 10% level of significance respectively.

GDPrate is found to be stationary at 1% level of significance with intercept at level. EGI is stationary at 10% level of significance with intercept. PGI and SIGI are stationary at 1% level of significance with intercept at 1st difference.

Table 2: Results of OLS (1971-2016)

Constant	-7.375 (5.364)
EGI	0.019 * (0.112)
PGI	0.179* (0.094)
SIGI	-0.077 (0.117)
R-squared	0.530
Adjusted R-squared	0.514
No. of obs	46

Standard errors are reported in parentheses. *, **, *** indicates significance at 90%, 95 % and 99% level, respectively.

The model is statistically validated for a significance threshold of 5%, Prob (F-statistic) is $0.004263 < 0.005$ and F-statistic $(5.092586) > F_{0.05;3,42} = 2.82704872$.

EGI has a positive impact on GDP rate, the coefficient being 0.019063 and Prob of 0.0865 (<0.10) and a standard error of 0.112076. PGI too has a positive impact on GDP rate, its coefficient is 0.179702 for a Prob of 0.0630 (<0.10) and a standard error of 0.094083. SIGI has

a negative validated influence on GDP rate, its coefficient is -0.076695 for a Prob of 0.0517 (<0.10) and a standard error of 0.117418.

The estimated equation is:

$$GDP_{rate} = -7.37555136267 + 0.0190632208029*EGI + 0.179702446524*PGI - 0.076694601847*SGI$$

Heteroskedasticity of errors is tested using the White test (Table 3).

Table 3: Heteroskedasticity Test: White

F-statistic	0.970090	Prob. F (9,36)	0.4802
Obs*R-squared	8.978536	Prob. Chi-Square (9)	0.4393
Scaled explained SS	15.28632	Prob. Chi-Square (9)	0.0834

The value of obs*R-squared (8.978536) $< \chi^2_{0.05,9} = 16.91897760$, suggesting the model is homoscedastic for a significance level of 5%.

Further the model is checked for autocorrelation (Table 4)

Table 4: Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.207373	Prob. F (2,40)	0.8136
Obs*R-squared	0.472063	Prob. Chi-Square (2)	0.7898

The value of the obs* R-squared (0.472063) $< \chi^2_{0.05,2} = 5.99146455$, meaning the null hypothesis is accepted and errors are independent.

Table 5: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
EGI does not Granger Cause GDPRT	44	3.50706	0.0398
GDPRT does not Granger Cause EGI		0.65882	0.5231
PGI does not Granger Cause GDPRT	44	3.51587	0.0395
GDPRT does not Granger Cause PGI		0.11284	0.8936
SGI does not Granger Cause GDPRT	44	2.77531	0.0747
GDPRT does not Granger Cause SGI		0.54006	0.5870
PGI does not Granger Cause EGI	44	4.11773	0.0239
EGI does not Granger Cause PGI		0.53893	0.5877
SGI does not Granger Cause EGI	44	4.40286	0.0189
EGI does not Granger Cause SGI		1.92460	0.1595
SGI does not Granger Cause PGI	44	0.07560	0.9273
PGI does not Granger Cause SGI		6.54637	0.0035

Based on the Probability values reported in the table 5, it can be suggested that Granger causality runs one way from EGI to GDPRT, from PGI to GDPRT, PGI to EGI, SGI TO EGI and from PGI to SGI. However, no bidirectional causality has been established. It is evident with the results that any changes in PGI precede changes in GDPRT, EGI and SGI. Further, SGI predictably changes before EGI and EGI before GDPRT

Implications

The positive influence of economic globalisation on economic growth can be attributed to the increased trade and commerce with the rest of the world. As an economy is globalising on economic dimension, it is directly accounting for an increase in GDP as the trade, inflow and outflow of investments etc flourish.

The impact of political dimension on economic growth is related to India's involvement in the membership in various treaties and organisations, number of embassies. For instance, India hosts 151 embassies/high commissions, and in addition there are 254 consulates and 18 other representations in India, signifying a high political globalised nation and hence providing better avenues for trade and commerce to expand and hence an increased GDP.

One of the possible reason of negative influence of social globalisation index on economic growth could be the phase of protectionism being followed by the developed nations. For instance, restricting the to and fro flow of information, people and ideas from one nation to another which is directly hampering the output of an economy.

Conclusion

The study intended to analyse the impact of all the aspects of globalisation on the economic growth of India. Economic globalisation suggested by the flow of goods, capital and services and information about the market exchanges. Political globalisation characterised by the diffusion of the government policies and memberships of countries in international agreements. And, social globalisation characterised by the spread of ideas, people, information and cultural similarities.

The economic dimension of globalisation is evidently affecting the economic growth positively and significantly. It is because of the financial developments and significant contribution of trade. The political dimension too affects the economic growth as the nature of the political system of an economy goes hand in hand with the framing of the economic policies and planning of an economy. However, social aspect of globalisation is found to have a negative influence on growth as it depends on aspects like international linkages, flow of information and the cultural proximity.

With this comes the role of the policy makers to increase the benefits from globalisation by drafting strategies and policies where the development of human capital can lead to increase in the economic growth of the economy. This would also increase in the trade of innovation.

India indeed has benefitted from globalisation, which is also supported by the empirical evidence from the study. India is an emerging nation, providing a pool of human resources, innovations, goods and services to the rest of the world. More appropriate policies can be used to harness the advantages of India's position in the global society.

Many researchers have contributed to the investigation of impact of globalisation on economic growth. However, still leaving the question of fate of globalisation in the post global financial crisis era with a major setback to world trade in 2008. The question still remains unanswered that whether nations are still moving towards globalisation or reversed their paths towards de-globalisation. Giving a next phase to the research project.

References

- Afzal, M. (2007). The impact of globalization on Economic growth of Pakistan. *The Pakistan Development Review*, 46(4), pp.723-734.
- Anthony McGrew, "A Global Society" in Stuart Hall, David Held, and Anthony McGrew, *Modernity and Its Futures* (Cambridge: Polity Press, 1990). 9 See
- Philip G. Cerny, "Paradoxes of the Competition State: The Dynamics of Political Globalization," *Government and Opposition* 32 (2, spring 1997): especially 270–1.
- Aidt, T and M Gassebner (2010). Do autocratic states trade less? *World Bank Economic Review*, 24(1), 38–76.
- Aka, BF (2006). Openness, globalization and economic growth: Empirical evidences from Côte d'Ivoire, 1969–2002. *International Journal of Applied Econometrics and Quantitative Studies*, 3(2), 67–86.
- Alesina, A, E Spolaore and R Wacziarg (2000). Economic integration and political disintegration. *American Economic Review*, 90(5), 1276–1296.
- Alesina, A, V Grilli and GM Milesi-Ferretti (1994). The political economy of capital controls In *Capital Mobility: The Impact on Consumption, Investment and Growth*, L Leiderman and A Razin (eds.), pp. 289–321. Cambridge, UK: Cambridge University Press.
- Bhandari AK, Heshmati A (2005) Measurement of Globalization and its Variations among Countries, Regions and over Time. IZA Discussion Paper No.1578.
- Birdsall N (2002) A stormy day on an open field: asymmetry and convergence in the global economy. In: Gruen D, O'Brien T, Lawson J, editors. *Globalisation, living standards and inequality*. Sydney: Reserve Bank of Australia and Australian. 66–87.
- Chang CP, Lee CC (2010) Globalization and Economic Growth: A Political Economy Analysis for OECD Countries. *Global Economic Review* 39: 151–173
- Chang R, Kaltani L, Loayza NV (2009) Openness can be good for growth: The role of policy complementarities. *Journal of development economics* 90: 33–49
- Chang, CP, CC Lee and MC Hsieh (2011). Globalization, real output and multiple structural breaks. *Global Economic Review*, 40(4), 421–444.
- Dollar D (1992) Outward-oriented developing economies really do grow more rapidly: evidence from 95 LDCs, 1976–1985. *Economic development and cultural change* 40: 523–544
- Dollar D, Kraay A (2002) Growth is Good for the Poor. *Journal of economic growth* 7: 195–225
- Dreher A, Gaston N, Martens P (2008) *Measuring globalisation: Gauging its consequences*: Springer Verlag.
- Dreher, A (2006a). The influence of globalization on taxes and social policy: An empirical analysis for OECD countries. *European Journal of Political Economy*, 22(1), 179–201.
- Dreher, A (2006b). Does globalization affect growth? Evidence from a new index of globalization. *Applied Economics*, 38(10), 1091–1110. Type equation here.
- Dreher, A, J Sturm and R Vreeland (2009). Development aid and international politics: Does membership on the UN Security Council Influence World Bank decisions? *Journal of Development Economics*, 88(1), 1–18.
- Engle, RF and CWJ Granger (1987). Cointegration and error correction: Representation, estimation and testing. *Econometric*, 55(2), 251–276.
- Fischer S (2003) Globalization and its challenges. *American Economic Review* 93: 1–30
- Garrett, G (2001). Globalization and government spending around the world. *Studies in Comparative International Development*, 35(4), 3–29.
- Guillen (2001). Is Globalization Civilizing, Destructive or Feeble? A Critique of Five Key Debates in *The Social Science Literature*, Annu. Rev. Social. 2001. 27:235–60
- Ioviu, M., Bodislav, A., Diaconu, A. (2015). Globalization-engine for economic growth. *Journal of Knowledge Management, Economics and Information Technology* Vol. V (6), pp.1-9.

Impact of Components of Globalisation on the Economic Growth in India: An Empirical Study

- Kilic, C. (2015). Effect of globalization on economic growth: a panel data analysis for developing countries. *Economic Insights-Trends and Challenges*, Vol.14, No.1, pp.1-11.
- KOF, Index of Globalization. Available at <http://globalization.kof.ethz.ch/>
- Krugman P (1993) *International Finance and Economic Development*. In: Giovannini A, editor. *Finance and Development: Issues and Experience*. Cambridge Cambridge University Press. 11–24.
- Ying (2014), N.C. (2012). *Economic Growth, Globalization and Trade*. *Management Research and Practice*, Vol.4, Issue 3, pp.18-24.
- Meraj.M. (2013). Impact of globalization and trade openness on economic growth in Bangladesh. *Ritsumeikan Journal of Asia Pacific Studies*, Volume 32, pp.40-50.
- Mishkin, FS (2009). Globalization and financial development. *Journal of Development Economics*, 89(2), 164–169. 1550065-33
- Milanovic, B (2003). The two faces of globalization: Against globalization as we know it. *World Development*, 31(4), 667–683.
- Morita, T., Takatsuka, H. and Yamamoto, K. (2015). Does globalization foster economic growth? *The Japanese Economic Review* Vol.66 (4), pp.492-519.
- Mutascu, M and AM Fleischer (2011). Economic growth and globalization in Romania. *World Applied Sciences Journal*, 12(10), 1691–1697.
- Neagu, O. (2014). How much does globalisation affect the income inequality in India? *Studia Universitat's Vasile Goldi Arad, Economics Series*, Vol. 24, Issue 4, pp.76-83.
- Pedroni, P (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and Statistics*, 61(1), 653–670.
- Rao, BB, A Tamazian and KC Vadlamannati (2011a). Globalization and growth in the low income African countries with the extreme bounds analysis. *Economic Modelling*, 28(3), 795–805.
- Rao, BB, A Tamazian and KC Vadlamannati (2011b). Growth effects of a comprehensive measure of globalization with country specific time series data. *Applied Economics*, 43(5), 551–568.
- Ray, S. (2012). Globalization and Economic Growth in India: A Granger Causality Approach. *Journal of Law, Policy and Globalization*, Vol. 2, 2012, pp.18-30.
- Samimi P, Lim GC, Buang AA (2011) *Globalization Measurement: Notes on Common Globalization Indexes*. *Knowledge Management, Economics and Information Technology* 1(7).
- Shaikh, F.M. and Shah, M.A. (2008). Impact of Globalization on Pakistan s Economy by Using CGE Model. *International Conference on Applied Economics*, pp.839-845.
- Stiglitz, JE (2004). Globalization and growth in emerging markets. *Journal of Policy Modeling*, 26(4), 465–484.
- Umaru, A. H., Ahmadu, A., Musa, S. (2013). Globalization and Its Impact on the Performance of the Nigerian Economy. *interdisciplinary Journal of Research in Business*, Vol.2, Issue 8, pp.1-6.
- WDI (2016). *World Development Indictors*. World Bank, World Development Report. Washington, DC: World Bank.
- Woo, J (2009). Productivity growth and technological diffusion through foreign direct investment. *Economic Inquiry*, 47(2), 226–248.
- World Bank (WB) (2016), Data. Available at <http://databank.worldbank.org/data>
- Ying, Y.-H., Chang, K., Lee, C.-H. (2014). The Impact of Globalization on Economic Growth. *Indian Journal of Economic Forecasting*, XVII (2), pp.25-34