"IMPACT OF GLOBALIZATION ON DEVELOPING ECONOMIES: A CASE STUDY OF INDIA"

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APARNA P.P.

under the guidance of

Dr. Archana Fulwari
Assistant Professor
Department of Business Economics
Faculty of Commerce
The Maharaja Sayajirao University of Baroda

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1. INTRODUCTION

Globalization is not a new concept. It has travelled a vast distance since ancient times driven by inventions and diffusion. The evolution of globalization is almost as old as humanity, although it became economically meaningful since 19th century. In particular, the term came into prominent usage since the 1980s. The ancient wave of globalization prior to 1600 was characterized more in terms of social globalization as people moved from one place to another in search of food and shelter. The second wave of globalization was marked by cultural and economic exchange during the period between 1600 and 1800. The modern day globalization, classified as a period from 1800 onwards got the boost from the Industrial Revolution which entailed sourcing of raw materials and markets for finished goods across countries. The current wave of globalization is driven by technological developments and more particularly, by digital integration, blurring political boundaries and causing spillover effects to transcend geographical distances.

Globalization makes a country to move from traditional ways of economic activities to modern ways, intertwined with advanced science and technology, particularly, information technology. Under the race for growth, globalization is driven by the divergence of cultural, political, economic, financial, ecological, technological, and social well-being of a country, managing to create investment opportunities, higher productivity, better resource allocation, trade, technology transfer, and more integration among economies with greater efficiency. The benefits of globalization for economies range from economic development, cultural exchange, changed the management of work, increased competition, reduced geographic distances, increasing financial exchange between companies, and wider growth across geographies, to state a few.

Trade agreements are essential elements in the process of globalization for an economy as they manifest several benefits for the bilateral or multilateral trading partners. These agreements support the trading countries by the reduction in trade barriers, value added taxes, subsidies, and other barriers. Globalization also entails liberalization of protocols for foreign investments and trade, attracting global capital. Expanding markets induce further technological changes.

New technologies always encourage new entrants, creating new global markets for demand and supply of goods and services, as also development of new labour skills across countries.

Notwithstanding the proven gains from globalization, there has also been a rise in anti-globalization voices and movements across the world in recent times as the adverse impacts attributed to it become increasingly manifested. The debate over globalization forming the base of economic integration and leading to the rise of inequalities is gaining tenacity in world economies, be it the developed nations or developing. It is being increasingly demonstrated that the evolving competition may lead to social and cultural disintegration, political rift, and generating inequalities in the socio-economically vulnerable groups. These negative consequences are seen to be evoking countries to move towards restricting globalization to save their sovereignty and a call for return to local sourcing in production and consumption alike. Kingdom's exit from the European Union, the US-China trade war, the dispute between the United States and the World Trade Organization, India's trade dispute with neighbouring countries, India's trade restriction with Malaysia over palm oil, etc., are some cases in point.
In the light of demonstration of both positive and negative manifestations of globalization across the world, it is intriguing to inquire into the globalization experience of the Indian economy since the introduction of economic reforms in the early 1990s. While the literature on globalization has many studies based on cross-section of countries including India, there are fewer studies exclusively centred on India. Most studies in the context of India are found to have focused on select dimensions of globalization in India, such as foreign direct investment or foreign trade, or with reference to select sectors in which liberalization and globalization measures have been initiated. Some of these are Wani and Mir (2021), Manhas (2020), Reddy (2019), Marjit and Yu (2018), Mohanty (2017), Shanmukhappa (2016), Khan (2015), Banerjee (2012), Chakraborty and Basu (2002), etc., covering areas ranging from trade openness, capital flows, environmental impact to social impact, apart from other issues and challenges of globalization. Very few studies are found that inquire into the extent of globalization in its entirety at the macroeconomic level and that examine the impact of globalization on the economy at the aggregate level.

In this context, thirty years since economic reforms including those related to globalization of the Indian economy, merits an examination at the macro economy level, as to the nature of globalization of the Indian economy, its dimensions, as also its width and depth. The present study is a modest attempt to capture the multi-dimensional nature of globalization.

2. REVIEW OF LITERATURE

The literature on globalization studies are replete with several theoretical and empirical approaches to globalization. The earlier studies have built theoretical models of economic growth which incorporate some element of globalization in order to study its impact on the economy. These include Baba (1956), Kindleberger (1956), Das (1966), Hagen and Hawrylyshyn (1969), Williamson (1978), Cardoso & Faletto (1979), Stokes and Jaffee (1982), and Jaffee (1985). The subsequent studies such as Leamer (1988), Grossman and Helpman (1990), Rivera-Batiz and Romer (1991), Matsuyama (1992) and Edwards (1992) have examined these theoretical models for their empirical validity. This section reviews the literature related to globalization which has been organized into four sections. The first section reviews the literature related to various dimensions of globalization while the second section deals with studies on indices of globalization The third section examines studies related to globalization and economic growth. Section four reviews studies on socio-economic development in the era of globalization. Section five deals with studies related to globalization and the Indian economy.

2.1: Studies on Globalization and its Dimensions

Globalization has been embarked upon through the migration of homo sapiens in ancient times about millions of years ago. At first trade has been used as a dimension of globalization which started 3000 years before Christ. The trade theories were put forward by Adam Smith in 1776, followed by Ricardo in 1817. But the empirical study relating to trade started with the establishment of GATT (General Agreement on Tariff and Trade). The economists started relating trade and economic growth since 1950's. Baba (1956), Kindleberger (1956), Das (1966), Hagen & Hawrylyshyn (1969), Williamson (1978), Cardoso & Faletto (1979), Stokes & Jaffee (1982), Jaffee (1985), have examined the export effect on economic growth. The endogenous growth theories assumed that the technological progress was endogenous and empirically tested the openness effect on economic growth. Helpman (1988), Bradford and Chakwin (1993), Rodrik (1995), Frankel & Romer (1999), have undertaken similar studies on trade effect on economic growth using Trade to GDP.

These studies are centered around the economic aspect of globalization where they focus on the economic openness. Harrison (1996), Aka (2006), Matadeen, Matadeen and Seetanah

(2011), Mohanty (2017), Darku and Yeboah (2018), Shulgin, Zinkina and Andreev (2019), and Ramzan et al. (2019) have used a common approach where various measures of openness related to economic aspects were used and subsequently examined to test the relationship with economic growth. A common set of variables such as trade to GDP, imports to GDP, exports to GDP have been used to measure the economic openness, and most studies have found positive significant effect of openness on growth.

Another set of studies employed financial dimensions of globalization. These include Schindler (2009), Hanh (2010), Pereira, et al. (2012), and Boyrie and Johns (2013) which have used FDI inflow to GDP and FII to GDP as measures of globalization, along with indicators of financial development such as, ratio of liquid liabilities to GDP, credit issued to private enterprises to GDP and ratio of gross private capital flow to GDP to show the impact on economic growth.

Some studies have differentiated between *de-facto* and *de-jure* indicators of economic and financial dimensions. *De-facto* indicators are outcome-based indicators which show the country's actual integration, while *de-jure* measures are related to legal framework of the country which shows the its willingness to be open by means of the regulatory environment. Figini and Santarelli (2006), Baltagi, Demetriades and Law (2009), Arribas, Perez and Ausina (2009), Arribas, Perez and Ausina (2009), Agudze and Olarewaju (2021), and Grabner C. et al. (2020) have used *de-facto* measures such as trade volume related to GDP approach. There are numbers of variants related to Trade/GDP, namely, Exports/GDP and Imports/GDP, Trade/Population. For financial cross-country asset and liability to GDP, ratio of inward FDI to GDP, ratio of inward portfolio to GDP, ratio of inward debt to GDP, ratio of outward FDI to GDP have been used. GDP has been taken as reference point. For *de-jure* tariff, the indicator has been measured based on different data set available and updated by Lane and Milesi-Ferretti.

Estrada, Park & Ramayanti (2015) have discussed about the effect of financial development and openness on economic growth. The financial depth indicators used in the study areal liquid liabilities as a share of GDP, private credit by deposit money bank as a share of GDP and stock market capitalization as a share GDP. To investigate the relationship for openness, total capital flow, Lane and Milesi-Ferretti's openness measure and Chinn and Ito's openness indicators were used. The regression showed a positive effect of financial development and openness on economic growth.

2.2 Studies on Globalization Index

Some studies found in the literature on globalization have constructed indices of globalization based on its multiple dimensions. Scholars actively tried to develop globalization indices since 2000s; the first index on globalization being that developed by a management consulting firm AT Kearney, in association with Carnegie Endowment for International Peace's 'Foreign Policy' magazine, based on 14 variables on economic integration, personal contact, technology and political engagement. Simultaneously, the KOF (Konjunkturforschungsstelle of ETH Zurich, in Switzerland.) globalization index to measure the degree of globalization of 122 countries was developed in 2002 by the Swiss Economic Institute based on the ideas visualized by Axel Dreher. It included 23 variables across economic, social and political dimensions of globalization. It was updated by Dreher (2006) and further revisited using 43 variables (Dreher et al. 2008). The Centre for the Study of Globalisation and Regionalisation (CSGR) constructed the CSGR index on globalization based on 16 variables measuring economic, social and political dimensions of globalization (Lockwood and Redoano 2005). Kluver and Fu (2004) calculated cultural globalization index which was re-visited by Raab et al. (2008) to include social dimension. The Maastricht globalization index was first developed by Martens and Zywietz (2006) which was revisited by Figge and Martens (2014) to include environmental dimensions. Vujakovic (2010) introduced the New Globalization Index (NGI) by distinguishing globalization from regionalization. Regionalization included factors such as geographical distance between countries in km using city level data to assess the geographic distribution of population inside each country. The index also include some new variables such as trade mark application by non-residents, patent application by non-residents, environmental agreements, outbound student mobility, etc. Ghemawat and Altman (2016) distinguished the depth and breadth variables of globalization in the DHL connectedness index developed by DHL courier service firm. Bo & Pau (2008), Huh & Park (2019) and Carveth et al. (2019) have constructed indices based on economic integration where they sub divided the variables based on extra-regional and intraregional dimensions. These indexes differ in the number of countries, the indicators used, the weightage scheme. One common findings in these indices are that the top ranking countries are the European countries.

2.3: Studies on Globalization and Economic Growth

The role of globalization in economic growth has been a matter of research inquiry for many country-specific as well as cross-countries studies. It has been linked with economic growth through alternative channels, most commonly, trade and capital flows. Some studies have used globalization indices to examine their impact on economic growth. Accordingly, this section is divided into three sub-sections; one related to the channel of trade, another related to capital flows and the third sub-section related to studies on globalization indices and economic growth.

2.3.1: Linkages between Globalization and Economic Growth Through the Channel of Trade

The earlier studies related to trade and economic growth professed outward-oriented approach and believed that export increases economic growth. Baba (1956) analyzed the impact of trade on the economic growth for Japan. He also examined how the share of Japan's trade in world trade has impacted the GDP of Japan. Kindleberger (1956) analyzed the effect of trade on economic development of European countries based on the index of their industrial export and imports. On the basis of the index, the study asserts that their terms of trade were unfavourable vis-à-vis US and they therefore advocate that the terms of trade need to be made favourable to improve the stage of development. Das (1966) made an attempt to analyze if foreign trade induced economic growth in central Africa and found that the exports in the primary sector and mineral products have increased along with increase in the GDP. Hagen and Hawrylyshyn (1969), however, found low significance of exports and foreign capital inflows for economic growth in a regression analysis of 33 developing countries. Williamson (1978) analyzed the relationship between economic growth, exports, and foreign capital flows for Latin American countries. Calling it the two-gap model, the study firstly relates the revenue from exports and foreign investment inflows as filling the gaps in the supply of imported goods and total volume of investment. These two in turn help in positively impacting GDP. They term it as the capital supply model.

Cardoso and Faletto (1979), Stokes and Jaffee (1982) and Jaffee (1985) growth models are based on export dependent economic growth and found that increase in exports proportion of GNP had a positive significant effect on GNP. Similar results are found in Helpman (1988), Bradford and Chakwin (1993), Rodrik (1995), and Frankel and Romer (1999), who have

examined the correlation between trade deepening of the GDP and economic growth as measured by GDP.

The series of endogenous growth models established a link between trade and economic growth. Balassa (1968) found a high integration between exports and economic growth using correlation for 11 countries with a developed industrial base, such as, India, Chile, Brazil, Mexico, Taiwan, etc. The increase in GNP was found due to the deepening of exports to GNP. Krueger (1978) and Tyler (1981) assess the impact of export on GNP using time series and indicated that an increase in exports leads to an increase in growth. Bardhan and Kletzer (1984) have developed a linkage between the human capital model and international trade, where labour productivity increased because of learning by doing. Leamer (1988) built a theoretical model of openness to predict the volume of trade in absence of trade protectionism. Edwards (1992) applied regression analysis to the model developed by Leamer (1988) which revealed significant positive effect of trade deepening on economic growth.

Lucas (1988) constructed a theory of growth incorporating international trade, using select indicators of economic development. He considered three models: firstly, a model based on physical capital accumulation and technological change. Secondly, a model based on human capital accumulation measured by enrolment in schools. Thirdly, model based on human capital accumulation on account of learning by doing. These new growth theories postulate that increased openness in terms of rising imports of goods and services had a positive impact on economic growth through their impact on productivity of labour and capital. The study emphasized the role of free trade agreements in generating technological progress and productivity of countries. Grossman and Helpman (1991) analyzed the growth models involving Research and Development (R&D) sectors and international trade. They identified the channels for openness in terms of international flow of goods and services, international transmission of ideas and movement of capital. These international transmissions were postulated to improve technologies which lead to increase in the productive capacities, and thereby, economic growth. Grossman and Helpman (1990), Rivera-Batiz and Romer (1991), and Matsuyama (1992) have examined models on production which developed a link between growth and foreign trade in terms of knowledge transfer and specialization. Quah and Rauch (1990) and Barro (1991) have used cross-sectional and time-series data of trade to GDP ratio for less developed countries, and pointed out that increasing degree of trade openness raised growth of the economies. Romer (1994) and Pack (1994) have used the endogenous growth

models developed by Romer (1986) and Lucus (1988) for analyzing the economic growth through international trade. Michael (1997) has analyzed the relationship between trade liberalization and economic growth for 41 countries relating the ratio of exports to GDP with economic growth as measured by GDP. Trade was found to enhance economic growth through specialization. Thus, it indicated a positive association between the rate of growth of GDP and the share of export in the GDP. However, Matteis (2004) found a negative effect of trade to GDP effect on economic growth, using regression analysis.

Stoianov (2007) has investigated the impact of financial and trade openness on the economic growth of nine eastern European countries. The study incorporates trade deepening in terms of the ratio of export and import to GDP and the ratio of inflow and outflow of FDI to GDP to examine the impact on GDP per capita. Other variables used in the model are the ratio of domestic credit claim to GDP to represent financial depth and the ratio of government consumption expenditure to GDP. General Method of Moments (GMM) estimator has been used to study the effect of financial and trade openness on economic growth. The findings reveal that trade openness had a significant positive impact on economic growth while financial integration had a negative impact on economic growth. Similar set of studies such as Meraj (2013), Were (2015), and Makhmutova and Mustafin (2017) found positive effect of trade openness on economic growth.

Blavasciunaite, Garsviene and Matuzeviciute (2020) have explored the trade balance effect on economic growth and trade deficits over the period from 1998 to 2018 for 28 European Union (EU) countries. They have used the Ordinary Least Square (OLS) method for estimating the dependence between variables. The ratios of imports to exports have been taken to represent trade balances. The study found that trade balance had a negative impact on economic growth. Worsening of trade balance was found to negatively impact economic growth. However, periods of trade deficit were not found to affect growth differently than trade balance.

2.3.2: Studies on Globalization and Economic Growth Through the Channel of Capital Flows

Apart from the trade channel, the second channel by which the impact of globalization on economic growth can be examined, is the channel of capital flows. This is because economic growth depends on capital formation as is well established in the literature. The studies based

on FDI can be traced to the 1960s, although, the linkages between FDI and economic growth can be found in studies from 1970s. Papanek (1973) applied regression analysis to examine the association between foreign private investment and growth in 51 less developed countries and found positive association between the two. Countries with higher foreign private investment were those with relatively higher economic growth. Likewise, Chase-Dunn (1975) and Bornschier, Chase-Dunn and Rubinson (1978) have analyzed the effects of FDI on economic growth and income inequality for 91 countries. Variables such as GDP per capita, the ratio of FDI to domestically owned capital stock as a measure of capital ownership, and GINI index have been used. The results suggest that FDI led to short-run increase in economic growth but it was also found to increase income inequality.

Jackman (1982) has used GNP per capita, gross domestic investment to GDP and foreign investment to GDP for analyzing the relationship between foreign investment and economic growth, and found a positive relation between for high-income countries and negative relation for medium-income countries. The findings of Firebaugh (1992), however, are at variance from those of Jackman (1982). The former found that developing countries with higher FDI had higher levels of economic growth. Other studies like London (1987), London and Smith (1988), London and Williams (1988), London and Robinson (1989), Boswell and Dixon (1990) and Wimberley (1990), Zeinelabdin (1998) and Dabour (2000) found positive results for FDI and economic growth.

Mclean and Shrestha (2002) have investigated the link between international financial integration and economic growth for 20 developing countries and 20 emerging and developing countries in Asia, Latin America, and Africa for the period 1976-1995. For financial integration, exchange arrangements and exchange restrictions (EAER) have been used as proxy variables. The regression analysis showed that the link between financial integration and economic growth was weak.

Hsiao and Shen (2003) have examined the relationship of economic growth and FDI inflow using panel data set for 23 developing countries covering the period from 1976 to 1997. They have also analyzed the factors that affect FDI inflow. Results suggested that FDI had and positive effect on GDP. Secondly, the study also regressed FDI on factors like corporate tax rate, openness index, corruption index, telephone main line as a percentage of urban population and illiteracy rate. It was found that countries having favourable values of these factors

attracted greater flow of FDI. Another study, Karimi and Yusop (2009) also found a positive effect of FDI on economic growth.

Klein and Olivei (2005) have examined the effect of capital account openness on financial depth and economic growth in a cross-section of 21 OECD and 74 non OECD countries from 1986-1995. The ratio of liquid liability to GDP and the ratio of a claim by financial intermediaries to the private sector to GDP have been used as measures of financial depth. Exchange arrangements and exchange restriction (EAER) have been used for capital account liberalization. Economic growth has been represented by real per capita income. OLS estimation shows that capital account openness had a significant effect on financial depth and economic growth.

Moghaddam and Redzuan (2012) have investigated globalization indicators for measuring economic growth in the eight developing countries from the year 1980 to 2010. FDI to GDP, and imports and exports were taken as indicators for globalization, and the rate of growth of GDP has been taken for economic growth. Results suggested that there was significant positive impact of globalization on economic growth for all countries. Antiquisa and Delunathe (2014) and Bhanumurty & Kumawat (2020) have used similar indicators for showing the effect of economic and financial globalization on economic growth. Both studies found positive effect of economic globalization and negative effect of financial globalization on economic growth in Philippines.

2.3.3: Studies on Globalization Index and Economic Growth

Apart from the studies centred around individual indicators of globalization, such as those through trade and capital flows, some studies have identified several dimensions of globalization which have been woven together into indices to capture their combined effect on economic growth. Dreher (2006) has used dimensions of economic, social and political integration to construct an index of globalization. He has used actual flows and restrictions as indicators for the dimension of economic integration. Actual flows refer to the ratio of trade to GDP, foreign direct investment to GDP, portfolio investment to GDP, ratio of income payments to foreign nationals to GDP, all expressed in terms of percentages. Restrictions refer to hidden import barriers, mean tariff rate, taxes on international trade as a ratio to current revenue, and capital account restrictions. The dimension of political engagement has been

represented by number of embassies in the country, membership to international organizations, and participation in UN Security Council missions. The social dimension of globalization is indicated by data on personal contact, data on information flows and data on cultural proximity. The sub-indicators for personal contact included outgoing telephone traffic, remittances (in the percentage of GDP), international tourism, telephone average costs of call to the USA, foreign population (in the percentage of the total population). The data on information flows was represented by telephone mainlines (per 1000 people), internet hosts (per capita), internet users (as a share of population), cable television (per 1000 people), daily newspapers (per 1000 people) and radios (per 1000 people). The proxy variables used for cultural proximity included the number of McDonald's restaurants (per capita). Using panel data for a period from 1970 to 2000 for 123 countries, the index of all these dimensions has been constructed and used to study the impact of globalization on economic growth using regression analysis. The empirical results show that economic and social dimensions promoted economic growth more robustly, while political integration was found to have no effect. Similar results were found by Nuno (2012), Gurgul and Lach (2014) and Kihcarslan and Dumrul (2018). However, Kilic (2015), Berhane (2016), Olimpia and Stela (2017), and Reeshan and Hassan (2017) found that economic and political globalization positively affected economic growth, while social globalization was found to have negative impact. All studies have largely used similar indicators of the various dimensions of globalization.

Samimi and Jenatabadi (2014) has examined the effect of economic globalization on economic growth for 33 Organization of Islamic Cooperation (OIC) over the period 1980 to 2008. They also study the effect of economic globalization on human capital development and financial development, and income levels of the countries. Further, the effect of economic globalization on growth has been analyzed by dividing the 33 countries into on three income categories: three high-income countries, 21 middle income countries and nine low income countries. They have used the panel data economic model for investigation. Real per capita GDP in the log form is taken as the dependent variable and is calculated based on purchasing power parity (PPP) exchange rates, obtained from Penn World Table (PWT 7.0) and the impact of economic dimension of KOF index has been examined on the former. For investigating the relationship Generalized Method of Moments (GMM) has been used. There is a positive impact of economic globalization on growth which is found to be statistically significant at one percent level. The effect of economic globalization on other dimensions of the KOF, and on human capital and financial development is found to be significant at one percent level of significance.

Further, economic globalization has a positive effect on high - and middle-income level countries and it is statistically significant at five percent level. However, the effect on low-income countries is found to be negative and statistically significant.

2.5: Studies on Globalization and Socio-Economic Development

The earlier studies related to socio-economic development were not directly related to globalization or its socio-economic dimensions. Studies since 1970s incorporated the inquiry into income inequality on account of FDI and trade channels of globalization. Studies like Bornschier, ChaseDunn, and Rubinson (1978), Evans and Timberlake (1980), Bornschier and Chase-Dunn (1985), Firebaugh (1992) and Dixon and Boswell (1996) have analyzed the effect of FDI on income inequality and growth. These studies have been carried out for Latin American countries, developing and less developed countries. They found increase in income inequality based on Gini coefficient compared for different years. Similarly, Krugman and Lawrence (1993), Wood (1994), Burtless (1995) and Cline (1997) have argued on widening income inequality on account of increasing imports and exports. These studies have been carried out for the US economy and developed and developing countries. Alderson and Neilson (2002) and Milanovic (2005) have examined the impact of globalization measured in terms of trade and capital flows, on income inequality. They found that increased globalization resulted into favourable effect on inequality, that is, it was found to have reduced over time.

Elmawazini et al. (2013) have used the Gini coefficient for analyzing the impact of economic and financial globalization indicators of KOF globalization for measuring the impact on inequality. The results reveal that both economic and financial globalization have widened the income gap within the South-East Europe and CIS countries.

Contractor & Mudambi (2008) have examined the impact of human capital investment on exports for 25 countries from the year 1989 to 2003, using OLS regression. Commercial service exports and manufacturing exports have been used as a variable for exports of goods and services. Adult literacy rate, total public spending on education, information and communication technology expenditure, and international telecom outgoing traffic minutes per 100 subscribers have been used to represent human capital investment. The findings reveal that human capital investment had a positive effect on exports. Another study Haq and Luqman

(2014) have found that that international trade enhanced the accumulation of human capital and which in turn contributed to economic growth.

Heshmati and Lee (2010) have investigated the relationship between globalization and income equality by developing an index based on economic growth. The analysis is carried out using panel data approach for 61 developed and developing countries for the period 1995 to 2001. The index is composed of four sub components: Economic Integration, Personal Contacts, Technology and Political Engagements to represent globalization which are same as the AT Kearney index. To assess the globalization effect on the countries, economic growth variables such as, GDP, GDP growth, GDP per capita and growth in GDP per capital were included. The effect of globalization on income equality has been estimated using regression analysis. Different Gini inequality measures are used to account for its sensitivity: Wgini, Mgini, and Gini. Wgini represents population weighted gini inequality, Mgini represents mean gini over time and gini is most recent year of inequality. The analysis found that there is a significant positive relation between globalization and economic growth but, negative relation between globalization and inequality.

Hassan, Bukhari and Arshed (2019) have analyzed the effect of competitiveness, governance and globalization on poverty in 73 developing countries from the year 2005 to 2016. Poverty gap has been used as a dependent variable. The independent variables include the indicators of governance such as voice and accountability measured by the participation of citizen in selecting governance, political stability, government effectiveness, regulatory quality, rule of law, control of corruption, as well as the governance index constructed on the basis of these indicators. Other independent variables include global competitive index, trade openness as percentage of GDP, and development expenditures measured in terms of total spending on health and education as a percentage of GDP. The unit root test has been used to check for stationarity of the variables. The study uses correlation analysis and Granger causality tests to eanalyze the effect of independent variables on poverty. The findings reveal that openness, competitiveness and development expenditures had a significant effect in poverty alleviation. All other governance indicators were found to have negative impact on poverty alleviation. Similar studies by Shabab and Islam (2018) and Lechheb, Ouakil, and Jouilil (2019) endorse the findings that globalization reduces poverty and income inequality.

Diaconu and Bayar (2020) have investigated the impact of all dimensions of globalization on human capital in eleven European countries for a period from 1993-2016 using OLS regression. Human development index, and KOF dimensions of globalization index have been used to analyze the socio-economic development in European countries. Since HDI and social dimension of globalization were found to be highly correlated, the latter was replaced by cultural dimension. Using regression analysis, it was found that economic and cultural had positive effect on socio economic development, while globalization was not found to have significant effect on development. Other studies like Figueroa (2014), Ulucak, Danish and Li (2020) and Roy, Basu and Dong (2021) have employed the common approach of using KOF index to study the impact on HDI but they differ in the findings. While Figueroa (2014) found overall globalization index to have positive effect on HDI, but in terms of individual dimensions of globalization the results were different. Economic globalization was found to have negative effect while political and social globalization exerted positive effect on HDI. Ulucak, Danish and Li (2020) found economic globalization to be statistically insignificant in its impact on HDI.

2.5: Studies on Globalization and Indian Economy

This section reviews the literature in the context of the Indian economy covering research areas such as dimensions of globalization, economic growth and socio-economic development. Most of the studies related to globalization in the context of India are, however, sector specific studies. These include Brissimis, Delis and Papanikolaou (2008), Sufian and Habibullah (2012) and Ghosh (2016) which have examined the effect of globalization on the performance of banking sector. While they differ in the indicators used, the common finding was that globalization had a significant effect on the performance of the banking sector. Mukherjee (2013), Nyamekye and Gabriel (2016), Goldar (2014), Gupta (2011), Dehejia and Panagariya (2010), Verma (2008), Banga (2005) and Gordon and Gupta (2004) have studied the impact of globalization in the service sector. A similar approach has been used by Ghosh (2013) and Pandian (2017) the studies have a similar conclusion that globalization has increased the productivity of the manufacturing sector over time. Some studies related to globalization of insurance sector in India include Jain (2013), Ahmed et al. (2013), Arif (2015), Shikhare (2015), Hassan (2015), Chandra Kantha et al. (2016), Lee and Lin (2016), Santimol and Shaiju (2018), and P.P. and Fulwari (2020), which have studied the effect FDI on insurance sector. The broad findings of the studies are that entry of foreign firms in the insurance sector had

expanded the size of the sector as also its efficiency. While it has encouraged entry of foreign insurance companies, the Life Insurance Corporation continues to be a dominant player in the sector. life insurance sector.

Another set of studies relating to India are those showing impact of trade openness. These include, Nayar (2001), Habib and Shah (2003), Ray (2012), Dixit (2014), and Das and Das (2012) which have examined Indian economy's external sector openness effects on economic growth. The studies use the usual measures like, exports to GDP, imports to GDP, foreign trade to GDP, import duty as a percentage of import for the level of tariff as a proxy for the degree of protection, and FDI to GDP ratio. Some studies like Sehrawat and Giri (2016), and Verma and Srivastava (2018), Sengupta and Puri (2018) have used the KOF globalization index dimensions namely, economic, political and social to measure the nature and extent of globalization. Dixit (2017) and Mallick, Mahalik and Padhan (2020) have undertaken similar studies using the KOF index of globalization and the Gini index to investigate the effect of globalization on income inequality.

The extensive review of literature carried out in the sections above bring out the richness of the research work done in the area, and yet, no comprehensive study is found that examines the nature and extent of globalization in all its entirety, embracing its multiple dimensions, in the context of India. Most studies in the context of India are sector specific and examine limited facets of globalization, leave alone, dimensional and overall indices of globalization. 30 years since the introduction of reforms, including globalization, in India, warrants an examination of how globalization in India has evolved and shaped, and how it has impacted the Indian economy. Also, the studies related to other countries or cross country studies include limited indicators of globalization, and only a few carry on the work further to establish interlinkages with the economy. The present study is a modest attempt to bring out the varied facets of globalization in the context of India, weave the dimensions into overall index of globalization, examine their interlinkages and also inquire into its impact on the Indian economy in terms of economic growth and social sector development over time, using econometric analysis.

3. OBJECTIVES OF THE STUDY

In the context of the review of literature, the present study seeks to inquire into the nature, depth and breadth of globalization in India, build meaningful linkages between them and

undertake an empirical examination of the impact of globalization on the Indian economy. 30 years since the introduction of economic reforms in India provides sufficient scope for such an inquire. The broad objectives of the study are as follows:

- To provide an overview of policies adopted in India towards globalization
- To examine the extent and nature of globalization in India
- To analyze the impact of globalization on economic growth in India
- To analyze the socio-economic impact of globalization in India

Hypotheses

The analytical work in the present study proceeds under the following hypotheses:

- Overall globalization granger causes economic growth
- Economic growth granger causes overall globalization
- Dimensional globalization granger causes economic growth
- Economic growth granger causes dimensional globalization

4. RESEARCH METHODOLOGY

The present study is based on secondary data on a wide range of variables related to different dimensions of globalization. The dimensions of globalization are economic, financial, political, technological, and social globalization. The variables capturing these dimensions are sorted based on depth and breadth indicators of globalization. The depth of globalization measures the extent or size of globalization, mostly, with reference to the size of the real economy as measured by GDP, and the breadth of globalization refers to the flow or volume of globalization. The data on the indicators have been sourced from the database of RBI such as RBI Bulletin, the World Bank Development indicators, reports of the Department of Tourism, Economic Surveys of the Government of India, AISHE reports related to the Department of Education (MoE) and the Department of Science and Technology. The major period of study is from 1991to 2020 which covers the reforms period ranging over ‘LPG’, that is, liberalization, privatization and globalization.

The various indicators of the five dimensions of globalization used in the study are shown in the Table 1.

Table 1: Indicators of Globalization

Dimension	Indicators
Economic Globalization	Trade in service to GDP
	Export of service to GDP
	Import of service to GDP
	Trade to GDP
	Export to GDP
	Import to GDP
	Import Duties to Imports
	Import Penetration
	Revealed Comparative Advantage
	India's Total Trade to World Trade
Financial Globalization	FDI + FII to GDP
	FDI Inflows to Gross Fixed Capital Formation
	FDI to GDP
	FII to GDP
	Foreign Debt to GDP
	Foreign Exchange Reserves to Imports
	Sectoral FDI
Political Globalization	Direction of Trade
	Participation in UN Peacemaking Agreements
	Membership in Foreign Organizations
	Participation in Trade Agreements
Technological Globalization	R & D Expenditure to GDP
	Global Commodities as Percentage of Population
	Mobile Subscription as Percentage of Population
Social Globalization	Remittances to GDP
	Foreign Exchange Earnings from Tourists/Foreign Exchange Reserves
	Migration (students going abroad)/(enrolment in HSC)

	Work Permit Abroad/Total Population (age 15-64)
	Tourist Inflow/Total Population
	Tourist Going Abroad/Total Population
	Students Coming to India/Total Population

Source: Authors compilation

The study is descriptive and empirical in nature. The investigation starts with a systematic review of the literature on various themes related to globalization. all four dimensions of financial development. The study makes use of simple statistical tools like graphical presentation, ratios, and growth rates to study the trends in various indicators of globalization. in the four dimensions. The study has also developed dimensional as well as a composite index on globalization to measure the extent and depth of globalization. The index is constructed based on the methodology used by KOF globalization index, where the indicator is first normalized and weighted using the statistical technique of Principal Component Analysis (PCA) and aggregated using the weighted mean technique. The SPSS has been used for the same. The individual dimensional indices have also been constructed to quantify and compare the degree of dimensional globalization. Correlation analysis of the dimensional indices of globalization has been carried to examine their inter-relationship.

To investigate the relationship between globalization on economic growth, the present study has carried out the Granger causality test to check to test the direction of causality whether uni-directional or bi-directional. The test has been run on the statistical package EViews. In order to check the Granger causality, firstly, the Johansen co-integration test has been to run to check if long-term relationship exists between the variables. Thereafter, the Augmented Dickey Fuller test for unit root has been applied to test for stationarity of the variables. It may be noted that in the preliminary attempts, working age group population (WAP), Gross fixed capital formation (GFCF), Gross Enrolment Ratio (GER) and Total Factor Productivity (TFP) have been used as proxy variables for economic growth, apart from GDP.

The last section of the analytical work deals with the relationship between globalization and economic growth. For this purpose, the study has undertaken an econometric analysis hypothesizing different models of the relationship with alternative indicators of globalization in their individual capacity, dimensional indices of globalization and overall globalization

index. Economic growth has been alternatively posited as real GDP, real PCI GDP and also in terms of total factor productivity. The variables have been checked for their validity and reliability in terms of linearity and stationarity. All models have been put under residual diagnostic tests which include the Jarque-Bera test of normality, Breusch-Pagan-Godfrey test of homoscedasticity and serial co-relation Lagrange Multiplier test. The social impact of globalization is examined by analyzing data on HDI, poverty and Gini coefficient for India in conjunction with globalization.

5. CHAPTER SCHEME OF THE STUDY

The thesis has been organized into six chapters as shown below:

Chapter 1: Introduction
Chapter 2: Review of Literature
Chapter 3: Objectives and Research Methodology
Chapter 4: Analysis of Extent and Depth Globalization in India
Chapter 5: Econometric Analysis of the Impact of Globalization on the Indian Economy
Chapter 6: Conclusion and Recommendation

6. CHAPTER-WISE DESCRIPTION

Chapter 1: Introduction

The introductory chapter of the thesis highlights the significance of globalization and provides the base of rapid globalization which has been witnessed in India in the past decades. It distinguishes the varied dimensions of globalization in the internalization perspective. The chapter also outlines the policies and reforms undertaken with reference to globalization such as the FDI policy, policies related to tariffs and trade agreements. These policies have implications for the nature and extent of globalization of the economy.

Chapter 2: Review of Literature

The second chapter details the extensive review of literature in the area of globalization. The review has been organized into five sections. The first section reviews the studies related to various dimensions of globalization. The second section deals with studies on indices of globalization constructed by various researchers. The third section examines studies related to globalization and economic growth through channels of trade and capital flows. Section four reviews studies on socio-economic development in the era of globalization. Section five deals with studies related to globalization and the Indian economy.

Chapter 3: Objectives and Research Methodology

Chapter three lays down the objectives and hypotheses of the study in the light of the extensive review of literature and the research gap therein. The section on research methodology lays down detailed description of the variables, tools and techniques used for analysis. It describes alternative econometric models built to examine the impact of globalization on economic growth, equality and human development in the context of Indian economy.

Chapter 4: Analysis of the Extent and Depth Globalization in India

Chapter four covers the detailed analysis of the extent and depth of globalization based on examination of the trends in various indicators of globalization. The indicators are classified under alternative dimensions of globalization, based on which dimensional indices of globalization have been constructed. The dimensional indices are then woven into the composite index of globalization. The chapter is divided into four broad sections. The first section shows the trends in all variables representing globalization with graphical presentation and their compound annual growth rates (CAGR). Section two shows the computation of dimensional indices of economic, financial, political, technological and social globalization, based on the use of the technique of PCA. Section three examines the correlation between various dimensions of globalization to check which dimension reinforce each other. Section four shows the construction of the composite index of globalization based on individual variables of globalization.

4.1: Trends in Variables of Globalization

This section examines trends in the vast array of variables used to represent globalization. Most variables show increasing trend over the period of time. There are 31 variables across five dimensions of globalization, namely, economic, financial, technological, political and social. Table 2 gives the compound annual growth rate (CAGR) for each variable over the study period 1991 to 2020.

Table 2: Growth Rate of the Dimension-wise Indicators of Globalization

Dimension	Indicators	CAGR
Economic Globalization	Trade in service to GDP	11.80
	Export of service to GDP	11.39
	Import of service to GDP	10.62
	Trade to GDP	8.40
	Export to GDP	7.96
	Import to GDP	8.78
	Import Duties to Imports	-4.50
	Import Penetration	4.06
	Revealed Comparative Advantage	2.77
	India's Total Trade to World Trade	-0.27
Financial Globalization	FDI + FII to GDP	23.33
	FDI Inflows to Gross Fixed Capital Formation	19.13
	FDI to GDP	20.82
	FII to GDP	16.12
	Foreign Debt to GDP	3.96
	Foreign Exchange Reserves to Imports	3.73
	Sectoral FDI	20.25
Political Globalization	Direction of Trade	15.65
	Participation in UN Peacemaking Agreements	1.98
	Membership in Foreign Organizations	2.42
	Participation in Trade Agreements	9.10
Technological Globalization	R & D Expenditure to GDP	4.27
	Global Commodities as Percentage of Population	21.83
	Mobile Subscription as Percentage of Population	43.51
Social Globalization	Remittances to GDP	8.78
	Foreign Exchange Earnings from Tourists/Foreign Exchange Reserves	-9.31
	Migration (students going abroad)/(enrolment in HSC)	9.71
	Work Permit Abroad/Total Population (age 15-64)	0.71
	Tourist Inflow/Total Population	0.18
	Tourist Going Abroad/Total Population	3.1
	Students Coming to India/Total Population	5.27

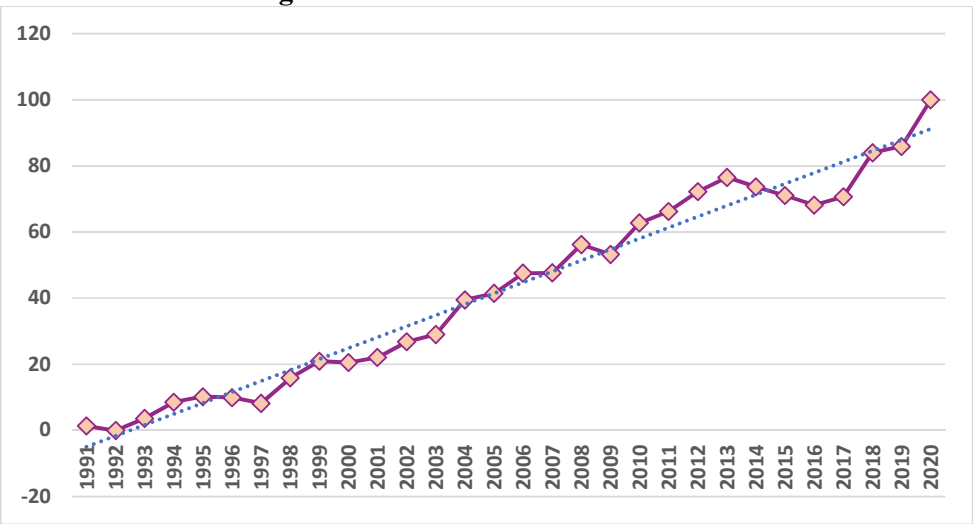
4.2: Dimensional Indices of Globalization

This section computes indices for each dimension of globalization using the PCA technique. While there is no universal rule as to how many components are to be used in the construction of indices, there is a thumb rule that the components having eigenvalue greater than one, contribute individually to explain the total variance in globalization by at least 10% and cumulatively to explain more than 60% of total variance. Based on this technique, the principal components are identified for each dimension. The scores obtained for each indicator of the particular dimension indicates their weights which are used in constructing the dimensional index. The scores are multiplied with actual values of all variables and then summed up to get the index value of the dimensional globalization. These index values are then further processed to get the weighted mean values by dividing them by the aggregate weight of all variables taken together. Since the outcome of this process generates index values which may range above 100, they are normalized to get the index values between zero and 100. The indices obtained based on this methodology are presented in the graphs below.

Economic Globalization

Fig. 1 shows the Economic Globalization Index (EGI) exhibiting a continuously increasing trend since the year 1991. From as low as 1.38 in 1991 to 100 in 2020, the EGI has increased at the compound annual growth rate (CAGR) of 15.92 percent. The first decadal CAGR was 34.98 percent, which reduced to a CAGR of 12.29 percent in the second decade under examination. The third decadal CAGR changed to 4.68 percent. This implies that incremental economic globalization in India has been lower.

Fig 1: Economic Globalization Index

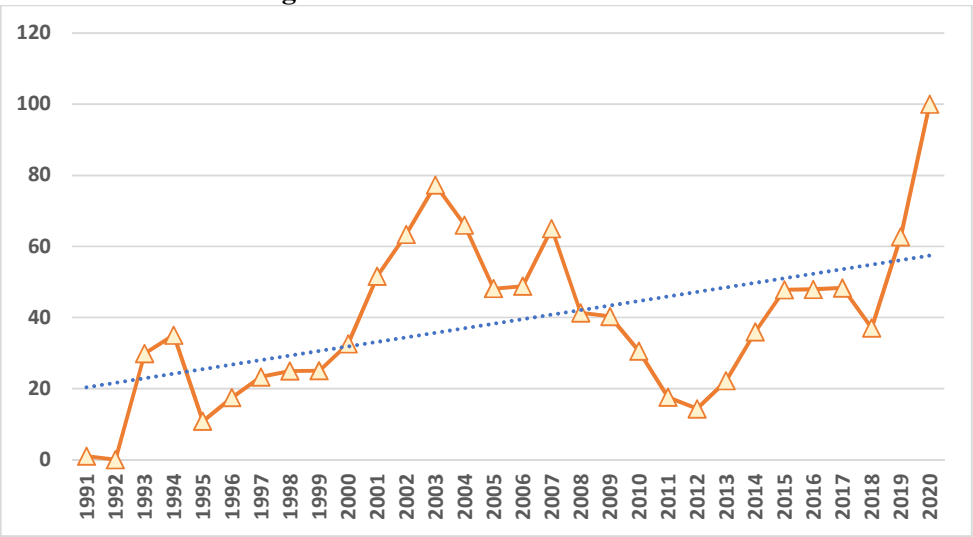


Source: Author's Work

Financial Globalization

Fig. 2 depicts the Financial Globalization Index (FGI) which shows a sharp rise from 10.8 in the year 1995 to 77.29 in the year 2003, which marks the peak period for the Indian economy. Within a period of eight years, the FGI has increased seven-fold. From the year 2008 onwards the FGI shows a declining trend which may be attributed to the combined effects of the Global Financial Crises, tapering off of the positive impacts of the first phase of economic reforms in India, absence of second round of reforms in India, etc. However, after the falling to a low of 14.0 in the year 2012, again an upward trend in FDI can be observed upto the end of the study period. This may be attributed to the change in the government at the central level and the renewed approach towards FDI adopted since then. Owing to the declining trend between the years 2003 and 2012, the CAGR for the second decade under study was negative 5.68 percent, bring down the overall study period CAGR to 17.29 percent for the FGI. The CAGR for the first decade under examination was 47.47 percent, while that of the third decade was 21.32 percent.

Fig 2: Financial Globalization Index

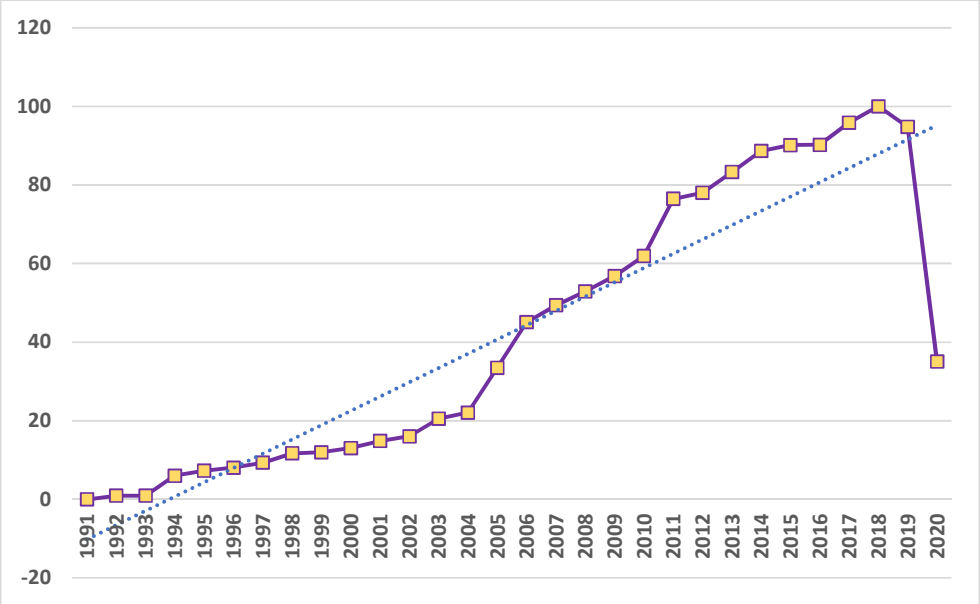


Source: Author's Work

Political Globalization

Fig. 3 depicts the Political Globalization Index (PGI) which shows a continuous increasing trend since the beginning of the study period, only to decline in the last year, 2019-20. To some extent it may be attributed to the rise in protectionism among the developed world, and to starting of the global pandemic effects.

Fig. 3: Political Globalization Index



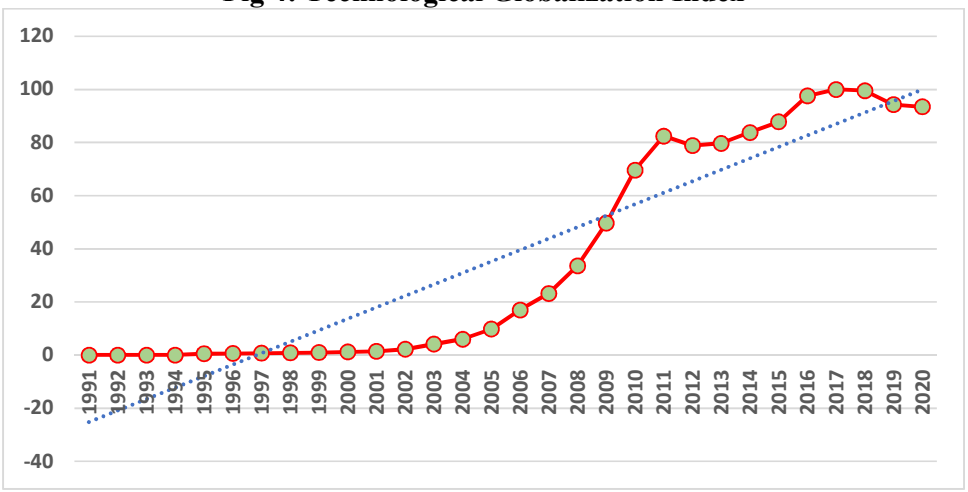
Source: Author's Work

Barring the sharp decline in the last year, the overall trend in the PGI is quite steep compared to that of FGI in particular. The total period CAGR of PGI was 14.53 percent.

Technological Globalization

Fig. 4 shows the Technological Globalization Index (TGI) which exhibits a flat trend in the initial years up to 2002. However, since then there is much rise in the index value which may be attributed to the rapid increase in mobile subscription in India, which is one of the indicators of technological globalization. On compound annual basis, TGI has grown at the rate of 31.97 percent. The sub-period decadal CAGR are 48.04, 53.56 and 1.41 percent which is borne out in Fig. 4 as well.

Fig 4: Technological Globalization Index

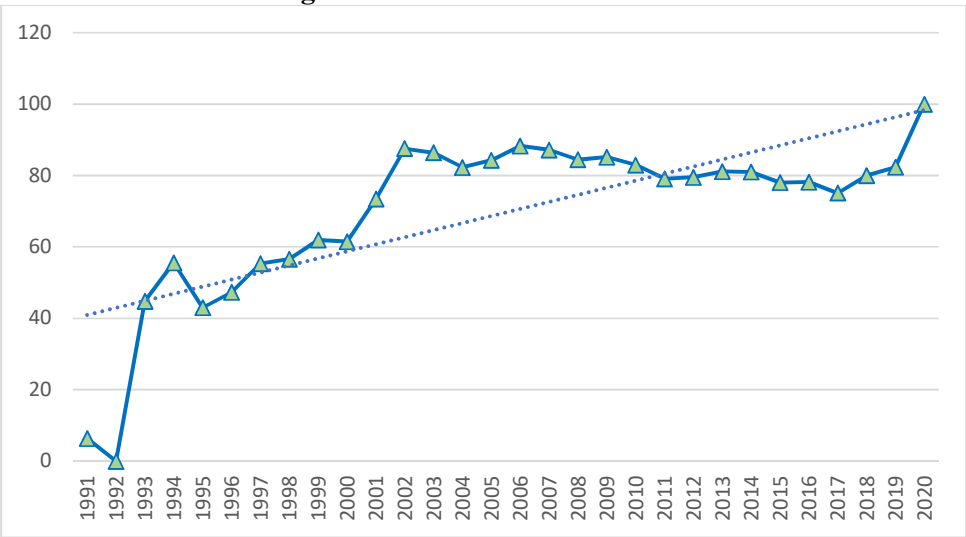


Source: Author's Work

Social Globalization

Fig. 5 depicts the Social Globalization Index (SGI) which has also grown at a CAGR of 9.94 percent over the study period. The first decadal CAGR is 28.56 percent followed by second decadal CAGR of 1.37 percent, whereas in the third decade it was recorded at 0.8 percent.

Fig 5: Social Globalization Index



Source: Author's Work

In conclusion, it may be stated that despite the fluctuations in some of the dimensional indices, all of them have exhibited a positive trend over the study period. It indicates that globalization in India is not only comprehensive and all encompassing, it is also deepening in nature. In order to know the relative significance of the dimensional indices, the PCA technique was used to obtained the weights for each dimension. Accordingly, the implied weight for dimensional indices is the highest at 1.306 for financial dimension, followed by 0.414 for technological dimension. The third highest weight is 0.350 for the social dimension, followed by 0.266 for economic dimension and 0.121 for political dimension.

4.3: Inter-relationship between Dimensions of Globalization

This section undertakes examination of how the dimensional globalization indices associate with each other. The preliminary study of the same has been carried out on in terms of scatter plots between pairs of dimensional globalization indices as presented below.

The set of figure 6 reveals that economic globalization is strongly and positively associated with political globalization, followed by that with social globalization. It implies that

improving political ties with other countries in terms of bilateral and regional trade agreements and integration can enhance economic globalization of India.

Fig. 6a Economic and Technological Globalization

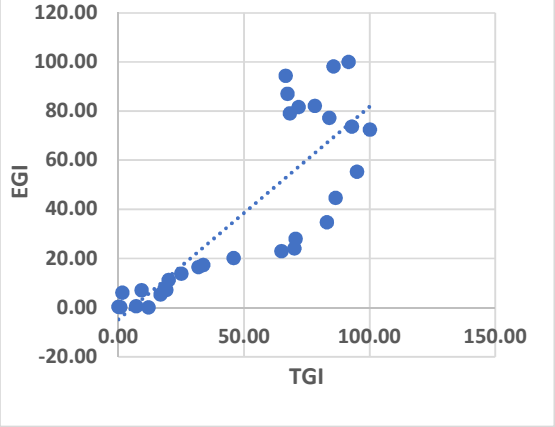
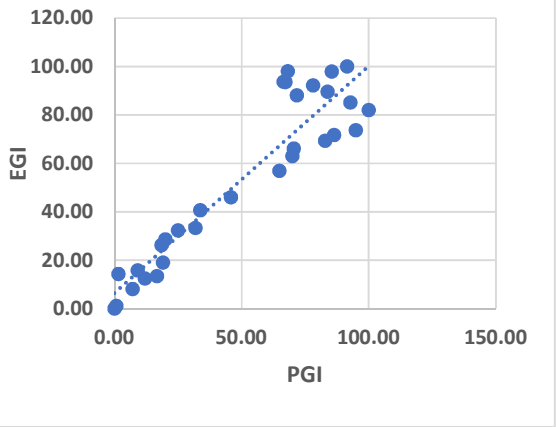


Fig.6b Economic and Political Globalization



Source: Author's Computation

Fig. 6c Economic and Financial Globalization

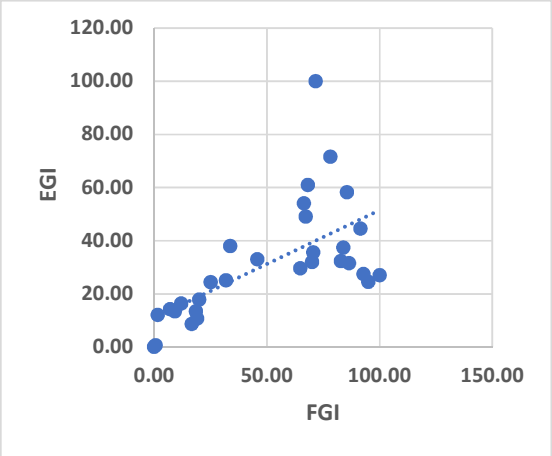
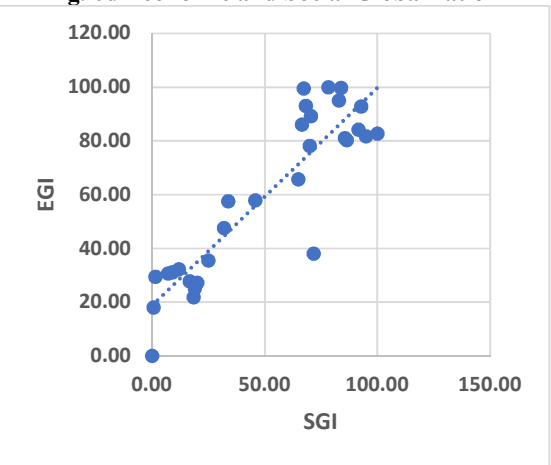


Fig. 6d Economic and Social Globalization



Source: Author's Computation

Fig. 7(a and c) show the correlation of financial globalization with the remaining. The findings reveal that there is a strong positive association with technological and political globalization.

Fig. 7a Financial and Technological Globalization

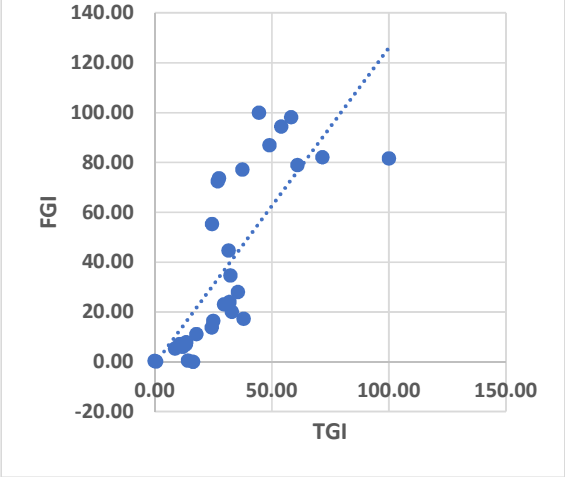
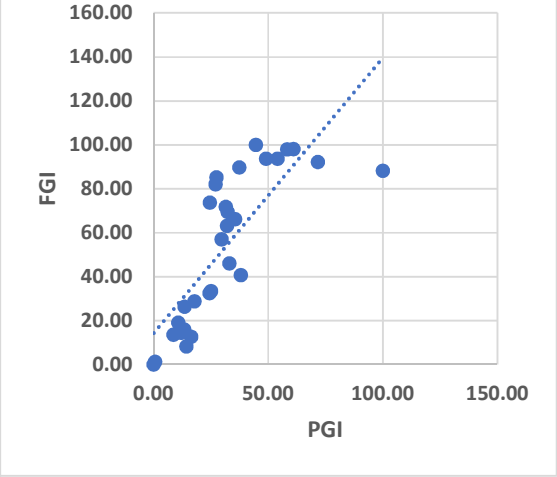
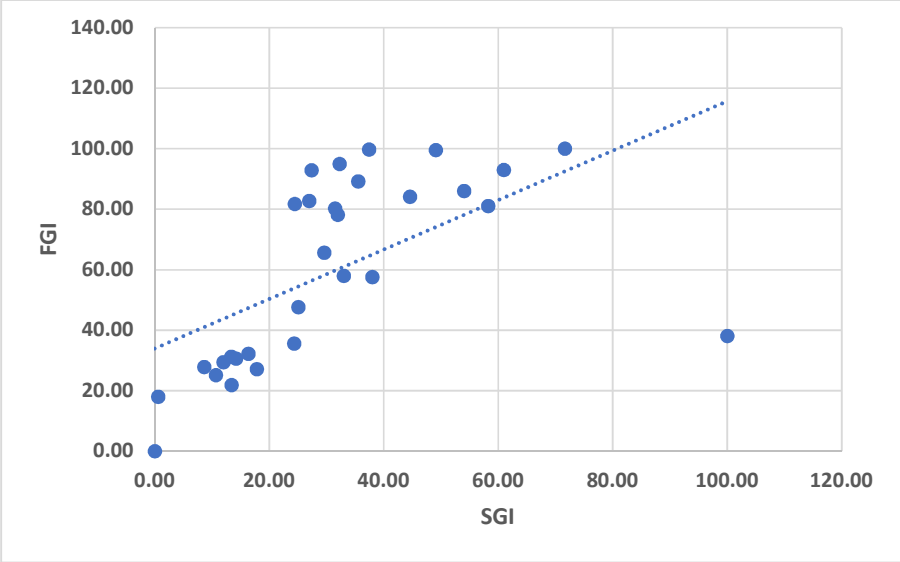


Fig.7b Financial and Political Globalization



Source: Author's Computation

Fig. 7c Financial and Social Globalization



Source: Author's Computation

Fig. 8(a & b) reveal strong correlation between technological and political globalization, however, the former is found to be weakly associated with social globalization,

Fig. 8a Technological and Political Globalization

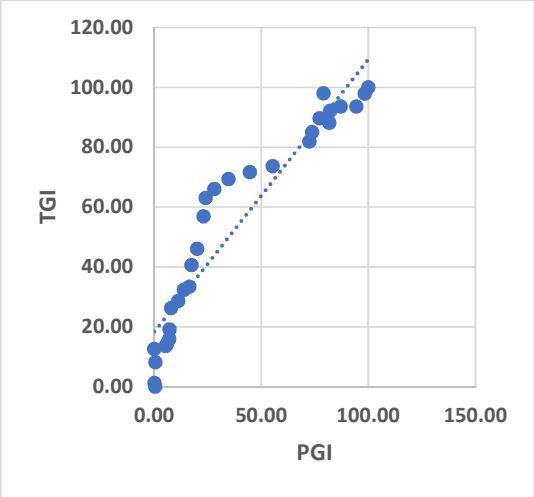
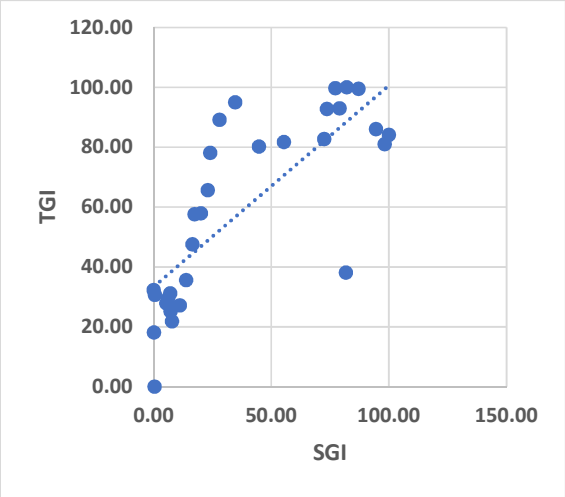
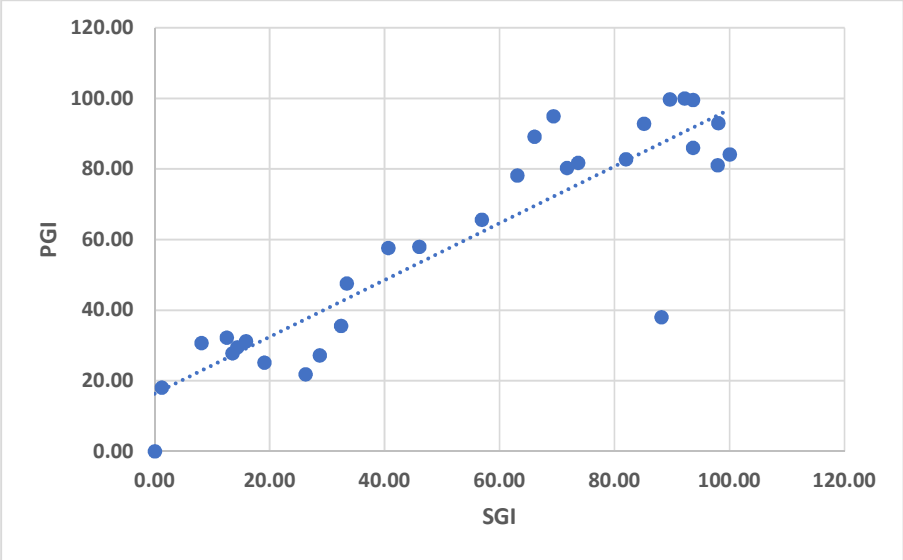


Fig. 8b Technological and Social Globalization



Source: Author's Computation

Fig. 9 Political and Social Globalization



Source: Author's Computation

4.4: Composite Index of Overall Globalization

The index of overall globalization is calculated giving weightage to the variables of individual index, based on the technique of PCA. Following the same procedure as in the case of construction of the dimensional indices, only those components having eigenvalue greater than one, and therefore, individually contributing in explaining the total variance in globalization by at least 10% and cumulatively more than 60% of total variance, are taken into account.

The Eigenvalues were obtained for all components related to all variables but only four principal components had the Eigenvalue greater than one as shown in Table 3. The first principal component explains 70.519 percent of variance in overall globalization. Considering eigenvalues greater than one, it is observed that together four principal components explained about 92.492 percent of variations.

Table 3: Overall Globalization Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	21.861	70.519	70.519	21.861	70.519	70.519	18.475	59.596	59.596
2	3.307	10.669	81.188	3.307	10.669	81.188	4.273	13.783	73.379
3	2.388	7.704	88.892	2.388	7.704	88.892	4.095	13.210	86.589
4	1.116	3.600	92.492	1.116	3.600	92.492	1.830	5.903	92.492

Extraction Method: Principal Component Analysis. **Source: Author's work**

Table 4 on Rotated Component Matrix gives an idea about the importance of the variables. Variables that have high values corresponding to component 1 are of greater importance followed by component 2, component 3 and component 4. The findings show that the majority of the variables are contributing to component 1, followed by component 2 and 3, and the least number of variables are contributing to component 4. These variables have been highlighted in Table 4.

Table 4: Rotated Component Matrix

	Component			
	1	2	3	4
Mobile Subscription as a % of Population	0.970	0.148		
Foreign Debt to GDP	0.966			0.203
Global Commodity to Total Population	0.945	-0.116	0.228	0.151
Trade Agreement with Member Country to Total Trade	0.944	0.298		
FDI to GDP	0.926		0.172	0.214
Student coming to India to Total Population	0.916	0.248		
Tourist going Abroad to Total Population	0.914	0.225		-0.144
Export of Services to GDP	0.907	0.184	0.311	0.160
Revealed Comparative Advantage	0.906		0.354	0.165
Trade in Services to GDP	0.904	0.166	0.333	0.148
Import of Services to GDP	0.894	0.133	0.370	0.125
Exports to GDP	0.883	0.377	0.177	0.155
Remittances to GDP	0.880	0.270	0.293	0.164
Tourist coming to India to Total Population	0.877	0.278		-0.189
Trade to GDP	0.877	0.406	0.172	0.118

Sectoral FDI	0.873	-0.389	0.196	0.130
Imports to GDP	0.871	0.424	0.168	
Membership in Foreign Organization	0.860	0.188	0.447	0.110
FDI Inflows to GFCF	0.848	0.157	0.357	0.111
Participation in Trade Agreements	0.846	0.375	0.340	
Participation in United Nation Peace Making Agreements	0.727	0.337	0.560	0.128
FDI+ FII to GDP	0.706		0.212	0.661
Students going Abroad to Enrolment in HSC	0.676	0.175	0.633	-0.120
Import Penetration	0.670	0.620	0.352	
Work Permit to Total Population		0.845	-0.106	
Research and Development Expenditure to GDP	0.284	0.787		
India's Trade to World Trade	0.221	0.764	0.279	-0.174
Foreign Exchange Reserves to Imports		-0.258	0.882	0.224
Foreign Exchange Earnings from Tourist to Foreign Exchange Reserve	-0.331	-0.283	-0.835	-0.191
Import Duties to Imports	-0.216	-0.586	-0.618	
FII to GDP	0.131	-0.122	0.168	0.919

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Source: Author's work

The scores given in Table 5 indicate the weights attached to each variable, which make up the Component Score Coefficient Matrix which is further considered in building the globalization index. The highlighted scores were multiplied with actual values of all variables and then summed up to get the index values of overall globalization. These index values are then further processed to get the weighted mean values by dividing them by the aggregate weight of all variables taken together. Since the outcome of this process generates index values which range above 100, they have been normalized to get the index values between zero and 100, and are presented in Table 5.

Table 5: Component Score Coefficient Matrix

	Component			
	1	2	3	4
Trade in Service to GDP	0.044	-0.018	0.028	0.008
Export of Service to GDP	0.044	-0.008	0.016	0.023
Import of Service to GDP	0.044	-0.035	0.052	-0.020
Trade to GDP	0.038	0.078	-0.054	0.054
Export to GDP	0.037	0.073	-0.056	0.075
Import to GDP	0.038	0.082	-0.053	0.040
Import Duties to Imports	0.072	-0.127	-0.213	0.073
Import Penetration	-0.012	0.145	0.035	0.029
Revealed Comparative Advantage	0.046	-0.041	0.041	0.006
India's Total trade to World Trade	-0.047	0.201	0.065	-0.063

FDI+FII to GDP	0.005	0.015	-0.065	0.395
FDI Inflows to GFCF	0.039	-0.025	0.051	-0.020
FDI to GDP	0.068	-0.052	-0.040	0.053
FII to GDP	-0.074	0.090	-0.068	0.641
Foreign Debt to GDP	0.083	-0.029	-0.113	0.071
Foreign Exchange Reserves to Imports	-0.076	-0.127	0.369	-0.009
Sectoral FDI	0.100	-0.204	0.020	-0.078
Direction of Trade	0.074	0.025	-0.084	-0.037
Participation in UN Peace Making Agreements	-0.008	0.036	0.132	0.004
Membership in Foreign Organizations	0.030	-0.022	0.086	-0.031
Participation in Trade Agreements	0.025	0.051	0.028	0.005
Research and Development Expenditure to GDP	-0.030	0.252	-0.086	0.086
Global Commodities as a % of Population	0.081	-0.112	0.002	-0.026
Mobile Subscription as a % of the Population	0.082	-0.018	-0.082	-0.009
Remittance to GDP	0.035	0.027	0.003	0.046
Foreign Exchange Earnings from Tourists to Foreign Exchange Reserve	0.078	-0.038	-0.282	-0.038
Students going Abroad to Enrolment in HSC	0.016	-0.066	0.219	-0.219
Work Permit to Total Population (age 15-64)	-0.065	0.313	-0.112	0.166
Tourist coming to India to Total Population	0.086	-0.012	-0.042	-0.187
Tourist going Abroad to Total Population	0.088	-0.028	-0.036	-0.169
Student coming to India to Total Population	0.095	0.010	-0.132	-0.072

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization. Component Scores.
Source: Author's Work

Table 6 shows the overall globalization index values for the years 1991 to 2020. The value zero in the year 1992 shows the lowest value of globalization and the value 100 represents the highest level of globalization in the year 2020. Fig. 10 depicts the trend in the overall globalization index. The index value is found to have peaked initially in the year 2003. This is substantiated by the fact that economic reforms in India in many ways got increasingly consolidated since the late 1990s and beginning of the decade of 2000. It was also a period which exhibited maximum growth of the Indian economy encompassing most sectors of the economy. Corresponding to the global financial crisis and the subsequent *taper tantrum* accompanied by policy paralysis in India, the globalization index is found to fluctuate. Post 2014 with new round of reforms introduced with increased stress on inward FDI and trade agreements, the index values are found to have increased. The Compound Annual Growth Rate (CAGR) for the total period of analysis from 1991 to 2020 is 2.40 percent. The decadal CAGR

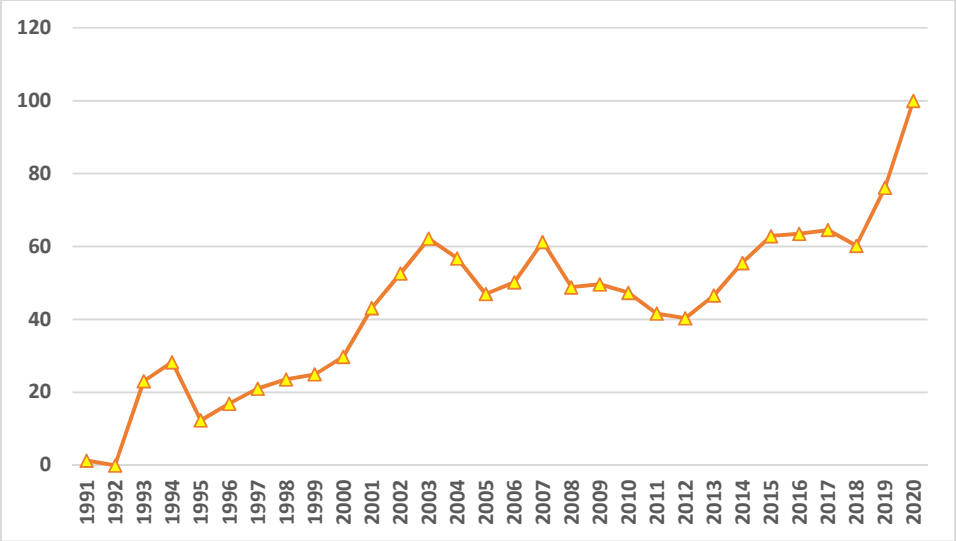
for the sub period 1991 to 2000 is 2.15 percent, while for the second decade, 2001 to 2010, the CAGR is -0.530 percent. For the third decade, 2011 to 2020, the CAGR is much higher at 5.48 percent, showing greater degree of globalization of the Indian economy in the recent years.

Table 6: Overall Globalization Index

Year	Overall Globalization Index	Year	Overall Globalization Index	Year	Overall Globalization Index
1991	1.31	**2001**	43.11	**2011**	41.63
1992	0	**2002**	52.60	**2012**	40.32
1993	23.05	**2003**	62.17	**2013**	46.56
1994	28.29	**2004**	56.76	**2014**	55.51
1995	12.34	**2005**	46.97	**2015**	62.84
1996	16.92	**2006**	50.18	**2016**	63.52
1997	21.02	**2007**	61.29	**2017**	64.56
1998	23.60	**2008**	48.83	**2018**	60.20
1999	24.96	**2009**	49.68	**2019**	76.12
2000	29.73	**2010**	47.34	**2020**	100

Source: Author's Work

Fig 10: Overall Globalization Index



Chapter 5: Econometric Analysis of the Impact of Globalization on Indian Economy

Chapter five examines the impact of globalization on the Indian economy in terms of effect on economic growth, poverty, human development index and income distribution. Accordingly, the chapter is organized into four sections to address each of these aspects.

Impact of Globalization on Economic Growth

This section inquires into how globalization and economic growth are interlinked. For this purpose, the study first checks for the causality between the two using the Granger causality test between the dimensions of globalization and variables used to represent the economic growth, namely, GDP, working age group population, gross enrolment ratio and gross fixed capital formation. The present study differs from those found in the related literature in that it uses all the dimensions of globalization as well as overall globalization index to study the causality between globalization and economic growth.

For running the Granger causality some pre conditions need to be satisfied. Cointegration, an econometric analysis is a pre-condition for the time series to check the long run equilibrium or relationship between two or more variables having unit root. The Johansen cointegration test has been used for the purpose of determining cointegration for non-stationary time series data. The null hypothesis is that there is no cointegration and this can be rejected using two approaches, viz., trace statistics and maximum eigenvalue. When the trace statistics of the cointegration equation is greater than the critical value, the null hypothesis can be rejected. Likewise, when the maximum eigenvalues are greater than the critical values, the null hypothesis can be rejected. The results are shown in Table 7.

Table 7: Cointegration between Economic Growth and Globalization using Trace Statistics

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.*
None *	0.959077	238.9297	95.75366	0.0000
At most 1 *	0.866563	152.6361	69.81889	0.0000
At most 2 *	0.826313	98.25467	47.85613	0.0000
At most 3 *	0.684875	50.99112	29.79707	0.0001
At most 4 *	0.517176	19.81194	15.49471	0.0105
At most 5	0.005656	0.153144	3.841465	0.6955

*Significant at one percent level of significance
Source: Author's computation using EViews

The first approach using the trace statistics for at least five cointegrating equation (CE) reveals that the trace statistics is greater than the critical value and the p-value is also less than 0.05%. Thus, the null hypothesis can be rejected and there exists a cointegration between economic growth and globalization. In other words, there is a long run relationship between economic growth and the dimensions of globalization.

Table 8: Cointegration between Economic Growth and Globalization using max eigenvalue

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.*
None *	0.969059	93.84286	40.07757	0.0000
At most 1 *	0.910466	65.15474	33.87687	0.0000
At most 2 *	0.792509	42.46203	27.58434	0.0003
At most 3 *	0.649848	28.33350	21.13162	0.0041
At most 4 *	0.423774	14.88390	14.26460	0.0399
At most 5	0.129533	3.745599	3.841465	0.0529

*Significant at one percent level of significance
Source: Author's computation using EViews

The second approach using the max eigenvalue for at least five cointegrating equations (CE) reveals that the max eigenvalue is greater than the critical value and the p-value is also less than 0.05%. Thus, the null hypotheses can be rejected and there exists a cointegration between economic growth and globalization, implying long run relationship between economic growth and the dimensions of globalization.

A number of econometric issues can influence the time series data sets. It is suggested to make the data stationery before checking the Granger causality for each individual series. The Augmented Dickey Fuller test has been used, where the null hypothesis is that there is unit root and which can be rejected only against strong evidence. To make the series stationary, they were then changed first difference and second difference as applicable.

The Granger causality test is an approach to determine whether a time series is significant to forecast another time series. The null hypothesis is that one time series does not granger cause another time series, but this can be rejected at a level of significance at 0.05 level or less. The Granger causality has been checked for economic growth variables and index values of the globalization. The results are shown in Table 9 which projects only those causality results which are statistically significant.

Table 9: Granger Causality Between Economic Growth and Globalization

Causality	F-Statistic	Prob.
Overall Globalization Granger Causes LNGDP	5.21822	0.0145*
Financial Globalization Granger Causes LNGDP	6.05363	0.0084*
LNGDP Granger Causes Social Globalization	2.76951	0.0856***
Social Globalization Granger Causes WAP	2.47480	0.1084***

Source: Author's computation using EViews

The findings reveal that there exists a uni-directional relation from globalization to GDP; overall globalization is found to Granger cause GDP, financial globalization is found to Granger cause GDP, and social globalization is found to Granger cause WAP. GDP is found to Granger cause social globalization. The results are significant at one percent and ten percent levels of significance.

The study also examines causality between economic growth and individual indicators of economic globalization. This is to get an idea about the inter linkages between the variables and economic growth measured alternatively by GDP, gross capital formation, gross enrolment ratio, the working age group population and total factor productivity.

Table 10: Granger Causality between the Indicators of Economic Globalization and Economic Growth

Causality results	F-Statistic	Prob.
Exports to GDP Granger Causes WAP	3.13533	0.0643***
WAP Granger Causes Exports of Services to GDP	2.57000	0.1004***
GER Granger Causes Import Duties to Imports	2.52380	0.1042***
LNGDP Granger Causes Import Duties to Imports	5.46557	0.0123*
Import Duties to Imports Granger Causes LNGDP	6.24522	0.0074*
TFP Granger Causes Import Duties to Imports	3.48469	0.0493**
Import Duties to Imports Granger Causes TFP	2.65643	0.0937***
Imports to GDP Granger Causes WAP	3.12346	0.0649***
LNGDP Granger Causes Import of Services to GDP	3.92941	0.0355**
Import Penetration Granger Causes LNGDP	2.50170	0.1060***
Import Penetration Granger Causes LNGFCF	2.54421	0.1014***
LNGFCF Granger Causes India's Trade to World Trade	3.30726	0.0555**
Trade to GDP Granger Causes WAP	3.36273	0.0541**

*Significant at one percent; ** Significant at five percent; ***Significant at ten percent
Source: Author's computations using E-views

The Granger causality tests between economic globalization and economic growth show mixed results. There exists a two-way causality between import duties to import and lnGDP and import duties to imports to TFP. There exists uni-directional relation which flow from growth variable to economic globalization variable. WAP is found to accelerate export of services to GDP, GER is found to accelerate import duties to imports, lnGDP is found to Granger cause import of service to GDP, and lnGFCF is found to Granger cause India's trade to World trade. The results also show causality flowing from economic globalization to growth variables. Import penetration accelerates lnGDP and lnGFCF. Trade to GDP, imports to GDP and exports to GDP accelerate WAP. The results are significant at one percent, five percent and ten percent levels. It suggests that various indicators of economic globalization and growth variables tend to reinforce each other, which is desirable and helps in building a virtuous cycle.

The Granger causality between financial globalization and economic growth is found to flow from the former to the latter and is significant at one and five percent levels as shown on Table 11. Foreign exchange earnings to imports is found to accelerates lnGDP. Likewise, the sum of FDI and FII to GDP is found to Granger cause GER, while GER is found to Granger cause FII to GDP.

Table 11: Granger Causality between Indicators of Financial Globalization and Economic Growth

Causality Results	F-Statistic	Prob.
FDI + FII to GDP Granger Causes GER	4.86413	0.0184*
Foreign Exchange Reserve to Imports Granger Causes LNGDP	5.38563	0.0129*
GER Granger Causes FII to GDP	3.43857	0.0511**

*Significant at one percent; ** Significant at five percent
Source: Author's computation using EViews

Table 12 presents the results for causality between indicators of political globalization and economic growth. Out of the four indicators only one indicator is found to significantly Granger cause economic growth as represented by the proxy variable GFCF.

Table 12: Granger Causality between Political Globalization Indicator and Economic Growth

Causality Results	F-Statistic	Prob.
Participation in Trade Agreements Granger Causes LNGFCF	3.36197	0.0532**

** Significant at five percent
Source: Author's computation using EViews

The Granger causality test between social globalization indicators and economic growth gives mixed results. There exists two-way causality between lnGDP and tourists going abroad to total population. There exists uni-directional relation which flows from lnGDP to several variables such as foreign exchange earnings from tourists to foreign exchange reserve, remittances to GDP, and tourists coming to India to total population. There exists uni directional relation between lnGFCF to remittance to GDP. The uni-directional relation of growth variable also flows from total factor productivity which accelerates tourists going abroad to total population and tourists coming to India to total population.

The uni-directional relation is also running from social globalization variables to growth variables. This is found in the case of students going abroad to HSC enrolment Granger causing growth variables GER, lnGDP, lnGFCF, and WAP. Tourists going abroad to total population is found to Granger cause lnGDP, lnGFCF, and WAP. Work permits abroad to total population

accelerates WAP and GER. Remittance to GDP is found to accelerate WAP. The results are significant at one, five and ten percent levels of significance.

Table 13: Granger Causality between Social Globalization Indicators and Economic Growth

Causality Results	F-Statistic	Prob.
Students going Abroad to Enrolment in HSC Granger Causes GER	3.86430	0.0372**
Work Permit to Total Population Granger Causes GER	3.90370	0.0362**
LNGDP Granger Causes Foreign Exchange Earning from Tourists to Foreign Exchange Reserve	2.62112	0.0963***
LNGDP Granger Causes Remittances to GDP	2.55580	0.1015***
Student going Abroad to Enrolment in HSC Granger Causes LNGDP	6.04148	0.0085*
Tourists going Abroad to Total Population Granger Causes LNGDP	4.91178	0.0178*
LNGDP Granger Causes Tourist going Abroad to Total Population	3.80008	0.0390**
LNGDP Granger Causes Tourist coming to India to Total Population	4.99015	0.0175*
LNGFCF Granger Causes Remittances to GDP	9.34116	0.0012*
Students going Abroad to Enrolment in HSC Granger Causes LNGFCF	12.9744	0.0002*
Tourists going Abroad to Total Population Granger Causes LNGFCF	4.62251	0.0211**
Remittances to GDP Granger Causes WAP	4.89025	0.0180*
Student going Abroad to Enrolment in HSC Granger Causes WAP	5.23416	0.0143*
TFP Granger Causes Tourist going Abroad to Total Population	3.04701	0.0689***
Tourist going Abroad to Total Population Granger Causes WAP	2.98035	0.0725***
TFP Granger Causes Tourist coming to India to Total Population	3.59691	0.0463**
Work Permit to Total Population Granger Causes WAP	2.59965	0.0980***

*Significant at one percent; ** Significant at five percent; ***Significant at ten percent
Source: Author's computation using EViews

The findings related to Granger Causality bring out significant implications for the Indian economy. The dimensions of globalization and overall globalization are found to induce economic growth which implies that enhancement in globalization augers well for the Indian economy in terms of growth prospects. Globalization is also found to stimulate labour and capital in India. This has important implications for the policies towards globalization adopted in India. Greater integration with the world economies in terms of bi-lateral and regional trade agreements can give further impetus to growth potential of the Indian economy. Likewise, growth variables are also found to influence some of the indicators of globalization, implying that the growth story of India makes it a viable and promising economy to integrate with for other economies in the world.

Having examined the causality, the present study also undertakes econometric analysis of economic growth and globalization. For this, the study has examined alternative growth models by incorporating individual indicators, dimensional and overall globalization indices along

with control variables to test for the significance of globalization for economic growth posited in terms of real GDP, per capita real GDP and total factor productivity. Preliminary results suggest that some of the globalization variables exert significant impact on the growth variables. Residual diagnostic tests have been conducted for all models.

The last section of the chapter seeks to investigate the social impact of globalization on the Indian economy by examining the trends in poverty levels, the Human Development Index and income inequality. Preliminary results suggest that while poverty levels have reduced with increasing globalization, income inequality as measured by the Gini coefficient has increased over the study period. Also, over the study period, the HDI of India has improved by close to 46 percent. These results indicate that globalization certainly has favourable social impact on the Indian economy, however, it has increased the gap between the rich and the poor.

Chapter 6: Conclusion and Recommendations

The chapter six gives a broad idea about the major findings and suggestions laid. The in-depth analysis of globalization through constructing a composite index gives an idea about how globalization turn out in terms of its overall effects and all the dimensions. It has been 30 years since the policies related LPG, globalization has gone through many changes with reference to the individual dimension. The individual indicators of globalization have shown robust growth over the study period 1991-2020 which is borne out by the CAGR of the variables which ranging in double digits in most of the indicators. Where import duties to import is having a CAGR of -4.5% which substantially increased the import to GDP with 8,78% and trade to GDP with 8.4%.

The individual dimension index has been constructed to analyze the depth and breadth. The index values shows there is an increment in the dimensional globalization in the study period 1991-2020. Economic globalization has improved with a CAGR of 15.92% flowed by financial with 17.29%, political with 14.53%, technological with 31.97% and social with 9.94%. Although there has been a decrease in the growth rate in the second decade of the dimensions as compared to the first decade. In response to the backlash toward globalization has, the global financial crises, gulf employment crises, crises over H-1B and other temporary visas, etc. has led to a fall in the growth rates since 2000-2010. But, the liberal policies towards opening up of investments, make in India, trade participation, growing political relations, moving to more digitalization, etc. have increased the growth rate in the third decade in each dimension. This is seen with high degree of globalization in the third decade in all the dimensions.

In the examination of the association between the dimensional indices it is found that economic globalization has a strong positive coreelation with political globalization followed by that with social globalization, financial globalization is found to have strong positive association with political globalization followed by technological globalization. Likewise, technological globalization is found to be closely associated with political globalization compared to all other dimensions, social globalization is most strongly associated with political globalization. The implication of these findings are that indicators of political agreements such as membership in foreign organization, direction of trade, member ship to trade agreements are the most important in enhancing all other dimensions of globalization. The overall globalization index has improved in the entire study period.

The adoption of the broad composite index also measures how globalization affects India's economic growth. The Granger Causality results in the paper show that globalization significantly promotes economic growth. Overall globalization supports economic growth with uni-directional causality. Economic, financial and social globalization has improved a lot which helps in to accelerate economic growth. But the results were not well established in the case of indicators of technological and political dimensions as India has to a long way to move ahead in terms of policy changes, trade relations with nations, and liberalizing the investments approach so that there could be more ways for the direction of trade, memberships in foreign trade agreements, foreign organizations, and, global commodity outreach, etc.

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