Dimensions Of Globalization And Their Effects On Economic Growth And Human Development Index

Abstract

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The globalisation is supposed to reduce regional inequality, poverty and promote sustainability and improve overall human quality. Several studies have provided contradictory results in regard to the effect of globalisation, either in case of growth of GDP, or reduction in inequality and poverty or maintaining environmental sustainability and finally the human development. This paper attempts to examine the pattern of globalisation across the countries along with its effect on the growth of GDP as well as human development index. The term globalization is becoming more and more meaningful as can be seen from the interrelations of these variables. Also globalization has been seen to have effect on the contemporary and very recent future values only.

1. Introduction

The process of globalisation along with liberalisation and privatisation has been introduced with a view to integrate the world economy in order to facilitate faster movement of factors of production, produced goods through the expansion of world trade and reduce the transport expenditure, expansion of technology from one region to another and thus would contribute to the growth process of various countries across the globe. It was presumed to intensify the competition among the producing units of various countries and thus improve the efficiency through free market mechanism. It is indeed a fact that during the past two and half decades, world economies have expanded and there has been a common belief that the volume of world trade has been expanding more with the increase in the role of private sector and opening up of many countries and their integration with the world economy.

The relaxation of tariffs and duties in various countries, removing barriers to export and imports and allowing free movement of goods including human resources apparently led to faster growth of many countries that have been benefitted from increasing cross-border trade and investments. However, many other countries have been observed to lag behind in terms of growth, reduction in unemployment and poverty because of the lack of competitiveness and inefficient management and production activities, technological backwardness and lack of capital that reduces their capacity to successfully compete in the global market

(Schneider and Enste, 2002; Onwuka and Eguavoen, 2007).

In the globalisation phase especially after 1990, the international mobility of capital, resulting from advances in communications technology and liberalization of financial markets has intensified as the world economy witnesses the unleashing of market forces. Deregulation of domestic markets, their opening to competition, privatization and the retreat of the state from economic management are also the features of the current global order. However, many researchers criticised the same process for encouraging inequality among the nations. The liberalization of the world economy, for instance, has proceeded in such a way that the growth prospects of developing countries are being undermined. Thus, while restrictions have been lifted on the freedom of capital and skilled labour to move to areas of high returns, the restrictions on the mobility of unskilled labour remain. Not only that, many of the developed countries, in order to protect the employment prospects of their citizens also take recourse of the path of protectionism and in the pretext of environmental issues, employment of child labour etc. and ban many of the products from the underdeveloped world from entering their market. A recent addition to that is the declaration of Obama administration against the outsourcing of various activities to India.

Moreover, as developing countries have increased their capacity to produce and export manufactures, the developed countries have

become active in promoting tariff peaks and escalations (UNCTAD, 2001). Such measures can neither solve the development problems of Southern block and nor allow for a narrowing of the North–South division. Therefore, the same countries have been found to propose for opening up of economies and reduction in tariffs and subsidies that suits their own interest and at the same time follow protectionism for their own countrymen whether a producer or labourer. The profit-seeking market economy has been observed to spread globally but it failed to demonstrate the market economist's presupposition of ensuring efficiency and dynamism. Nevertheless, globalization has remained as the central force in the world economy. This global outlook has been made possible by progressive dismantling of barriers to trade and capital and steadily declining costs of communication, transportation and computing. The integrative logic of globalization, therefore, seems inexorable and its momentum is irresistible.

United Nations (2001) study claimed that the phase of globalisation and integration of world economy through reduction in trade barriers and promotion of global exchanges as well as mobility of goods and services has been able to improve the ratio of the growth of world export volume to the growth of gross world product from below 2 per cent in 1970s and 1980s to a range of 2.5 to 3 per cent in the following period. Not only that, the outward foreign direct investment has increased by several times in the post 1990s (UNCTAD, 2002). Also, the countries with their integration with the world economy were supposed to be benefitted in the form of exposure to new ideas and products, greater specialization and expanded opportunities for mergers and acquisitions, leading to growth in size and power of corporations, their increased competitiveness and efficiency in the utilization of productive resources and major improvements in social development and human welfare (Ayorinde, et. al. 1998; Rodrik, 1999; Sachs, 2000; Crafts, 2000; Masson, 2001; IMF, 2002 and Ocampo, 2003). But the opportunities of this global system of interaction remain highly concentrated among the industrialized countries leading to the exclusion of the majority of developing nations. There is also anxiety that the sovereignty of states is at stake as globalization appears to question their rights to independent decision–making. Despite admitting that the share of developing countries together in the total world export has increased in the post 1990s, Gereffi and Sturgeon (2004) has raised question of effectiveness of globalisation on the grounds of the location of its benefits, type of technology used, quality of jobs created and the price impacts on the export from the developing countries etc. With evidences, Kaplinsky (2004)

proved that despite the wide diffusion of productive capabilities to developing countries during last several decades, the growing importance of global buyers has squeezed both profit margins and incomes for developing country producers. Persistence of food insecurity in Phillipines with the globalisation and acceleration of trade has been pointed out by Guerrero (2010). He pointed out that globalisation has shifted the trade pattern and even culture and through the years changes the production activities and generated a dependency on other countries for import of food. The growing food insecurity with the globalisation and expansion of trade has also been highlighted by Heilbuth (2010). Thus all these facts raised doubt about the effectiveness of globalisation on the growth of countries' income through various means as highlighted, potential of generating employment or reducing unemployment and regional inequality and broadly north-south divide, regional price variations of manufacturing items, poverty, malnutrition in the large areas of the globe and finally the sustainability of growth process and environmental qualities across the countries.

Moreover, most of the proponents of globalisation and free economy presumed that if economic growth, through the expansion world trade, takes place it will automatically induce growth of human welfare and thus it should have been reflected through the rise of human development index of the respective countries that has been benefitted through the process of globalisation. Again, improvement in human resources through rising productive capacity of labour forces, is supposed to have a positive impact on the country's growth process. But most of the studies on globalisation and economic development hardly gave any attention to the casual linkages between globalisation and human development. Thus the question remains – Is there any effect globalisation on human development?

This paper is a small attempt to examine the effect of globalisation on the observed growth of gross domestic products (GDP) across the countries as well as the growth of human development. The rest of the paper is organised as follows. In the next section a brief review of some relevant studies are addressed and the methodology adopted has been discussed. Then, the observations and discussion is incorporated and the concluding remarks are provided in the last section.

2. A Brief Literature Review

Both the positive and negative effects of globalisation on various aspects as outlined in the introduction have been accepted in the literature on the subject. However, the economists especially the

supporters of market economy believe the effect of globalisation will outweigh the cost associated with it (Vaubel, 1999; Heinemann, 2000; Beer and Boswell, 2001; Li and Reuveny, 2003). Blomstrom et al (1992), Borensztein et al (1999), Dollar and Kraay (2001), Greenaway et al (1999), found a strong relationship between expansion of trade and economic growth especially in sufficiently rich countries. Dreher (2003) also showed that globalisation has strong impact on the growth of the economies and the countries that insulated themselves from the international community (Rwanda or Zimbabwe) experienced slower rate of growth over the years. Borensztein et al (1998) however provided a strong evidence of positive growth effect of globalisation provided a threshold stock of human capital. A number of other literatures show that globalisation has impact on economic growth though less robustly, they raised question of its impact on the economically backward countries and the environment and failure to reduce poverty. Also some of the studies questioned about its impact to widen the inequality across the countries and also within the countries (Bergh and Nilsson, 2008). Many of those studies used proxy variables like volume of trade and capital flow or openness to these factors to estimate their impacts on inequality, government tax revenue, consumption outlays etc. While some economists like Chanda (2001), Rodrik (1998), Garrett (2001), Alesina (1994) found no effect of globalisation or openness on economic growth. Rather the developing countries are found to suffer from globalisation and that rises with the intensity of underdevelopment. On the one hand, sufficiently rich countries are benefitted in terms of its growth effect due to the growth in foreign direct investment (Blomstrom et al, 1992). On the other hand, Carkovic and Levine (2002), Edison et al (2002) did not find any robust relationship between FDI and economic growth.

Most of the aforesaid studies saw the impact of globalization on the economic growth and used many proxy variables as the explanatory variables for the openness and the problem of multicollinearity arising from taking so many explanatory variables were not checked for many of the cases (Borensztein, 1998; Greenaway et al, 1999; Dollar and Kraay, 2001; Edison et al, 2002; Geraffi & Sturgeon, 2004). The economic growth of a country does not only depend on the level of its integration with the world economy or international trade, and it depends substantially on the production of goods and services from the indigenous sources (like agriculture, industries from their own effort and uses of their own minerals and utilisation of their own human capital) and it is very difficult to segregate the effects of various factors on the

growth of GDP. Also, the question of causality remains unexplained in many of the cases.

In any case economic growth is only one aspect of development. Human development has many dimensions including per capita GDP, which reflects the economic aspect. It is also necessary to see the effect of globalization on the aspects other than the economic aspect. This can be achieved by examining the effect of globalization on Human Development Index, which summarizes all the main aspects of human welfare.

Dreher (2003) has constructed globalisation index on the basis of various economic, social and political indicators for the 123 countries in the world and using fixed effect panel data model examined the effect of globalisation on the growth of GDP across the countries. However, we did not construct globalisation index on the basis of actual economic behaviour (like capital flow & restriction or openness, FDI, volume of trade etc). Rather we tried to use the standard KOF index of globalisation and index of its various components available across the countries in the world (Dreher, 2006; Dreher et al 2008).[1]

2.1 Definition and Construction of Indices

Globalisation is the process of opening up of economies to the outside world to facilitate trade, reduction in physical and other barriers to increase mobility of goods and factors of production as well as labour force. In other words, it is a process of integration of economies through economic, social and political processes. Thus in order to have a comparison of relative position of openness of any country, Dreher (2006) introduced the globalisation index since 2002 and it is computed by considering the three dimensions of it viz economic, social and political.

The economic dimension captures the (a) actual flows: trade, foreign direct investment, portfolio management, income payment to foreign nationals and foreign capital employed (all expressed as percentage of GDP) and (b) restrictions on trade, foreign capital through physical and economic barriers, tariff rates, taxes and an index of capital control.

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[1] Globalization is conceptualized as a process that erodes national boundaries, integrates national economies, cultures, technologies and governance and produces complex relations of mutual interdependence. The KOF Index of Globalization measures the three main dimensions of globalization: Economic, Social and Political and the overall globalisation index indicate the degree of openness of a country to the other countries in the world.

The social dimension is however constructed on the basis of information on (i) personal contacts (telephone traffic, transfers, international tourism, foreign population, international letters); (ii) information flows (internet, television and trade in newspapers) and (iii) data on cultural proximity (measured by number of McDonald's Restaurants, Ikea and trade in books).

The political globalisation index is constructed from the number foreign embassies in a country and its number of membership to various international organisations and participation to UN peace missions and treaties. The Globalization Index is constructed by taking weighted average of the three indices. All the three indices are constructed by taking weighted average of the associated parameters (Dreher, 2006).

On the other hand, human development index is calculated on the basis of three indicators viz. income indicator (GDP), education indicator (literacy rate and gross enrolment ratio) and health indicator (life expectancy at birth). Unlike the globalisation indices, here all the three components carry equal weight.

2.2 Data

Data on globalisation index and its various components have been collected from the KOF index of globalisation published by Dreher (2006) and updated by Dreher et al (2008). The data were available for the period 1970 to 2007. The information on GDP across the countries has been collected from various issues of *World Development Reports* and that was available for the years 1970, 1983, 1992 and 2008. Also human development index figures were collected from various issues of *Human Development Report* published by UN. But information on all aspects of globalisation, GDP, Human Development Index is not available for all the countries. Countries which did not have relevant data are eliminated from our analysis. These are usually the developing countries and small in size. We have thus considered only 75 countries for which data on all the relevant variables are available for the period 1970 to 2007 or 2008.

From the collected data we computed the growth of aforesaid globalisation indices of each 10 years sub-period since 1970. Also the annual compound rate of growth during 1970 to 2007 and 1970 to 1990 and 1990 to 2007 have been computed to see the changes before and after the 1990 after which the focus of globalisation with GATT accord and formation of WTO have taken place. Also structural transformation has taken place severely across various countries after 1990. Annual compound rates of growth of GDP of various countries from 1970 to 2008, as well as for the sub-periods 1970 to 1992 and 1992 to 2008 have been computed. In the same way, rate of growth of HDI during 1975 to 2005 for which the data were available, has been computed for the period 1975 to 2005 and also for 1975 to 1990 and 1990 to 2005 sub-periods. Using these data, we tried to examine the impact of globalisation and its various components on the variation in growth of GDP across countries along with their variations in human development indices (that reflects the level of human capital in the respective countries).

Impact of various globalisation indices and human development indices is estimated by regression method by fitting a regression of the type $\Delta GDP_i = \alpha + \beta_j \sum \Delta GI_{ji} + \mu \Delta HDI_i + u_i$, where ΔGDP_i, HDI_i are the annual compound rate of growth of GDP and HDI of ith country during the concerned period. ΔGI_{ji} is the compound rate of growth of jth globalisation index of ith country during the same period and u_i is the random disturbance term with standard classical regression properties.[2] The presence of some large outlying observations necessitates us to take some robust regression method. We have resorted to median least square which yielded much better result and hence applied for the overall as well as both the sub-periods.

Also the correlation between the growth of different components of globalisation indices and the growth of human development indicators for various sub-periods are calculated to know if there exists any such relation. It would help us in identifying the role of globalisation and its components in the growth of human development of various countries.

Finally, the growth of human development index during each sub-period is regressed on the growth of various components of globalisation during the same period to understand the impact of variation in globalisation components on the variation in human development index across the countries.

3. Results and Discussion

The least squares regression outputs presented in table-1 show a strong positive impact of social globalisation on the GDP growth rate

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[2] Since the subsequent globalisation indices are highly correlated, these are not introduced as an explanatory variable as it will lead to the problem of multicollinearity.

while political globalisation index has strong negative impact on the growth of GDP across countries. The indication is that political globalization does not imply GDP growth. On the other hand, those who are socially more open, through remittance, knowledge transfer and due to cultural proximity could significantly accelerate their GDP growth. A surprising result is that the growth of economic globalisation index and the growth of human development index do not have significant impact on the growth of GDP though there is an income component in the HDI.

The two way correlation table presented in Table 2 shows the interrelation between the explanatory variables. Growth of HDI has positive correlation with the growth of all the globalization components especially with those of political and economic globalization. This is possibly because economic globalization has strong positive correlation with social globalization.

Tables-3 and 5 show the results of the same regression taking data separately for before and after 1990. Before 1990 it is only the growth of social globalisation index which had significant positive impact on the growth of GDP whereas after 1990 social globalisation index did not have significant impact the growth of GDP but political and economic globalizations have some impact. This is because of the changes in social and political scenario after 1990. Political globalisation index did not have any impact initially, but showed negative impact in the later period. The effect of social and political globalization remained positive throughout. It is thus surprising to see that when we see the effect of these variables taking the combined data, the effect of economic globalization turned out to be negative though not significant at all. The correlation table of data before 1990 given in Tables 4 and 6 may explain why it is so. It provides a strong argument for the openness of economies through relaxation of trade barriers and flows of goods and services to promote and accelerate growth process.

Since it is thought that the presence of outliers may pose a challenge to the results obtained the robust regression by minimising absolute deviation is adopted and the results obtained are presented in tables-7 to 9. The robust regression results show a strong positive impact of social globalisation on the rate of growth of GDP though it became weak in the later sub-period. The adverse impact of political globalisation index remained and became stronger in the latter years. Overall impact of growth of economic globalisation though found to be negative it became positive in the latter years along with the human development index. But both the factors are not found very

strong in their effects in the post globalisation period also.

The interrelations among various growth parameters (HDI, globalisation and its various components in different sub-periods are presented in Tables 10A through 10E. The result shows that the inter-correlations among all the variables have been becoming stronger over time. We see that there is an increasing trend of globalisation Indices (GIs) and HDI so that the growth parameters are positive. Small GI values are not likely to have much influence on HDI values. This is reflected in the relations between growth parameters. But once a very high value of it is achieved it is again likely to get haphazard relation between growth parameters because at this stage it needs a very high effort to improve further. It seems that we have not yet reached that stage.

Tables-11A and B reflect that the bivariate correlations of the growth rates of all the variables between 1995 and 2005 are all positive except in one case. That is an indication of very close relationship between contemporary human development and globalisation whether economic, social or political. Most of the correlations have high values. Correlations of growth rates initially (i.e., for the periods 1975-1985 or 1980-1990 were very poor. With the growth of globalisation, expansion of knowledge takes place, technology become available uniformly even if with some lag (due to the reluctance of some pioneering countries to disseminate that knowledge for earning more profit by patenting them) yet it will certainly lead to the improvement of quality of human life and thus life expectancy at birth increases and that contributes to their GDP growth. Also, with the growth HDI i.e., human development especially in the front of education, people try to utilise the market opportunities by opening up of their economies and thus economic globalisation is accelerated. Also, due to the education, mobility of people across the countries increases (though only literacy rate and combined enrolment ratio is only considered in the HDI) of course that depends on the level of higher and technical education of a country.

The correlation table-11A and B also show that the Contemporary growths are more related than the distant growths, which means changes in human development is more closely related to the changes in globalisation move in the nearby years than the remote past changes and vice versa. Table-11B is thus an indicative of dependence of HDI growth on the recent growth of PGI, SGI and EGI.

It is not the improvement of globalization which is the ultimate aim of human beings. What we need is the overall human development.

Globalization may be viewed as one of the tools to achieve it. Thus we carried out the regression of the growth of HDI on the growth of various components of GI (Table 12). The results more or less depict the same phenomena as we found through correlation studies. Growth of HDI depends on the growth of all the components of GI namely political (PGI), social (SGI) and economic (EGI), but only on the recent growths of around last 10 years. PGI has negative impact on HDI, whereas the other two components, SGI and EGI, have positive impact when we see the simultaneous effect of these variables on HDI.

If we take only the combined effect, i.e., the effect of overall GI on HDI to avoid multicollinearity if any, we get a similar result. There is a strong positive effect of only the recent growth of GI on the growth of HDI.

Globalisation came after 1990 especially with the formation of WTO and several countries opened up their trade with other countries in the world and relaxed tariff and non-tariff barriers, allowed movement of people in and out in various spheres including education, banking, technology, industry and other businesses and also involved in socio-political negotiations for the growth and welfare of the countrymen. But before 1990 also various countries were involved in trade practices and technological exchange and that might cause differences in the rate of growth of the economies and thus progress across the countries. Here, we checked the changes in relationship between overall globalisation index and growth of GDP before and after the globalisation move in 1990s.

For the purpose, two figures are introduced. Figure-1 shows the relationship between the rate of growth of overall globalisation index during 1970 to 1990 and the rate of growth of GDP during 1970 to 1992. On the other hand, Figure-2 describes the relationship between rate of growth of globalisation index during 1990 to 2007 and the rate of growth of GDP during 1992 to 2008 across the countries. Fig.-1 shows that primarily the developed countries from Europe followed rapid globalisation path and also recorded comparatively faster growth of GDP. Also in the 1st quadrant lie the rapidly growing Asian countries like South Korea, Malaysia, Indonesia, Singapore, Japan, Phillipines and Thailand. At the same time, countries in the quadrant III are mostly from the developing world (including India, Sri Lanka, South Africa, Iran etc) except USA who exhibited slower rate of growth of globalisation as well as their GDPs. Those countries were mostly belonging to south-east Asia, Africa or South American sub-continent.

It is interesting to note that some European countries (Norway, Portugal, Ireland, Denmark including Israel) are lying in quadrant IV. Actually, those countries were already open to the outside world and thus though the rate of growth of globalisation was not higher they were growing through trade and industrial progresses. In the quadrant II are also many developing countries (Nepal, Bangladesh, Nigeria, Zimbabwe etc) who had opened up to the outside world from very low base and hence exhibiting very high calculated rate of growth of globalisation but were yet to become capable of facing competition with the advanced countries. China also belonged to that group and recorded slow growth of her economy during the early period. It is rather many of developed countries in quadrant-I who were benefitted through trade at the cost of those countries that can be explained through the dependency theory of G. Frank.

Fig. 2 shows that many of the countries (Iran, India, Sri Lanka etc) who were in quadrant III in Fig.-1 occupied position in quadrant-I during the second period, while some of the countries (Chile) shifted from quadrant-I to IV. Venezuela and Australia shifted from quadrant II to IV with slower rate of globalisation growth but attained high growth of GDP which may be due to higher earnings from export of oil whose price has increased rapidly and that is also true for other oil exporting country like Iran. It may however be noted that the average rate of growth of overall globalisation index has increased from .01 to about .02 but the average rate of growth of GDP has declined from about .096 to .06. It is an indication of decelerating impact of globalisation on economic growth which is natural because it becomes increasingly difficult to get the pie of world market or expand market when every country tried to have it unless all the economies expand at a sufficiently very high rate. France, Netherland, Italy returned from quadrant-I to III in the second period with low growth of economy as well as globalisation in overall terms. However, many countries of the developing world like India, China, Sri Lanka, Nepal, have been successful in increasing their growth rate of GDP through rapid globalisation. While China could expand its production and export through huge foreign direct investment, India also could increase export of skilled labour services along with produced goods and attract foreign investment. Nepal despite having political instability could increase GDP much from remittance of NRI people who were compelled to leave the country in search of livelihood. The European and some Asian countries who were having faster growth of globalisation index in the previous period but recorded slower rate of globalisation in the post 1990 due to very

natural reason (as they already achieved a higher index of globalisation), they still maintain higher rate of growth of GDP. In the same way USA, Sweden, France, Italy could not maintain the tempo as they were already globalised but failed to accelerate the GDP growth further along with globalisation especially expansion of market. Zimbabwe's poor performance in economic front despite high globalisation throughout both the period is due to political instability and Japan, Thailand entered in the deceleration phase in the post 1990. Barring a few the two pictures reveal that the average rate of growth of GDP across the countries have come down irrespective of the fact that rate of growth of overall globalisation has increased in the later period.

4. Concluding Remarks

It is clear from the overall analysis that economic growth, globalisation and human development are closely related though the effect of economic globalisation index on the growth of GDP is not clear and not uniform in different sub-periods. Many of the countries were open even before the 1990 and the effect of economic globalisation has increased after 1990. Human development through the growth of income may be accelerated by opening up of economies with some caution. Too much political interference by economically and politically powerful countries may hamper the sovereignty of another country and may affect the decision making in regard to various projects and activities. As Guerrero (2010) observed how the politics and globalisation resulted in food insecurity and thereby welfare in some countries.

The impacts of globalisation across different countries however depend on their capacity to face competition and that depends on their existing productive capacity and quality. Otherwise, the benefit is supposed to be skewed in the favour of existing technically developed countries who can bargain and more terms of trade in their favour. A more segregated analysis of developed and developing countries would reveal the facts in more detail.

The impacts of globalisation can be explained in further detail if the similar analysis is made separately for the high income countries and low income countries. Also it is necessary to see more minutely about the groups of countries which improved very fast or crossed the average level during the period concerned. In a similar manner we can consider the group of countries which deteriorated and went down below the average level from above average level. It is also necessary to see how the different groups could utilise the scope generated with the new structural changes across the countries.

Table-1: Results of Least Square Regression of ΔGDP on the Growth Rates of Various Globalisation Indices and that of HDI for the whole Period

variable	coefficient	stand. error	t-statistic	p-value
ΔPGI	-0.8174	.2981	-2.742	.0078
ΔSGI	1.276	.347	3.678	.00046
ΔEGI	-0.2418	.4342	-.557	.5793
ΔHDI	0.517	.7983	.6476	.5194
Constant	0.0754	.0075	10.012	.0000

Dependent variable = ΔGDP, R^2=0 .2583, $F_{4, 70}$ = 6.093

Note: ΔPGI, ΔSGI, ΔEGI, ΔHDI are the annual compound rate of growth of political globalisation index, social globalisation index, economic globalisation index and human development index respectively.

Table-2: Two-Way Correlation Table for the whole Period

variable	ΔPGI	ΔSGI	ΔEGI	ΔHDI
ΔPGI	1			
ΔSGI	.04	1		
ΔEGI	.10	**.46**	1	
ΔHDI	**0.43**	.28	**.36**	1

Note: ΔPGI, ΔSGI, ΔEGI, ΔHDI are the annual compound rate of growth of political globalisation index, social globalisation index, economic globalisation index and human development index respectively.

Table-3: Results of Least Square Regression of ΔGDP on the Growth Rates of Various Globalisation Indices and that of HDI for the Period before 1990

variable	coefficient	stand. error	t-statistic	p-value
ΔPGI	.0426	.2715	.157	.876
ΔSGI	1.1073	.335	3.305	.0015
ΔEGI	.2627	.3699	.7101	.480
ΔHDI	1.2951	.8381	1.545	.1268
Constant	.0724	.0086	8.403	.0000

Dependent variable = ΔGDP, R^2=0 .171, $F_{4, 70}$ = 3.606

Note: ΔPGI, ΔSGI, ΔEGI, ΔHDI are the annual compound rate of growth of political globalisation index, social globalisation index, economic globalisation index and human development index respectively.

Table-4: Two-Way Correlation Table for the Period before 1990

variable	ΔPGI	ΔSGI	ΔEGI	ΔHDI
ΔPGI	1			
ΔSGI	-.22	1		
ΔEGI	-.19	**.33**	1	
ΔHDI	**.60**	**-.37**	**-.16**	1

Note: ΔPGI, ΔSGI, ΔEGI, ΔHDI are the annual compound rate of growth of political globalisation index, social globalisation index, economic globalisation index and human development index respectively.

Table-5: Results of Least Square Regression of ΔGDP on the Growth Rates of Various Globalisation Indices and that of HDI for the Period after 1990

variable	coefficient	stand. error	t-statistic	p-value
ΔPGI	-.8973	.5375	-1.6694	.0995
ΔSGI	.8567	.55185	1.5523	.1251
ΔEGI	1.0094	.58526	1.7247	.0890
ΔHDI	-1.0044	.97582	-1.0293	.3069
Constant	.05426	.01624	3.3406	.00134

Dependent variable = ΔGDP, R^2=0 .144, $F_{4, 70}$ = 2.952

Note: ΔPGI, ΔSGI, ΔEGI, ΔHDI are the annual compound rate of growth of political globalisation index, social globalisation index, economic globalisation index and human development index respectively.

Table-6: Two-Way Correlation Table for the Period after 1990

variable	ΔPGI	ΔSGI	ΔEGI	ΔHDI
ΔPGI	1			
ΔSGI	.11	1		
ΔEGI	.18	**.58**	1	
ΔHDI	**.08**	**.52**	**.46**	1

Note: ΔPGI, ΔSGI, ΔEGI, ΔHDI are the annual compound rate of growth of political globalisation index, social globalisation index, economic globalisation index and human development index respectively.

Table-7: Results of Robust Regression of ΔGDP on the Growth Rates of Various Globalisation Indices and that of HDI for the Overall Period

variable	coefficient	stand. error	t-statistic	p-value
ΔPGI	-.0824	.1808	-.4559	.6502
ΔSGI	**.8506**	.1931	4.4051	.00005
ΔEGI	**-1.3393**	.2612	-5.1277	.0000
ΔHDI	.1902	.4598	0.4133	.6809
Constant	.0932	.0039	24.099	.0000

Dependent variable = ΔGDP, Weighted R^2=0 .3608, $F_{4, 59}$ = 8.327

Note: ΔPGI, ΔSGI, ΔEGI, ΔHDI are the annual compound rate of growth of political globalisation index, social globalisation index, economic globalisation index and human development index respectively.

Table-8: Results of Robust Regression of ΔGDP on the Growth Rates of Various Globalisation Indices and that of HDI for the Period before 1990

variable	coefficient	stand. error	t-statistic	p-value
ΔPGI	**-.4038**	.1846	-2.187	.0326
ΔSGI	**.8678**	.2334	3.719	.0004
ΔEGI	-.2985	.2756	-1.083	.2831
ΔHDI	-.2826	.5908	-.4784	.6341
Constant	.0934	.0062	15.146	.0000

Dependent variable = ΔGDP, Weighted R^2=0 .3427, $F_{4, 61}$ = 7.951

Note: ΔPGI, ΔSGI, ΔEGI, ΔHDI are the annual compound rate of growth of political globalisation index, social globalisation index, economic globalisation index and human development index respectively.

Table-9: Results of Robust Regression of ΔGDP on the Growth Rates of Various Globalisation Indices and that of HDI for the Period after 1990

variable	coefficient	stand. error	t-statistic	p-value
ΔPGI	-.0791	.2153	-.367	.7147
ΔSGI	.3078	.2153	1.429	.1581
ΔEGI	.1223	.2391	.5113	.6110
ΔHDI	.5166	.4280	1.207	.2321
Constant	.0606	.00635	9.541	.0000

Dependent variable = ΔGDP, Weighted R^2=0 .168, $F_{4, 60}$ = 3.021

Note: ΔPGI, ΔSGI, ΔEGI, ΔHDI are the annual compound rate of growth of political globalisation index, social globalisation index, economic globalisation index and human development index respectively.

Table-10A: Correlation between Growth of HDI and the Growth of Various Globalisation Indices in different Sub-periods

	HDI7585	GI7585	PGI7585	SGI7585	EGI7585
HDI7585	1	-.048	**.304**	**-.340**	-.058
GI7585	-.048	1	**.573**	**.442**	**.693**
PGI7585	**.304**	**.573**	1	-.171	.126
SGI7585	**-.340**	**.442**	-.171	1	.104
EGI7585	-.058	**.693**	.126	.104	1

Notes: (i) GI, PGI, SGI and EGI represent overall globalisation index, political globalisation index, social globalisation index and economic globalisation index respectively. (ii) Karl Pearson correlation coefficient is significant at 1 a d 5per cent level of significance if R is greater than .296 and .227 respectively for n = 75.

Table-10B: Correlation between Growth of HDI and the Growth of Various Globalisation Indices in different Sub-periods

	HDI8090	GI8090	PGI8090	SGI8090	EGI8090
HDI8090	1	-.109	.270	-.096	**-.315**
GI8090	-.109	1	**.553**	**.743**	**.571**
PGI8090	.270	**.553**	1	.168	-.109
SGI8090	-.096	**.743**	.168	1	.262
EGI8090	**-.315**	**.571**	-.109	.262	1

Table-10C: Correlation between Growth of HDI and the Growth of Various Globalisation Indices in different Sub-periods

	HDI8595	GI8595	PGI8595	SGI8595	EGI8595
HDI8595	1				
GI8595	.194	1			
PGI8595	**.354**	**.530**	1		
SGI8595	.168	**.701**	.313	1	
EGI8595	.084	**.597**	-.083	.161	1

Table-10D: Correlation between Growth of HDI and the Growth of Various Globalisation Indices in different Sub-periods

	HDI9000	GI9000	PGI9000	SGI9000	EGI9000
HDI9000	1				
GI9000	.248	1			
PGI9000	.082	**.588**	1		
SGI9000	**.408**	**.665**	.163	1	
EGI9000	.271	**.747**	.150	**.378**	1

Table-10E: Correlation between Growth of HDI and the Growth of Various Globalisation Indices in different Sub-periods

	HDI9505	GI9505	PGI9505	SGI9505	EGI9505
HDI9505	**1**				
GI9505	**.428**	**1**			
PGI9505	-.193	**.635**	**1**		
SGI9505	**.478**	**.755**	.265	**1**	
EGI9505	**.471**	**.747**	.219	**.470**	**1**

Table-11A: Bivariate Two-Way Correlations between the Rate of Growth of HDI and GI and its components during Various Sub-periods

	HDI9505	GI9505	PGI9505	SGI9505	EGI9505	GI8595	PGI8595	SGI8595	EGI8595	GI7585	PGI7585	SGI7585	EGI7585
HDI9505	1	.428	-.193	.478	.471	.164	.178	.118	.160	-.134	-.070	.007	-.104
GI9505		1	**.635**	**.755**	**.747**	.087	.022	.058	.107	-.244	-.077	-.265	-.115
PGI9505			1	.265	.219	-.116	-.227	-.045	-.079	-.129	.012	-.314	.007
SGI9505				1	.470	.249	.160	.017	.296	-.241	-.068	-.207	-.193
EGI9505					1	.201	.218	.121	.003	-.076	.079	-.113	-.115
GI8595						1	**.530**	**.701**	**.597**	.104	.161	.086	-.039
PGI8595							1	.313	-.083	.082	.141	.114	-.028
SGI8595								1	.161	.195	.054	.144	.231
EGI8595									1	-.171	.010	-.035	-.308
GI7585										1	**.573**	**.442**	**.693**
PGI7585											1	-.171	.126
SGI7585												1	.104
EGI7585													1

Table-11B: Bivariate Two-way Correlation Table between the Rate of Growth of HDI and GI and its components during Various Sub-periods

	HDI8090	HDI8595	HDI9000	HDI9505
GI7585	-0.053	-0.097	-0.132	-0.134
GI8090	-0.109	0.030	0.070	0.071
GI8595		0.194	0.149	0.164
GI9000			0.248	0.253
GI9505				**0.428**
PGI7585	0.261	0.140	-0.021	-0.07
PGI8090	0.270	0.099	-0.041	-0.027
PGI8595		**0.354**	0.187	0.178
PGI9000			0.082	0.006
PGI9505				-0.193
SGI7585	-0.198	-0.061	0.021	0.007
SGI8090	-0.096	0.080	0.132	0.090
SGI8595		0.168	0.152	0.118
SGI9000			**0.408**	0.417
SGI9505				**0.478**
EGI7585	-0.172	-0.194	-0.128	-0.104
EGI8090	**-0.315**	-0.038	0.085	0.092
EGI8595		0.084	0.143	0.160
EGI9000			0.271	**0.302**
EGI9505				**0.471**

Table-12A: Results of linear regression of Growth of HDI on growth at different time periods of the three components of GI

	Coefficients	Std. Error	T	Sig.
(Constant)	0.0018	.001	1.449	.152
PGI7585	-0.0210	.033	-.628	.532
PGI8595	-0.0257	.037	-.702	.485
PGI9505	**-.132**	**.035**	**-3.777**	**.000**
SGI7585	-0.00136	.035	-.039	.969
SGI8595	0.0171	.024	.702	.485
SGI9505	**0.105**	**.030**	**3.507**	**.001**
EGI7585	0.0024	.032	.074	.941
EGI8595	-0.0034	.029	-.117	.907
EGI9505	**0.109**	**.032**	**3.420**	**.001**

Dependent Variable: HDI9505, R=0.672, Sig. 0.000

Table-12B: Results of linear regression of Growth of HDI on growth at different

time periods of GI				
	Coefficients	Std. Error	t	Sig.
(Constant)	0.0012	.001	.915	.363
GI7585	-0.0268	.060	-.446	.657
GI8595	0.0548	.044	1.251	.215
GI9505	.179	.049	3.676	.000

R=.449, Sig.=.001, Dependent Variable: HDI95

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Fig.-1

Rate of Growth of GDP (1970-92) Vs Rate of Growth of Globalisation Index (GI) (1970-90) Across the Countries

Fig.-2

Rate of Growth of GDP (1992-2008) Vs Rate of Growth of Globalisation Index (GI) (1990-2007) Across the Countries