Journal of Business Theory and Practice
ISSN 2372-9759 (Print) ISSN 2329-2644 (Online)
Vol. 6, No. 2, 2018
www.scholink.org/ojs/index.php/jbtp

Original Paper

Globalization and Foreign Trade of Pakistan with D-8 Group

Mubashir Hussain[1*]

[1] Shaheed Zulfiqar Ali Institute of Science and Technology (SZABIST), Karachi, Pakistan

[*] Mubashir Hussain, Shaheed Zulfiqar Ali Institute of Science and Technology (SZABIST), Karachi, Pakistan

Received: March 12, 2018 Accepted: March 19, 2018 Online Published: April 10, 2018

doi:10.22158/jbtp.v6n2p133 URL: http://dx.doi.org/10.22158/jbtp.v6n2p133

Abstract

Globalization has made the world smaller and flatter which is called "the death of distance". This phenomenon has brought considerable increase in international trade in recent past. Many developing countries have been benefitted from the fruits of globalization and many other like Pakistan have lagged behind in the race. Pakistan is suffering persistently from trade deficit since 2003 and by the same point of time India, Sri Lanka and Bangladesh which share similar socio-economic conditions to Pakistan: are experiencing upward trend. This study investigates the popular theory "the gravity model of trade" in the context of Pakistan's export flow to D-8 group. The gravity trade model has been innovated by introducing overall Globalization Index (GI) which led to improve explanatory power of gravity model. This research, in panel setting has used annual data ranging from 2003 to 2013, by employing advance estimation technique PPML, Estimator. The empirical results of the study infer that GDP, population and distance confirm the basic gravity model. While the globalization Index and contiguity variables are against the expected signs. Therfore, it is concluded that Pakistan need to explore new destinations specially should target the developing countries for its exports.

Keywords

globalization, gravity model, Pakistan, D-8

1. Introduction

1.1 Background of the Research Study

International trade has brought significant improvement in economic growth, development and wellbeing of societies around the world. The roots of world trade can be traced back more prominently since last two centuries. But after the World War-II, with the quick advancements in the tools of globalizations and thereby with the emergence of GATT which finally transformed into World Trade Organization (WTO), substantial improvement have been witnessed even in the foreign sector of developing nations. The countries are moving towards market based competitive economies. As an economic phenomenon "globalization" directed by liberalization has been obsessed through groundbreaking progressions and advancements in the fields of innovations, technology, transportation, communication and migrations, which has integrated national economies into a global economy. This has made production internationalized and financial capital flows freely and instantly among countries (Appeleyard & Field, 2011).

The globalization has brought extensive changes in the international trade. For the period from 2000 to 2007, the average growth of world merchandise exports is 6 percent. During the period from 1950 to

2007 the average growth of international trade remained 6.2 percent (WTO, 2008). Furthermore, during the decade 1985 to 1994 the world trade doubled than world output. Many developing nation's economies have performed very well like BRICS. But there are also some nations especially under developed which have not been benefitted from the fruits of globalization. Therefore, the questions have been arisen for uneven distribution of trade through current wave of globalization.

Unfortunatly, Pakistan is among those developing nations which could not benefitted from Globalization process. As Figure 1 represents, over the period of last one and half decade Pakistan's trade percentage to GDP is persistently declining as compared to its with neighboring countries like India, Bangladesh and Sri lank, which share similar economic and social characteristics. Pakistan's population is 190 million and is a small open and liberal economy. But shares low proportion with world accounting only 0.138 percent. While on the other hand, according to the WTO data; in 2013 India was a 15th largest nation in world trade and China became world's largest nation in international trade (Panda & Sethi, 2016).

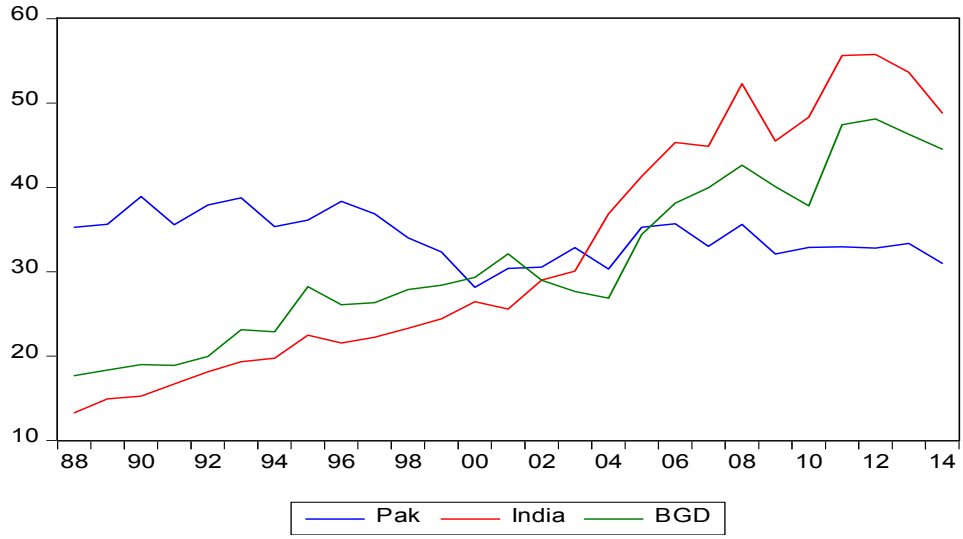

Figure 1. Trade Percentage to GDP from 1988 to 2014

Source: Author generated using World Bank data.

The determining factor for deficit in Pakistan's trade balance may be extremely concentrated nature of its export. Its exports are mostly less value added agricultural and intermediate goods that are directed towards few trading partners. The agriculture and textile sectors are 80 percent of total merchandise exports and 35.4 percent of trade is directed towards only five major trading partners. This higher concentrated character of Pakistan's exports is attributed with vulnerability and dependence of the economy (Waheed & Shujaat, 2015). Since 2003, Pakistan's trade percentage to GDP is persistently declining mainly because of high imports of hydrocarbon energy.

Since 2012, China has emerged as Pakistan's largest trading partner replacing the United States. In recent years, the biggest trade deficits were recorded with China, India, United Arab Emirates, Saudi Arabia, Kuwait and Malaysia and records trade surpluses with the United States, Afghanistan, Germany and United Kingdom only. Therefore, the trade balance deficit has been increased up to 36.2% from 2006 to 2012; amounting total US$ 21.2 billion in 2012. During FY 2016 exports declined by 9.5 percent and stood at US$ 18.2 billion as compared to US$ 20.1 billion in FY2015 (Economic Survey of Pakistan, 2016-2017).

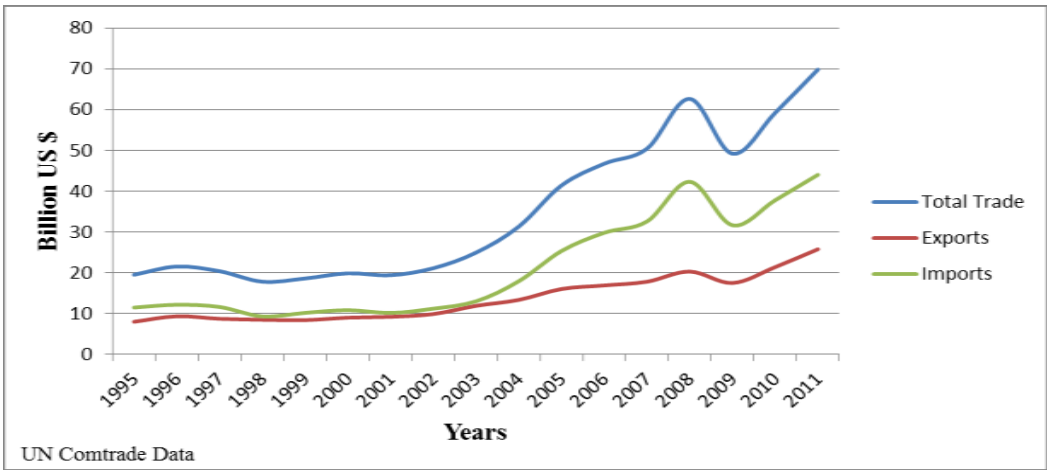

Figure 2. World Trade Progress 1955-2011

Developing nations, when looking for the destination of their exports find trade barriers and restrictions mostly from the high income nations due to protectionism of trade unions amongst them. Furthermore, the access of Pakistan's export to the markets of its major trading partners like U.S and European Union are somewhat conditional to social and political issues such as labor laws, Human rights and their self-interested political policies (Hussain, 2016).

1.2 Statement of the Problem

The globalization and international competitiveness in international trade has affected adversely the trade balance and economic growth of developing countries. In this state of affairs regional cooperation and integration can bring the developing economies at the stage of international trade (Zahra & Leili, 2011). Therefore, there arises a need for developing nations to come together in the trade unions and trade blocs.

The idea of mutual economic cooperation among major Muslim developing nations was put forward by Dr. Necmettin Erbakan, the then Prime Minister of Turkey during a seminar on "Cooperation in Development" at Istanbul in 1996 and in very next year the D-8 group was established on June 15, 1997 in Istanbul that envisioned the economic cooperation with the general goals of reinforcement and promoting the position of developing countries in world economy, providing diversification and creating new opportunities in trade with the ambition of strengthening the decision making role of D-8 in formulation of international economic policy at world level. Above the all most important objective, is to raise the living standard of people of developing countries.

It is the target set by D-8 group that it could reach its inter-trade to US $500 billion in 2018 by gradual withdrawn of tariff in the perspective of Preferential Trade Agreement (PTA) signed by eight developing countries on 14 May, 2006. Pakistan's inter-trade share is low, i.e., 5.8% less than Egypt 6.5%, Indonesia 26.3%, Iran 13.5%, Malaysia 20.6%, and Turkey with 20%. The D-8 countries comprise about one billion people, or around 17% of the world's population. Common religious and cultural tradition of D-8 is prominent features which encapsulate the trade attracting factors that are employed in gravity model of international trade. By investigating the determinants of the trade and following the policy accordingly, may boost the export and reduce the trade deficit of Pakistan,

1.3 Research Objective of the Study

This research study aims to investigate whether the economic, social and demographic conditions of D-8 and Pakistan affect Pakistan's export flow directed to the D-8 group, through estimation of popular

gravity trade model employing panel data analysis. As for sound policy formulation and its implementation, policy makers need to have access to credible, comprehensive and well directed research information. Hence, gravity model is a very strong estimation tool with high explanatory power in explaining the determinants of trade and trade potentials among trade partners. So as it may have policy implications for the policy makers of Pakistan.

1.4 Hypothesis

H_0 = Income, Population, connecting border, common official languages, Geographical distance among trade partners and globalization process of Pakistan and her trading partners of D-8 do not affect Pakistan's export flow directed toward to D-8 countries.

H_1 = Income, Population, connecting border, common official languages, Geographical distance among trade partners and globalization process of Pakistan and her trading partners of D-8 affect Pakistan's export flow directed toward to D-8 countries.

1.5 Theoretical Framework

The philosophy of gravity model of trade has been employed from the Newton's law of universal gravitational force. According to this law "the gravitational force between the two masses is directly proportional and inversely to square distance between them".

$$F = \alpha\ (m_1.\ m_2)/r^2 \quad (1)$$

Tinbergen (1962), Poyhonen (1963), and Pulliainen (1963), were pioneers who envisioned the idea of gravity model of international trade from Newton's law of gravitational force and transforming the formula into linear form for usual regression analyses as under:

$$log\ (Trade_{ij}) = \beta_0 + \beta_1 log(GDP_i.\ GDP_j) + \beta_2 log(Distance_{ij}) + \mu \quad (2)$$

This regression states that bilateral trade between two nations i and j, is an increasing function of their GDP and a decreasing function of geographical distance (mostly using transportation cost) between them. The $trade_{ij}$ is bilateral trade flow between countries i and j, GDP_i is supply capacity of home country measured in millions of real GDP, GDP_j indicates demand potential of market and D_{ij} is bilateral distance.

The trade gravity model has been used extensively by the researchers and remained successful in explaining the bilateral trade flows and volume in quantitative way, but theoretical justification in its earlier stage was poor but with the passage of time many economist provided theoretical justification by augmenting exogenous and dummy variables in the basic gravity model of trade (Mohmand & Wang, 2013).

There is a long history of gravity model of trade. Revenstein (1885) presented the idea of early cogent narrative of gravity model. Israd and Pack (1954) empirically estimated the negative impact of geographical distance. Tinbergen (1962) proposed a reduced form of gravity model but it had weak theoretical foundation lacking price specification. Learner (1974) improved the gravity model by introducing in it factor endowment to define the impact of income and population of trading partners. After that, Anderson (1979) contributed by including utility function and product differentiation.

Then it was left for (Bergstrand, 1985) who afterward provided theoretical foundation on the grounds of constant elasticity and monopolistic competition. Kuregman and Helpman (1985) explained the gravity trade model on the criterion of increasing returns to scale, production criterion derived the model under the assumption of increasing returns to scale in production. Deardoff (1985) contributed by providing evidence that gravity model of trade is consistent with the Hickchier-Ohlin-theory of trade. Anderson and Wincoop (2003) provided some further strength to the theoretical foundation of gravity model which was based on their earlier work on Constant Elasticity of Substitution (CES) expenditure;

they explained border puzzle on bilateral trade cost differences.

1.6 International Empirically Estimated Literature

Zurzoso and Lehmann (2003), estimated trade flows between two blocs Mercosur and European Union through Gravity Trade Model and findings suggest that infrastructure, income differences and exchange rate are major determinants of trade flows.

Batara (2004), in a study estimated gravity model using OLS technique with cross section data for the year 2000 for bilateral trade of India with 146 countries. The basic and augmented gravity model fitted the data and explained the 70 percent variations in bilateral trade of all trading partners.

Baxter (2005), conducted a study employing large data for 92 countries and for 24 variables consisting of economic, demographic and policy environment ranging from 1970 to 1995 employed Panel Data framework to estimate gravity model of trade and found that exchange rate volatility, an index of sectoral similarity and currency union are robust variable under certain methods and sample period.

Sherif and Fantazy (2013), tested empirically the Gravity Model of Trade applying Panel data technique in the context of The Gulf Cooperation Council that is comprised of Kingdom of Saudi Arab, Qatar, Oman, Bahrain, Kuwait and UAE they found that GDP, Population and GDP per capita of the countries have significant and are positively correlated with the export of Saudi Arab and the distance between them is also significant and are negatively correlated with the export of Saudi Arab, hence concluded that all these factor are critical and have significant influence in explaining the trade.

Doumbe and Belinga (2015), attempted to explore the trade flow of Cameroon with 28 European Union countries based on gravity model employing annual data for the period 2008 to 2012 in which basic gravity model was consistent and dummy variables common language and colony are statistically insignificant which implies that common language and colonial relationship do not determine the bilateral trade of Cameroon with its trading partners.

Waheed and Abbas (2015), applying panel Generalized Least Square (GLS) estimation technique using the data for the period 1994 to 2013 for Bahrain and its 31 trading partners; tested augmented gravity model of trade and they concluded on the empirical output that relative price ratio and foreign reserves of the trading partners are important in determining the export flow of Bahrain and dummy variables for FTA and GCC are also crucial factors in explaining the trade flow. Policy they recommended is to pursue a policy of diversification and development of domestic industries.

Sethi and Kumaran (2016), analyzed the Gravity Model of Trade by estimating random effects Panel regression model for India and China and findings suggest that the trade flows of both nations are with countries having less distance. India's trade flows are influenced by the high GDP and Low PCI countries and that of China with High PCI and common language of their trading partners.

Wang (2016) using balance panel data on PPML estimation method estimated the gravity model involving 80 country's data ranging from 2000 to 2013 for vegetable oil trade and results suggest that GDPs of importer countries have statistically positive impact on trade of vegetable oil and distance is having negative impact as theory suggests.

Hussain (2017) estimated gravity model of trade through PPML-Estimator panel data technique in the context of Pakistan with its 20 major trading partners and results suggests that basic gravity model have expected signs and globalization index show positive on its foreign trade.

1.7 Empirical Literature Estimated in the Context of D-8 Group

Ismail and Kouhestani (2011) using gravity model on Panel Correlated Standard Errors (PCSE) Data provided the evidence that GDP, population, exchage rate, border and distance are determining factors of export trade flow among D-8 countries.

Zahra and Leili Nikbakht (2011) using panel data analysis investigated the bilateral trade in the case of D-8 for annual data consisting the period of 1985 to 2007 tested the gravity model empirically and found that GDPs, geographical distance, population, similarity in economic conditions of countries, and openness confirmed significantly expected signs except for the policy trade.

Tash, M. S. and Tash, M. N. S. (2012) determined the trade potential of Iran with other D-8 members using trade intensity indices and findings suggest that the D-8 plan for reducing trade barriers among member nations would benefit most of the nations of D-group.

1.8 Empirical Literature Estimated on Pakistan

Gul and Yasin (2011) estimated gravity trade model through Panel Data estimation technique, using data ranging from 1985 to 2005 across 42 countries and concluded that Pakistan has high trade potential when trading with ASEAN, EU, Middle East countries and the North America and maximum potential exists with Japan, Sri Lanka, Bangladesh and Malaysia.

Malik and Caudhary (2012) estimated gravity model using Generalized Least Square technique (GLS) of panel data targeting the trade deficit of Pakistan for imports perspective from selected Asian countries. The study demonstrated that income, imports and openness of these selected countries; are contributing factors of Pakistan's export. Further, they found that infrastructure backwardness influences negatively to the imports flow of Pakistan.

Mohmand and Wang (2013) estimated gravity model using panel framework across the 142 countries for the period 1995 to 2011 the empirical outcomes GDP of Pakistan, GDP of trading partners, language, religion, trade treaties and WTO are determining factors of Pakistan's trade. Furthermore, transportation cost and common borders are not the critical in explaining the trade flow.

Khan, S. and Khan, D. (2013) investigated into the gravity model in the case of Pakistan by panel data technique and confirmed the success of gravity model. They used annual data for the period from 1990 to 2010 with the two year's frequency. The empirical finding suggested that GDP and GDP per capita have positive significant impact, geographical distance and cultural similarity's dummy variable provided negative relationship with trade volume of Pakistan. On the basis of empirical results of estimated trade potential it was concluded that Pakistan's unrealized high trade potential exist with Japan, Turkey, Malaysia, India and Iran.

Shujaat and Abbas (2015) used augmented gravity model of trade employing panel random effect estimation technique to explain the export flow of Pakistan with 140 trading partners their findings suggest that supply capacity, potential demand and geographical distance along with relative price, common language are critical and consistent with augmented gravity model in the case of Pakistan whereas free trade agreements have negative insignificant impact that means FTA harm Pakistan's export.

2. Methodology

2.1 Model Specification

Keeping in view the literature review discussed earlier, the trade pattern and essential social and political characteristics of Pakistan; following extended or augmented gravity model of trade is taken into consideration. The equation (3) then becomes:

$$ln\,(X_{ijt}) = \beta_0+\beta_1 ln(Y_{it} \times Y_{jt})+ \beta_2 ln(PCI_{it}\times PCI_{jt})+ \beta_3 ln(GI_{ij})+\beta_4 ln(Dist_{ij})+ \beta_5(lang_{ij}) +\beta_5(BDR_{ij}) \quad (3)$$

X_{ijt}; is the export of home country directed to host in year t. It is a dependent variable of the model.

$Y_{it} \times Y_{jt}$; is the log product of GDP_i of Pakistan and GDP_j of a trading partner from D-8 group in year t in current $US, $Y_{it} \times Y_{jt}$ represents the economic size and supply capacity of exporting country Pakistan

and potential demand of importing country j from D-8.

$PCI_{it} \times PCI_{jt}$; is log product of per capita GDP of Pakistan and per capita GDP of trading partner.

$Dist_{ij}$; is geographical distance between the capitals of Pakistan to the capital of trading partner and j, and is expected it is having inverse relation with dependent variable.

BDR_{ij} and $Lang_{ij}$ are dummy variables show contiguity and for sharing common official language respectively. The expected signs of parameters of variables are given as below in Table 1, Expected relationship of independent variables with the dependent variables.

GI_i is overall globalization Index maintained by KOG Globalization, its method of computation and variable weight is provided in Appendex-1.

Table 1. Expected Signs for the Variables Used in the Model

Variables	*Abbreviations*	*Expected signs*
GDP_{ij}	Gross Domestic Products	Positive
POP_{ij}	Population	Positive
GI	Overall Globalization Index of Pakistan	Positive
$Dist_{ij}$	Distance	Negative
BDR	Border Connectivity	Positive
LANG	Language (Official)	Positive

2.2 Data Set

This study determines the statistically significant trade variable by applying Augmented Gravity Trade Model. The trade variables which are critical in explaining the export flow of Pakistan with D-8 group. The data is ranging from the period 2003 to 2013. The estimation technique, Pseudo Poisson Maximum Likelihood (PPML) has been employed for analysis. Data for GDP and population of Pakistan along with other D-8 countries has been taken from the world Development Indicator (WDI, 2016). Data for Pakistan's exports to D-8 obtained from website www.comtrade.com of Word Bank database and complete globalization Index of Pakistan has derived from KOF Index of Globalization, 2016. This index takes into account weight age of all necessary indicators concerning to economic, social, information flows and cultural globalization. Time invariant data for geographical distance and for dummy variables contiguity and common official language has been taken from the CEPII gravity dataset.

2.3 Estimation Technique

There are constraints when dealing with cross section and time series data. The cross sectional data involves one or more than one variable at the same point of time. On the other hand, in time series data we observe the values of one or more variables over a period time. On the other hand, "Panel Data has space as well as time dimension" (Gujrati, 2003). Panel data has the "observations on the same units in several different time periods, Panel data may have individual (group) effect, time effect, or both, which are analyzed by fixed effect and/or random effect models". Penal data estimation has econometric superiorities over cross-sectional and time series data. According to Baltagi and Badi (2001), "Panel data deals with more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency". The panel data has two more important features namely "Fixesd effect Model" and Random "Effect Model". Historically gravity model has been estimated on OLS estimation technique which suffers from inefficient paramaters estimates or even asymptotically inefficient.

The OLS model has been extensively used by researchers. The problem with OLS is that zero trade flows which are mostly contained in the gravity data; in logarithm forms are dropped from estimation. Hence, hetroskedasity is a major issue of gravity model which plagues the data by making the estimates biased and inconsistent. To overcome the problem, Silva (2006) proposed to estimate multiplicative form of gravity model as the Poisson Pseudo Maximum Likelihood estimator. Santos and Silvana (2011) use Monte-Carlo simulation even if zero trade values are very large in numbers. Therefore, this technique counters the problem of the hetroskedasity very well. Because of this PPML approach works very well for gravity model and provides robust empirical results. We can introduce the dummy variables in PPML and interpret the empirical results as simple as in OLS regression. The dependant variable in PPML is taken on level rather than in lograthim and explanatory variables' which are taken as log can even be treated as simple elastiticities and dependent variable is interpretated as semi-elasticity.

Another problem with estimation of gravity model is adjustment in trade policy changes. "Fixed-effects estimation is sometimes criticized when applied to data pooled over consecutive years on the grounds that dependent and independent variables cannot fully adjust in a single year's time" (Cheng & Wall, 2005). Therefore, researchers suggest the data with interval to capture the trade policy changes in the model. This study takes the data for the alternative years (Model "B") and for comparison also estimated the model with consecutive years (Model "A") in Table 3. This comparison show that R^2 value in Panel (B) has been increased than Panel (A), which implies that expalnatory power of model has been increased. The estimation with panel samples pooled over consecutive years in model (A) is not having reliable estimates of distance or trade cost parameters (Piermartini & Yotov, 2016).

Table 2. Four Different Estimated for Comparison on PPML Estimator

Variables	Model with Consecutive year (A)	Model with Alternative year (B)	Model with (Distance) 2 (C)	Model with Globalization Index (D)
Exports	Coefficients	Coefficients	Coefficients	Coefficients
GDP	.401903	.434127	.434127	.46783
	(0.000)	(0.000)	(0.000)	(0.000)
Population	.5151238	.4738974	.4738974	.5893157
	(0.001)	(0.013)	(0.013)	(0.000)
Globalization Index	----------	----------	----------	-7.708285 (0.021)
Distance	-.7748316	-.8933192	-.4466596	-.3768739
	(0.015)	(0.041)	(0.041)	(0.041)
Border	-1.16565	-1.423648	-1.423648	-1.366881
	(0.000)	(0.000)	(0.000)	(0.000)
Language	-1.586841	-1.628849	-1.628849	-1.851916
		(0.001)	(0.001)	(0.000)
Constant	-15.04837	-14.22479	-14.22479	8.9126
	(0.092)	(0.206)	(0.206)	(0.584)
R2	.79495566	.82178148	.82178148	.8692646

This study has taken the logarithm product of geographical distance from Pakistan to its destination (distance×distance) in the true spirit of Newton's law of gravitation as reported in model (C). Its economics explanation may be given as the distance covered by means of transportation is "up" and "down", i.e., from home country to destination of export "up" and then back to exporting country "down". By comparing model (B) with (C) it may be noted that the overstated negative impact of distance elasticity parameter has been reduced to exactly half without affecting the overall performance of model (B). Which is more useful in interpretation of distance or cost elasticity. The inclusion of GI in model (C) and is reported in model (D) in Table 3 shows that R-square value has been improved considerably, from .82178148 to .8692646 this implies that the model has become more good fit model. As the theory suggests that globalization has made the world "smaller and flatter" and researchers having in view the impact of globalization call it "the death of distance". In this context it is interesting to note that with the inclusion of globalization Index the negative impact of distance has declined and connecting border has become more irrelevant (compare model "C" with "D").

3. Results

3.1 The Panel Unit Root Test

The panel unit root test for the data show that all variables are integrated. Exports and overall globalization index variables are integrated at I (0) and GDP is integrated at I (1) as represented in Table 2.

Table 3. Panel Unit Root: Summary: Newey-West Automatic Bandwidth Selection and Bartlestt Kernel

Variables	Export		GDP		Globalization Index	
	Level	First difference	Level	First difference	Level	First difference
*Levin, Lin & Chu t**	*-9.67847*	*-.67847**	*1.81211*	*-.23414**	*-.62313**	*0.28757*
	(0.0000)	*(0.0000)*	*(0.9650)*	*(0.0000)*	*(0.0001)*	*(0.6132)*
Im,Pesaranand Shin W-stat	*-.50626**	*-.80311**	*3.26370*	*-.04055**	*-.85646**	*-0.30185*
	(0.0000)	*(0.0000)*	*(0.9995)*	*(0.0000)*	*(0.0317)*	*(0.3814)*
ADF - Fisher Chi-square	*27.7319**	*64.1366**	*2.40717*	*-.56687**	*24.5433**	*12.5436*
	(0.0154)	*(0.0000)*	*(0.9997)*	*(0.0051)*	*(0.0394)*	*(0.5627)*
PP - Fisher Chi-square	*10.8500*	*46.4822**	*1.88761*	*38.0873**	*30.7228**	*36.8414**
	(0.6978)	*(0.0000)*	*(0.9999)*	*(0.0005)*	*(0.0061)*	*(0.0008)*

Note. Probabilities for Fisher test are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

The empirically estimated result in Table 4 using PPML method reveal that as expected the product of GDPs of Pakistan and its trade partner from D-8 have positive impact on exports flow of Pakistan and is highly statistically significant. This implies that economic size of Pakistan and its trading partner is an important determining factor in explaining exports flow of Pakistan with D-8 countries. This result is consistent with Gul and Yasin (2011), Khan, S. and Khan, D. (2013), Sherif and Fantazy (2013), Mohmand and Wang (2013), and

Zahra and Leili (2011). The product of population of Pakistan and trading partner has also positive as well as is highly significant. In the context of such empirical finding; one billion populations of D-8 countries that accounts 17 percent of world population is a contributing factor in export from Pakistan. This finding is in accordance with Sherifand (2013), and Zahra and Leili (2011). More interestingly, the coefficient of globalization Index is negative against the expected sign and is statistically significant. The popular reason may be given for this outcome in the case of Pakistan that in short runs; the cost associated with the globalization to outweigh the benefits from it. Free trade brings the economic gain for everyone (positive sum-game). But the small industries cannot compete globally with the industries performing economies of scale.

Table 4. Estimated Model on PPML Estimators

Exports	Coefficient	Stant: Errors	P-value	Confidence Interval	
GDP	.46783	.0424729	0.000	.3845846	.551075
Population	.5893157	.1636598	0.000	.2685484	.910083
Globalization Index	-7.70828	3.351559	0.021	-14.2772	-1.13935
Distance	-.3768739	.1848762	0.041	-.7392246	-.0145231
Border	-1.366881	.323856	0.000	-2.001627	-.7321351
Language	-1.851916	.3918663	0.000	-2.61996	-1.083872
Constant	8.9126	16.26285	0.584	-22.96201	40.78721
R^2	.8692646				

Furthermore, the economic globalization may increase the cost of doing business due to higher wages of skilled labor (www.investopedia.com). The international transportation cost of Pakistan maintained by WDI is available for few recent has increasing trend with time that do also support the above arguments in favor of negative impact of globalization Index on Pakistan's exports. Furthermore, it may also be concluded that globalization in case of developing countries' trade incur increasing cost in the initial stages. However, the results are for globalization proxy variable are not consistent with the findings of Mubashir (2017a, 2017b). The coefficient value of geographical distance between Pakistan and its trading partner is negative and is significant at 5 percent level which is conformity with basic gravity model of trade. However, the significant and negative impact of dummy variable for connecting border on dependent variable is not consistent with theory. The Iran is only border connecting country with Pakistan from D-8 group. Although, there is not any direct political conflict between Pakistan and Iran but this negative and significant sign indicate that because of differences on some world political issues and UN's economic sanctions; Pakistan could not trade with Iran as per the trade potential that exist between the two neighboring countries. And finally the dummy variable for common official language with D-8 is also negative and statistically significant at 5 percent level which represents that common official language is not determining factor in explaining the export flow of Pakistan when dealing with D-8.

4. Discussion and Policy Recommendations

On the basis of concerned literature review and estimated model of this study; the conclusion is drawn here that GDP, population size and geographical distance are determining factor for Pakistan's export flow to D-8. Globalization has negative and significant impact on Pakistan's export; particularly in the case of D-8 group. It might be concluded that with the use tool of globalization Pakistan moves away from developing to developed nation for their exports destinations. Keeping in view the above emprical

finding of large population size of D-8 group with Pakistan trade policy maker for international trade should also take interest in trading with developing countries rather relying on high income nations. Against the expected positive sign of contiguity and common language, this study observes negative impact of these dummy variables on trade which suggests that political forces should develop the harmony and take appropriate confidence building measures with neighboring countries to take the advantages of trade with connecting border countries.

References

Abdul, W., & Shujaat, A. (2015). Potential Export Markets for Bahrain: A Panel data Analysis. *International Journal of Trade, Economics and finance*, 165-169.

Anderson, J. E., & van Wincoop, E. (2003). Gravity with Gravitas: A Solution to the Border Puzzle. *American Economic Economic review*, *93*(1), 175-192. https://doi.org/10.1257/000282803321455214

Appeleyard, D. R., & Field, A. J. (2011). *International Economics*. New York: Garry Burke Publisher, Avenue of the America.

Baltagi, & Badi, H. (2001). *Econometric Analysis of Panel Data*. Wiley, John & Son.

Baxter, M., & Kouparitsas, M. A. (2005). *What Determines Bilateral Trade Flows?* Chicago: Federal Reserve Bank of Chicago.

Bergstrand, J. H. (1985). The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence. *Review of Economics and Statistics*, *67*(3), 474-481. https://doi.org/10.2307/1925976

Cheng, I. H., & Howard, J. W. (2005). Controlling for Heterogeneity in Gravity Models of Trade and Integration. *Federal Reserve Bank of St. Louis Review*, 49-63.

Dreher, A. (2006). Does Globalization Affect Growth? Evidence from a new Index of Globalization. *Applied Economics*, *38*(10), 1091-1110. https://doi.org/10.1080/00036840500392078

Hussain, M. (2016). J-curve Analysis of Paksiatn with D-8 Group. *Euro-Asian Journal of Economics and Finance*, 68-80.

Hussain, M. (2017a). Globalization and Gravity Model of Trade of Pakistan-A PPML Estimator Analysis. *Management and Administrative Sciences Review*, *6*(1), 15-27.

Hussain, M. (2017b). Structural Gravity Model and Globalization: An Empirical Analysis between Bangladesh, China, India and Pakistan. *Journal of Independent Studies and Research*, *15*(2), 107-123.

Jafari, Y., Ismail, M. A., & Kouhestani, M. S. (2011). Determinants of Trade Flows Among D-8 countries: Evidence from Gravity Model. *Journal of Economics Cooperation and Development*, 21-38.

Kazmi, & Sajid. (2006). Market Access through free Trade Agreements: Pakistan's Experience. *SDPI Research and News Bulletien*.

Keochaiyom, O. (2016). International Trade Structure Change and Determinants in Laos, 2000-2014. *British Journal of Economics, Management & Trade*, *13*(3), 1-13. https://doi.org/10.9734/BJEMT/2016/25142

Khan, S., Haq, I., & Khan, D. (2013). An Empirical Analysis of Pakistan's Bilateral Trade: A Gravity Model Approach. *The Romanian Economic Journal*, 103-120.

Mohammad, Y. T., Aalman, A., Mughal, K. S., Imran, M., & Makarevic, N. (2015). Export Potentials of Pakistan: Evidence from the Gravity Model of Trade. *European Journal of Economic Studies*,

212-220.

Mohmand, Y. T., & Wang, A. (2013). The Gravity of Pakistan's Export Performance. *Pak. J. Statist*, 203-216.

Panda, R., Sethi, M., & Kumaran, M. (2016). A Study of Bilateral Trade Flows of India and China. *Indian Journal of Science and Technology*, *9*(15), 1-7. https://doi.org/10.17485/ijst/2016/v9i15/92098

Piermartini, R., & Yoto, V. Y. (2016, July 19th). Estamating Trade Policy Effects With Sructural Gravity. In *WTO Working Paper ERSD-2016-10* (pp. 1-58).

Santos, S. J. M. C., & Silvana, T. (2006). The Log of Gravity. *Review of Economics and Statistics*, 641-658.

Sherif, S., & Fantazy, K. (2013). Factors Influencing Export in Bilateral Trade. *International Journal of Management, Economics and Social Sciences*, 12-27.

Sumera, M., & Caudhary, A. R. (2012). The Structure and Behavior of Pakistan's Imports from Selected Asian Countries: An Application of Gravity Model. *Pak. J. Commer. Soc. Sci.*, 53-66.

Tash, M. S., Jajri, I. B., & Tash, M. N. S. (2012). An Analysis of Bilateral Trade between Iran and D-8 Countries. *Global Journal of Management and Business Research*, 26-34.

Tinbergen, J. (1962). *Shaping the World Economy: Suggestions for an International Economic*. New York: The Twentieth Century Fund.

Wang, J. (2016). Analysis and Comparison of the Factors Influencing Worldwide Four Kinds of Vegetable Oil Trade: Based on Gravity Model. *Modern Economy*, *7*(2), 173-182. https://doi.org/10.4236/me.2016.72019

Zahra, & Leili, N. (2011). The Analysis of Bilateral Trade: The case of D-8. *Business Intelligence Journal*, 179-186.

Zurzoso, I. M., & Lehmann, F. N. (2003). Augmented Gravity model: An Emperical Investigation to Mercosur-European Union Trade Flows. *Journal of Applied Economics*, 291-316.

Appendix

Appendix 1. Computation and Composition of Globalization Indices

	Indices and Variables	Weights
A.	**Economic Globalization**	**[36%]**
	i) Actual Flows	(50%)
	Trade (percent of GDP)	(22%)
	Foreign Direct Investment, stocks (percent of GDP)	(27%)
	Portfolio Investment (percent of GDP)	(24%)
	Income Payments to Foreign Nationals (percent of GDP)	(27%)
	ii) Restrictions	(50%)
	Hidden Import Barriers	(23%)
	Mean Tariff Rate	(28%)
	Taxes on International Trade (percent of current revenue)	(26%)
	Capital Account Restrictions	(23%)
B.	**Social Globalization**	**[37%]**
	i) Data on Personal Contact	(33%)

	Telephone Traffic	(26%)
	Transfers (percent of GDP)	(2%)
	International Tourism	(26%)
	Foreign Population (percent of total population)	(21%)
	International letters (per capita)	(25%)
	ii) Data on Information Flows	(35%)
	Internet Users (per 1000 people)	(36%)
	Television (per 1000 people)	(38%)
	Trade in Newspapers (percent of GDP)	(26%)
	iii) Data on Cultural Proximity	(32%)
	Number of McDonald's Restaurants (per capita)	(46%)
	Number of Ikea (per capita)	(46%)
	Trade in books (percent of GDP)	(7%)
C.	**Political Globalization**	**[27%]**
	Embassies in Country	(25%)
	Membership in International Organizations	(27%)
	Participation in U.N. Security Council Missions	(22%)
	International Treaties	(26%)

Source: Dreher, Axel (2006), Does Globalization Affect Growth? Empirical Evidence from a new Index. *Applied Economics*, *38*(10), 1091-1110.

Updated in: Dreher, Axel; Noel Gaston and Pim Martens, 2008, *Measuring Globalization-Gauging its Consequence*. New York: Springer.