TRADE LIBERALIZATION AND ITS IMPACT ON THE ECONOMIC GROWTH, TRADE IN GOODS AND SERVICES

A Thesis Submitted to the Goa University for the Award of the Degree

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in

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By

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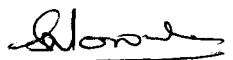
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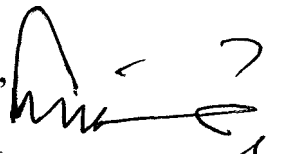Taleigao Goa

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CERTIFICATE

I hereby certify that the thesis titled **"TRADE LIBERALIZATION AND ITS IMPACT ON THE ECONOMIC GROWTH, TRADE IN GOODS AND SERVICES"** submitted by Mr. Joy Chowdhury for the award of the degree of Doctor of Philosophy in Economics at Goa University, has been completed under my guidance. The thesis is a record of the research work conducted by the candidate during the period of his study and has not previously formed the basis for the award of any degree, diploma, Associate-ship, Fellowship or other similar titles of this or any other University.
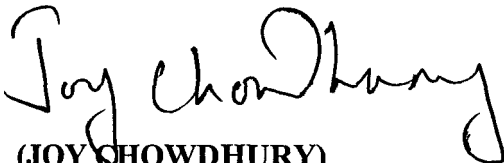
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DECLARATION

I, Joy Chowdhury, hereby declare that the present thesis titled **"TRADE LIBERALIZATION AND ITS IMPACT ON THE ECONOMIC GROWTH, TRADE IN GOODS AND SERVICES"** is the outcome of my own research undertaken under the guidance of Dr. P.K.Sudarsan, Professor, Department of Economics, Goa University. All the sources used in this work have been duly acknowledged in the thesis. This work was not previously formed the basis for the award of any degree, diploma, Associate – ship, Fellowship or other similar titles of this or any other University.

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CHAPTER I

INTRODUCTION

CHAPTER I

INTRODUCTION

1.1 Background

Integration of the world economy has helped to enhance the standard of living for many countries around the globe in the latter part of the 20th century. However, it has been noticed that in the early 2000's period there were slowdown in the trade reform and there is a growing risk of further reversal of income growth, productivity, etc. The trade liberalization in the world economy is now facing a critical juncture, especially after the financial crisis of 2008.

It has been also observed that the benefits of this integration are not evenly distributed. Some Asian countries have progressed significantly, whereas, some Latin American countries have not been progressed much. Similarly, some African countries have failed to reap the benefits of this global integration. Some Asian countries have become successful because they have attracted foreign direct investment (FDI) through the participation in global trade. For example, countries like India and China have adopted trade liberalization and also have undergone through the market oriented reform process which have helped them to achieve higher economic growth. China has already become one of the largest exporters in global trade. The reasons for uneven distribution of the benefits of liberalization are many, which include structural problems, weak policies and institutions, corruption and trade protection. Thus there is an urgent need of studying the role of trade liberalization on trade and economic growth.

1.2 Trade and Economic Growth

In the latter part of 20th century the trade volume has increased enormously. The global trade in goods and services has increased 6 percentages annually over the period of 1960 -2007 (IMF, 2017). This substantial expansion of trade was facilitated by (i) trade cost reduction through the changes in tariffs and other trade related policies, (ii) innovation in information technology and (iii) improved transportation. Reduction in trade costs have direct implications on global value chains (GVCs) which has prominent role in enhancing productivity and manufacturing exports since 1960 (IMF et al., 2017). Developed as well as developing economies have experienced higher living standards because of greater trade openness which is considered as a key engine of economic growth.

Though the role of trade openness as an engine of economic growth is undisputed and it is also evident that the effectiveness of trade integration depends on the extent to which a country adopts supportive fiscal and trade policies. Henn et al. (2015) have pointed out that the differences in the benefits from trade are mainly because of the (i) economic structures of the country, (ii) export specialization and (ii) degree of product diversification. Feyer (2009) has found that there is cross country evidence of the link between greater trade openness and (i) higher per capita income, (ii) higher productivity, (iii) higher GDP growth and (iv) lower poverty.

Recent slowdown in global trade is one of the major contributors of the low growth rates experienced by many countries (IMF et al., 2017). It is found that during the recovery period of Global Financial Crisis, there is an improvement in trade and output growth for a brief period of time. The relatively weaker trade in recent years has again slowed down the economic growth. Recent analyses conducted by International

Monetary Fund (IMF), World Bank (WB) and World Trade Organization (WTO) have found that the recent slowdown in the trade is because of (i) a slowing pace of global value chain, and (ii) trade liberalization (IMF et al., 2017).

1.3 Services Trade and Modes of Supply

World has also seen an unprecedented growth in the services trade. During 2010 -2015, import of global commercial services grew at an average of five percent per annum whereas; merchandise trade has only seen 1 percentage growth annually. Expansion of trade in services has been well supported by the new models of business in the areas of (f) financial services and (ii) information and communication technology. Moreover, innovation in the digitalization process has also reshaped the trade landscape.

General Agreement on Trade in Services has categorised services trade in four major areas based on the regional presence of the supplier and the consumer during exchange.

(i) Mode 1(Cross border): Trade which operates from the territory of one member to the territory of other member through telecommunication or postal infrastructures.

(ii) Mode 2 (Consumption abroad): Consumers who travelled as tourists, students etc. to consume the respective services.

(iii) Mode 3 (Commercial presence): The services are provided by a foreign owned establishment (e.g. bank, hotels etc) but locally situated.

(iv) Mode 4 (Movement of natural persons): A foreigner provides services abroad as consultant, health worker, or employee.

1.4 Trade Restrictions

Since the Second World War, mostly the developed nations have adopted the policy of removal of barriers to international trade. In 1990s several major free – trade agreements were taken place. Among the most notable were the North American Free Trade Agreement (NAFTA) between the United States, Canada and Mexico which was taken place in 1993 and the popularly known as Uruguay Round agreement establishing the World Trade Organization in 1994[1]. These free trade policies were adopted not only for the economic prosperity but also for the promotion of world peace.

However, many economists have argued that free trade has not benefited much to the developing nations. Since then many political movements against globalization/liberalization have taken place. The movement against globalization/liberalization gained momentum in 1999, when protestors tried to interrupt a major international trade meeting in Seattle. Anti – globalization movement has compelled the advocates of free trade to seek new ways to represent their views.

The trade restrictions appeared not only in service trade but in goods trade also. However, the restrictions in the service trade are more prevalent in recent years. The restrictiveness of services trade varies significantly across regions and sectors, and over time. Since 2014, it is found that there is an effort to reduce the number of restrictions in the transaction of services. Countries like China, India and Indonesia are constantly pushing for that. Recently, these countries have lifted the foreign equity limits for one

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[1] The agreement has accelerated the process of liberalization since it was one of the most comprehensive FTAs. This agreement has gained importance as a model for the new generation of FTAs for the NAFTA countries especially for the USA.

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or more sectors. On the other hand Mexico has liberalized the telecommunication sectors and Japan has eased the requirements of establishing corporate residency.

1.5 Benefits of Trade

Trade is a powerful tool to enhance the growth and for the higher living standards. Evidences from the globe suggests that international trade increases aggregate productivity. Alcala and Ciccone (2004) in a study based on 138 countries have found that larger positive trade openness has raised the productivity. They found that in the long run 1% increase in openness has increased the productivity by 1.23% in the long run. Ahn et al. (2016) have found that a reduction of 1% points in tariffs on inputs used in a particular sector improves the factor productivity in that sector by 2%. Trade increases the productivity because of (i) innovation and up gradation of technology, (ii) knowledge spill over and (iii) indirectly by boosting institutional reform, improving governance, and causing financial deepening.

Trade benefits consumers through lower prices and providing greater access of goods and services. Thus, trade and trade reforms have a role in increasing the real income of the consumer. Faijgelbaum and Khandelwal (2016) in their study have estimated the effect of price changes induced by trade on the real incomes of low-income and high-income households in forty different countries and they found strong 'pro poor' bias in benefiting consumers from lower price exist, since the poor consumers spend more on items like food and beverages which experience larger drop in price.

Apart from these benefits trade can also play an important role in contributing towards greater social inclusion and reducing the regionalism.

1.6 Recent Trends in Goods and Services Trade

Global trade is largely dominated by goods trade. Despite the fact that trade in services is increasing it is observed that share of services trade is much lower compared to goods trade. In the year of 2015 the value of goods trade was $16 trillion, whereas, the value of services trade was only $5 trillion. However, it is also observed that though the trade in goods has declined significantly in 2015, trade in services was much more buoyant. World has seen a dramatic upward swing of goods trade over the period of 2005 to 2014. During this period the goods trade has been increased from $10 trillion to $18.5 trillion. However, there was a significant drop in the value of goods trade in ($16 trillion in 2015). On the other hand during the same period services trade has almost doubled in value ($2.5 trillion to $5 trillion). It is also observed that almost two – third of the total value of services trade are from developed nations. In case of goods trade the share is almost equal for developed and developing economies. BRICS is one of the major contributors of global trade whereas LDCs are continually showing their dismal performance in this regard. In the year of 2015 BRICS nations have exported $3 trillion in goods and $500 in services, whereas total trade of developing nations together was $8 trillion in goods and $2trillion in services. Global trade is clustered around three regions; (i) North America, (ii) Europe and (iii) East Asia. In the year of 2015, North American and East Asian countries have shown relatively more stability in terms of trade flows. Goods trade is majorly concentrated between the developed and East Asian nations. It is observed that energy products, chemicals, communication apparatus have relatively larger share on global trade. However, textiles, apparel and tanning sectors have relatively much lower share on global trade. Share of agricultural sectors on total trade is less than 10%.

World has seen unprecedented growth in the trade in services during the last decade. Services trade is predominantly ruled by the transportation, travel and tourism and business related services. Services trade has shown much more resilient as compared to goods trade during 2015. The only exception was transportation and other business services which were shown a relatively sharp decline. Despite the fact that developing countries have increased their share of services trade, it is found that their major exporters are developed nations in almost all categories of services.

1.7 Statement of the Research Problem

Trade liberalization has attracted huge amount of interest among researchers because it has consequences on the economic well-being which is often measured by the GDP or growth in GDP and also on the trade[2]. There is surge of empirical research which reveals that liberalizing trade has positive impact on economic growth. The positive role played by the trade liberalization on economic growth can be explained by (i) greater variety of goods and services for the resident of the country, (ii) setting the right relative prices, (iii) exploiting the possibilities of economies of scale because of the complete specialization, and also (iv) influx of the foreign direct investment (FDI). There are studies which argue that free trade may be beneficial from the static point of view and also in the short run but in the long run it may not be beneficial for the developing and poor countries. In general less developed countries export agricultural goods and import manufacturing goods. Profitability of exporting agricultural goods doesn't increase in the long run. Free trade is also not beneficial from the point of view of infant industry. Thus, it is important to understand how trade Liberalization could

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[2] Trade in goods and trade in services

affect countries of different economic status. Impact of trade liberalization on economic growth may vary for countries with different economic status.

In last few years there is surge of empirical studies investigating the impact of liberalizing services trade on bilateral trade. Case studies conducted by Hoekman and Braga (1997) revealed that eliminating the barriers to trade in services in a sector is likely to generate lower prices and greater improved variety. Thus, liberalizing services trade might influence the trade in goods. Thus, it is important to study the role of liberalizing services trade on bilateral trade in goods. Trade bloc may also play a role in determining the bilateral trade in goods[3]. In this context the study has aimed to investigate the impact of liberalizing services trade on bilateral trade in goods if both the countries participating in trade are from same trade bloc.

Liberalizing goods trade could also impact the flows of trade in services. Increase in the share of goods trade on GDP is one of the possible ways of capturing goods trade liberalization. The possibility of interlinkages between goods and services trade arises from the interdependence of goods and services trade. As the share of goods trade on GDP for a particular country increases it is expected that the value of services trade also increases, since some basic services are required to complete and accelerate the goods trade. The role of liberalizing goods trade to complete and facilitate the services trade is one of the interesting issues in global trade. Thus it is important to investigate the impact of liberalizing goods trade on trade in services.

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[3] One of the objectives of forming the trade bloc is to facilitate trade by removing the intra bloc restrictions (reducing import tariff, more number of FTAs, etc.) on trade.

The research problem, thus, hinges on how Liberalization impact on economic growth and how it contributes to global trade through the interlinkages between the trade in goods and trade in services.

1.8 Objectives of the Study

The study investigates some important issues in the area of international economies. The role of trade liberalization on the economic growth is the most discussed issue among the policy makers. The inter linkages between goods and services trade is another important aspect which needs special attention. It is presumed that liberalizing services trade has impact on bilateral trade in goods. The reason behind this is services trade facilitates trade in goods. On the other hand, it is also very interesting to find out whether this impact changes or not if trading countries are from different trade blocs. Understanding the role of liberalizing goods trade on trade in services also assume significance. Moreover, the impact of goods trade liberalization on trade in services may be different for different trade blocs. Thus it is important to incorporate the role of trade blocs along with liberalizing trade in goods in determining the trade in services.

The specific objectives are to study:

(a) The role of trade liberalization on economic growth

(b) The role of services trade liberalization on bilateral trade in goods

(c) The role of goods trade liberalization on trade in services

1.9 Hypotheses of the Study

Based on the above objectives the following hypotheses have been formulated.

(a)   Trade liberalization is a major determinant of economic growth

(b)   The impact of trade Liberalization is different for countries of different income groups

(c)   Liberalizing services trade has positive impact on bilateral trade in goods

(d)   Liberalizing goods trade has positive impact on trade in services

1.10 Methodology and Data

The present study investigates the role of trade liberalization on growth. Economic growth has been measured in terms of the changes in the per capita real GDP and trade liberalization has been measured by trade openness. Trade openness is the share of total trade values in GDP. If the share increases that implies that the country is liberalizing in trade front.

The present study has adopted quantile regression to capture the importance of parameter heterogeneity in the liberalization and economic growth relationship[4]. Such heterogeneity cannot be captured by OLS techniques. Quantile regressions were introduced by Koenker and Bassett (1978) and recently gained much importance in dealing with endogeneity and panel data heteroscedasticity. The major advantage of applying quantile regression is that it determines different solutions for each quantiles because of the differences in the response of dependent variable to a change in the independent variables at various points of the conditional distribution of the dependent variable. Quantile regression allows identifying a different response of growth to liberalization at different quantiles of the conditional distribution of growth. Other than trade openness the study has also incorporated gross capital formation, population

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[4] One of the reasons behind such heterogeneity is the difference in the response of the private sectors to the liberalization across countries of different economic status.

growth, and also dummy variables to capture the economic status of the countries based on the World Bank classification.

The model is in the following form;

Per Capita GDP Growth = f(Trade openness, Investment, Population, set of dummy variables).

The attempt is made to empirically investigate the impact of liberalizing services trade on bilateral trade in goods. The present study has hypothesized that the volume of trade varies inversely with the economic distance. The study has adopted the gravity model for bilateral trade flows. The gravity model is one of the most commonly used devices in empirical trade research. The simple form of the gravity model relates aggregate bilateral trade to the size of trading partners and the distance between them

$$T_{ij} = (PGDP_i)(PGDP_j)/D_{ij}$$

Where, $T_{ij} = Total\ value\ of\ trade\ between\ country\ i\ and\ j$

$PGDP = Real\ per\ capita\ GDP$

$D_{ij} = Physical\ distance\ between\ country\ i\ and\ j$

In empirical analysis the simple form of gravity model has been extended by incorporating other variables such as 'economic distance', 'product of services trade openness' and 'Bloc'[5]. The study has also tried to find out the lag impact of the independent variables on the bilateral trade flows. Moreover, different models have been estimated for the empirical analysis.

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[5] It's a dummy variable. If both the countries are from same trade bloc then it equals to 1 otherwise zero.

The present study has also aimed to investigate the impact of goods trade liberalization on per capita services trade. Goods trade liberalization has been measured by goods trade openness. The model is in the following form;

Per Capita Trade in Services = f(Goods trade openness, GDP, set of dummy variables)

In this study OLS, Panel data estimation and quantile regression techniques have been applied for the empirical analysis. In panel data estimation method the major focus is on Fixed effects (FE) and Random effects (RE) model. Panel estimation techniques are useful since it can control for unobserved variables like common language, common border, common bloc, etc. To decide between FE and RE model, Hausman test has been applied. In the present study Breusch – Pagan Lagrange Multiplier Test (LM) has been adopted to decide between a random effects regression and a simple OLS regression.

The gravity models to find out the impact of services trade liberalization on bilateral trade in goods have been estimated on a panel of seventeen countries (136 pairs) using annual data over the period 2000 - 2013. The model is in the following form;

Bilateral Trade Value = f(GDP of both the countries, Services trade openness of both the countries, Differences in GDP, set of dummy variables, set of time invariant variables)

The study is based on 17 countries selected from different trade blocs and over the study period of 2000 – 2013. For empirical analysis of the impact of services trade liberalization on bilateral trade the study has considered 136 country pairs.

For the empirical analysis data on bilateral trade in goods is taken from United Nations Trade Statistics Database (UN COMTRADE). GDP, per capita GDP and share of services trade on GDP, Share of Gross Capital Formation on GDP, Openness, Goods

trade openness, Services trade openness, Per capita services trade (PCST), and Population growth are from the World Development Indicators (WDI) of the World Bank (WB). The distance data is from Jon Haveman's compilation of data of International trade.

1.11 Relevance of the Study

The present study has dealt with some important issues in international economics. The issues are not only important for domestic economy but also very important for world economy. The study has investigated the impact of trade liberalization on economic growth which is one of the major issues for both academicians and politicians.

Studies in this area suggest that impact of trade liberalization on economic growth is not even for all the countries. In general most of the studies confirm the positive impact of trade liberalization on economic growth. However, there are evidences which reveal that impact of liberalization on economic growth is not same for all the countries. The impact varies across the countries. However, there are very few studies which explicitly dealt with this. This heterogeneous impact of liberalization on economic growth is very crucial for the economist and policy makers. The impact of liberalization may also depend on the economic status of the country. Recently, World Bank has classified countries on the basis of GNI per capita. For the policy makers it will be interesting to know whether, the impact is similar for all countries or not. If, it is not similar then the policy prescriptions for economic growth need to be different for different countries. There cannot be any uniform policy. The study has attempted to find out the impact of liberalization on economic growth while considering the presence of heterogeneity in growth rate and also economic status of the countries. The heterogeneity has been captured by adopting quantile regression model.

The importance of investigating the impacts of services trade liberalization on various economic factors especially on trade in goods is rising. Trade in goods require inputs from services trade and it is almost impossible to carry the goods trade without the help of some basic services like transportation, banking, insurance, telecommunication etc. The restriction on these basic services can reduce the growth in trade in goods. Blyde and Sinyavskaya (2007) in an empirical study found that liberalization of trade in services could impact international trade in goods. However, Baier and Bergstrand (2001) in a stylised paper have argued that efforts to liberalize services trade have not gained much success. Thus it is essential to find out the impact of liberalizing services trade on goods trade.

On the other hand, liberalization of trade in goods could also impact the flows of trade in services. Citizens worldwide are more informed about the opportunities in other countries and it is very difficult to conceal that the goods and services in a country cost 3 -4 times the world price or they are not available. A study by Fieleke (1995) on US bilateral trade with its 17 major partners using simple regression log – log equation model showed that trade in services clearly rises with rise in trade in goods. Study by Lennon Clarion (2006) found that bilateral trade in goods explains bilateral trade in services, resulting estimated elasticity is close to 1. Reciprocally, bilateral trade in services also affects positively bilateral trade in goods. However, there is dearth of study related to the impact of goods trade liberalization on the trade in services. Moreover, the study related to the impact of goods trade liberalization on services trade while explicitly incorporating the regional trade bloc in the analysis is very rare. The novelty of the study is that it has incorporated the regional trade bloc explicitly in the analysis to find out whether the impact of goods trade liberalization on services trade is

same for all the trade bloc or not. This has been captured by incorporating dummy variables for 'ASEAN', 'SAFTA', 'NAFTA' and 'EU'.

Since the present study has incorporated a large set of countries from different trade blocs and with different economic status it is going to help almost all kind of countries in formulating trade policies, strategies for improving GDP growth rate, deciding on the investment, liberalization etc. For example, countries from same trade bloc may have similar strategies whereas countries from different trade bloc will consider different strategies. The study has greater importance since it has explicitly considered 'economic status' in the analysis. Countries with different economic status should consider different strategies for higher growth and the findings of the research may provide roadmap for this.

1.12 Outline of the Study

The study is organized into six chapters. Chapter I is introductory chapter, Chapter II presents review of literature, Chapter III presents the study of the impact of trade liberalization on economic growth; Chapter IV is on the study of the impact of liberalizing services trade on bilateral trade in goods. Chapter V deals with the impact of liberalizing goods trade on services trade and Chapter VI is on summary, findings and conclusions.

1.13 Limitations of the Study

The present study has been restricted to seventeen countries for the period of 2000 – 2013. Thus, increase in the sample size is one of the future agenda.

Moreover, there are other factors which may affect the economic growth, trade in goods and services trade. The other factors are political, cultural and also demographic. The

study did not consider political, cultural and demographic factors explicitly. This is one of the limitations of the study. The incorporation of political, cultural and demographic factors is future research agenda.

CHAPTER II

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

2.1 Introduction

The role of trade in economic development is one of the key issues among the researchers and policy makers. In 1950s and 1960s the prevailing wisdom was favouring import substitution. However, after 1970s it favoured the export promotion/outward orientation. The discussion on the relationship between growth and export has started to accelerate during 1970s and it has become one of the major issues in the present. Many researchers have identified that trade in goods and services are critical factors of economic growth and hence developed and developing countries have been shifting from severe protection to free trade regime. The evolution of thinking on the relationship between trade liberalization and growth has been stimulated by Krueger (1997). She has provided the evidence of a positive association between growth of exports and GDP growth. She has argued that countries with more openness towards trade grow faster than other countries. Krueger (1998) in her stylized paper has provided worthwhile survey of gains from trade liberalization. However, Rodriguez and Rodrik (2001) have argued that the evidence linking outward orientation of trade policies and economic growth overstates the liberalization growth relationship. .There is quite a few numbers of empirical studies on liberalization and growth. However, the empirical study on trade liberalization and growth is quite limited. Thus, it is important to understand how trade liberalization could affect countries of different economic status.

On the other hand, the importance of assessing the impacts of services trade liberalization especially on trade in goods is rising. Trade in goods require inputs from services sector of the economy and could not take place without international trade in some basic services like transportation, communication, banking and insurance etc. In the last few years, there is a rapid increase in the empirical studies measuring the effects of liberalizations on trade. Several case studies have been surveyed by Hoekman and Braga (1997). In general, the results show that removing barriers to trade in services in a particular sector is likely to generate lower prices, improved quality, and greater variety. Blyde and Sinyavskaya (2007) in an empirical study found that liberalization of trade in services could impact international trade in goods.

Liberalizing goods trade could also impact the flows of trade in services. The interlinkages between goods and services trade have gained importance in recent times. Among some noticeable works Fieleke (1995), Lennon Clarion (2006) found that trade in goods explains trade in services. However, there is not enough number of literature which have dealt explicitly the issue of impact of goods trade liberalization on trade in services.

The present chapter systematically reviewed the study on three major areas of international economics (i) Trade liberalization and economic growth (ii) Trade liberalization and trade in goods with special reference to gravity model of trade and services trade liberalization (iii) Trade liberalization and trade in services with special reference to goods trade liberalization to identify the research gap and to address the theoretical and empirical issues that need to be incorporated in the present study to fill the existing research gap.

The literature review is categorised into three broad areas. There are three broad areas of literature review. In section 2.2 literatures related to the trade liberalization and economic growth have been presented, in section 2.3 literature survey related to the interlinkages between trade liberalization and trade in goods have been presented, in section 2.4 review of literature related to the trade liberalization and services trade have been presented and finally in section 2.5 the research gap in existing literature have been presented.

2.2. Trade Liberalization and Economic Growth

Neo classical trade theories argue that free trade is always better than the autarky situation. Moreover, it also argues that free trade is better than protection because free trade or friction less trade helps in attaining high growth through the import of capital which is not available in the domestic market. Technology transfer is also a potential gain from free trade. The recent literature on endogenous growth theories provides some useful tools and mechanism for explaining the interlinkages between international integration and long run economic performance which is often measured by economic growth. Till mid 1980s studies on growth was mainly focused on the accumulation of physical capital. However, it is found that if rate of capital accumulation is faster than the rate of population growth then diminishing return on capital starts and it discourages the investment. Because of this observation Romer (1990), Lucas (1988), Aghion and Howitt (1992), Grossman and Helpman (1991) and others have focused on accumulation of *knowledge*, instead of capital accumulation[1]. Non rivalry is the major difference between knowledge and physical capital. Knowledge use by one person

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[1] In text book form knowledge for firm is mentioned as "technology" and for people it is as "human capital."

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doesn't exclude another person from its use. The non-rivalry of knowledge leads to increasing return when output is linked with all kind of inputs.

In recent studies researchers have focused on the potential links between international integration and growth. Researchers have also focused on the establishing the links between cross border trade and knowledge accumulation.

Grossman and Helpman (1991) did an excellent survey on the studies related to the interlinakges between globalization/liberalization and economic growth. In their study they found that possible links are

(i) Flow of knowledge (Spill over of knowledge) leads to cultural integration which in turn leads to the exchange of ideas for inventing new products or product development.

(ii) Integration of product market via international makes it affordable to invest on new product and product innovation since this integration provides the greater access to the international market through which firms can exploit the benefit of increasing return.

(iii) International integration provides incentive for the creation of new knowledge. It is also helpful for the diffusion of knowledge and technology.

Gilles et al. (2010) in their study have investigated how the impact of trade openness on the per capita GDP growth rate varies with the conditional distribution of GDP growth. In this study they have applied quantile regression techniques. They have identified investment, terms of trade, government balance, and inflation and population growth as independent variables in their study. They found that there exist relationship between trade openness and growth in both short and long run. The study reveals that effect of trade openness on growth is higher for higher growth rate countries whereas it is lower for lower growth rate countries.

Michael (1997) in his paper has studied the association between economic growth and trade liberalization. In his paper he has argued that trade can enhance world growth rate through specialization because specialization leads to increasing return to scale. The study has found that growth rate, share of export in income decreases in the presence of tariff war. However, in the regime of trade liberalization economic growth rate is higher and it has increased over time.

Ocampo and Taylor (1998) in their study argued that micro economically, if the production function exhibits increasing return to scale and firm invest in the improvement of productivity, then liberalization may have dubious impact. The impact of commercial policy changes can be regressive from the distributional point of view, however, the depending on the firms' performance 'rents' they produce can be used as basis of effective policy intervention. Macro economically, combination of current and capital market liberalizations in association with strong exchange rates, high interest rates, high growth in productivity and output have positive mutual responses which liberalization may well overturn.

Ackah and Morrissey (2007) in their study have examined the link between trade policy and economic growth by applying dynamic panel regression model. The study is based on forty four developing countries over 1980 -1999. They captured the trade policy through the measures of tariffs, import and export duties etc. Trade policy is captured by measures of tariffs, import and export taxes. The study has examined the effects of changes in trade policy (tariff, import and export duties). The novelty of the study is that the study has captured the differential effects on high or low-income countries by incorporating interaction term between trade barriers and initial income levels as an independent variable. The study has also captured the non-linearity in the relationship.

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The empirical analysis reveals that a significant interaction effect exists and the marginal impact of tariffs on economic growth is declining in initial stage of growth. In particular, the study finds that for low-income countries tariffs have positive impact on growth, whereas for middle income and richer countries there is negative impact of tariffs on growth. The impact of marginal change in protection on economic growth changes from positive to negative as income rises beyond a threshold level of per capita GDP.

Kneller (2002) has examined whether the positive effects of trade liberalization on economic growth are offset by the changes in fiscal policy or not. The study has employed difference-in-difference approach. Generally, Government increases welfare spending with the increase in exposure to international trade. The study finds that the countries which do not increase their welfare spending with their trade liberalization suffer from almost nil effects from trade liberalization on economic growth. The realisation of desired effects of trade liberalization is possible if it is supported by higher level of fiscal policy or welfare spending.

Wacziarg and Welch (2008) based on new data set on trade openness indicators and the dates of trade liberalization dates have extended the study of Sachs and Warner (1995). The study is related to the relationship between trade liberalization and economic growth. The novelty of the study is that the study has presented the fresh evidence on various aspects such as (i) Time paths of economic growth, (ii) Investment on physical capital and (iii) Episodes of trade policy liberalization. In this study the analysis is based on the period over 1950-98. The study finds that liberalization induces higher growth rates for countries. The study reveals that (i) in the post liberalization period the liberalized countries on an average have experienced 1.5 percentage higher annual growth rates compared to pre liberalization period, (ii) after liberalization investment on

physical capital also increased by 1.5-2.0 percentage points. This confirms that liberalization induces higher economic growth through the increase in physical capital accumulation, (iii) trade liberalization has increased the average trade to GDP ratio by approximately 5 percentage points and (iv) the effects of liberalization are not same for all the countries. There exist significant and large differences. It suggests that trade liberalization has significant impact on the level of openness for the liberalizing countries.

Frankel and Romer (1999) in their study have identified that the mere correlation between trade and income doesn't establish the direction of causation between the trading countries. However, geographic characteristics have significant impact on trade and possibly not related with the other major determinants of income. The study has constructed the measures of the geographic components of trade. These measures are used to derive the instrumental variables of the impact of trade on income. The results confirm the estimate of OLS of trade and contradict the view that OLS overestimate the impact of trade. The study concludes that trade has huge positive (quantitatively) impact on trade. However, the impact is moderately significant.

Greenaway et al. (2002) in a pioneering work mentioned that though trade liberalization in developing countries has been implemented with the expectation that it will foster economic growth, it has been found that the developing countries over the last 20 years have mixed experience in this regard. The study argues that the main reason behind this is inconclusiveness is the misspecifications and the use of various indices of liberalization. The study has adopted a dynamic panel framework and utilizes three different indicators of liberalization for the empirical analysis. The study concludes that liberalization has impacted the growth. In fact the study reveals that the lag impact

of liberalization on economic growth is also prominent. Moreover, the study has indicated a *J* curve type response of economic growth to liberalization. *J* curve finding is robust to changes in econometric specification, sample size and study period.

Winters (2004) did an excellent survey of literature related to trade liberalization and economic growth. The study finds that there are there are serious methodological flaws in the study of liberalization - growth linkage. Moreover, the study also reveals that there are serious disagreements on the strength of the evidence that liberalization generally stimulate a temporary yet long lived enhancement of growth. He finds that the main reason behind the enhancement of growth is the increase in productivity due to liberalization. However, the study has also emphasized on the importance of other factors behind the higher growth rate. These factors are fiscal policy,, investment policy and institutional factors.

Cipollina and Salvatici (2007) in their study have tried to bring together the 'state of the 'art' in measuring the trade policies. The paper also tried to deal with the confusion between 'openness' and 'protection' in the existing literature. The study focuses on the level of the protection imposed through various policies instead of the degree of openness. Given the huge size of literature dealing with these issues, we limit our review as follows. The study is unique in nature since rather than concentrating on all possible policy interventions influencing trade flows it focuses on the trade policies which were implemented at the border. Moreover, the study has only considered the indexes that are constructed on the basis of tariff- and quota-equivalent measures. The study has differentiated between indexes that are constructed on the basis of aggregate across products and indexes that are constructed on the basis of aggregate across instruments (more barriers for the same product).

Peretto, and Valente (2011) in their study have analysed the relative effectiveness of open economies in an endogenous growth model with asymmetry in the international trade. In general, a country with abundance in resources exchanges resource-based intermediates to the resource scarce country for the production of final goods. The impact of an increase in the resource endowment depends on the elasticity of substitution between resources and labour in the production of intermediates. The study finds that if resource and labour are substitutes the increase in resource endowment generates higher income and lower employment in the primary sector whereas in resource poor economy it induces a higher relative wage and positive growth effects. However, if resource and labour are complementary then a boom in resource may lead to lower income and higher employment in the primary sector for resource rich country, whereas in resource poor economy it induces a lower relative wage and negative growth effects..

Feenstra (1996) in a stylized work has considered trade between two unequal countries where both the countries produces or creates new intermediate inputs. The study finds that in the absence of spill over of knowledge gained from R&D the larger country enjoy the higher rate of creation or development of product under autarky situation. However, the study finds that when trade occurs in the final goods, the rate of creation or development of product in smaller country will be chocked. On the other hand larger country will continue to enjoy the benefits of increase in the rate of R&D temporarily. The study has also examined the impact of trade in final goods on welfare under both the situations and the study concludes that the welfare consequences depend on whether the intermediate inputs are traded or not.

Foster (2008) in an interesting study related to liberalization growth interlinkages has examined the impact of trade liberalization on economic growth for a sample of 75 countries. The study is based on the period of 1960 – 2003. In this study he has employed quantile regression to capture the parameter heterogeneity to evaluate the liberalization growth relationship. The results of the study reveal that the impact of liberalization on economic growth is not similar for all the countries. In fact, results of the quantile regression show that the countries with lowest per capita GDP have benefited most from the trade liberalization. Moreover, it is also found that the countries with lowest per capita GDP are likely to suffer in the long run despite the fact they are benefited in the short run. This negative impact of liberalization in long run may lead to reversed reform and hence long run benefits of liberalization may not be realised. Finally, the study suggests the need of external anchor such as International Financial Institutions (IFI) for the sustainability of the reforms.

From the review of literature in the area of liberalization growth relationship it is quite evident that there are studies which dealt with this important issue. However, the results are mixed in nature and hence scope for further research in this area is enormous.

2.3 Theoretical and Empirical Studies Related to Gravity Model and Trade in Goods

It has been already well established that bilateral trade flows can be well explained by the gravity equation. In gravity specification, trade between two countries vary positively with the income of both the countries and negatively with the physical distance. However, researchers have also argued that there is no theoretical foundation behind the gravity specification. Despite lots of criticism against gravity model it is also

observed that it has gained importance in recent times. One of the possible reasons behind this is its empirical success and interpretability.

Gravity model utilizes the gravitational force concept to explain the value of trade as determined by GDP, population and distance. Gravity equations in trade imply that trade flows are proportional to the size of a country and inversely proportional to distance. In extended form of gravity model researchers add more variables which may affect the trade flow. For example, Openness, Foreign Direct Investment (FDI), Exchange Rate etc. In gravity model some indicator variables which include policy variables also can be incorporated. For example, common border, common language, liberalization dummy etc. The importance of gravity models have increased because of its significant explanatory power. Deardorff (1984) mentioned that gravity models are "extremely successful empirically" because of its explanatory power to explain the variance in bilateral trade. Leamer and Levinsohn (1997) in their study have mentioned that gravity models "have produced some of the clearest and most robust empirical findings in economics." In general, gravity models provides a platform to explain the 'frictionless' trade.

Among few noticeable works, Frankel et al. (1995) in their study have measured the effects of regional trade blocs on trade patterns by using gravity model. On the other hand McCallum (1995) in a study have measured the effects of international borders and home bias on trade patterns by applying gravity equations.

Rauch (2015) in her study has provided geometric intuition for a large class of mathematical processes in two dimensional spaces for which the relationships between (i) trade flows and size of a country and (ii) trade flows and distance would be expected. According to this study the distances between countries in empirical

estimation of gravity model should be captured as weighted harmonic means of pairwise distances of local economic activity.

Fidrmuc and Fidrmuc (2016) in a stylized paper find that apart from cultural factors and common languages the knowledge of foreign languages are important determinants of trade flows. They have incorporated data on fluency in main languages used in EU and candidate countries in a standard gravity model and found that knowledge of English language is an important determinant of foreign trade.

Binh et al. (2011) in her study has analysed bilateral trade flows between Vietnam and 60 countries during the period 2000 to 2010 with the help of gravity model. The results of panel data estimation reveal that GDP of home and partner countries, population of foreign partners, physical distance and culture have significant impact on bilateral trade flows. The study has also employed the method of speed of convergence and it is found that Vietnam has greater trade potential with some new markets such as Africa and Western Asia.

The study of Nguyen (2010) has applied gravity model to estimate the export demand function of Vietnam over the period of 20 years (upto 2006). In this study independent variables are GDP, Physical distance and real exchange rate. The study has also incorporated dummy variable for ASEAN. The result of the regression analysis reveals that Vietnam's export demand depends upon GDP, exchange rate, physical distance and ASEAN dummy. The result show that the export demand increases with the increase in GDP and decreases with the increase in physical distance. Moreover, the value of export also increases if the partner country is from ASEAN.

In another stylized work Rahman (2009) has investigated trade flow of Australia applying the gravity models. This study is based on cross section of 50 countries. The

study shows that Australia"s bilateral trade flow increases with the increase in economic size (measured by GDP) and trade openness. It is also found that having common language also increases the bilateral trade flow of Australia with the partner countries. Moreover, it is found that bilateral trade decreases with the increase in physical distance. Interestingly, the study reveals that Australia has tremendous trade potential with countries like Singapore, Argentina, The Russian Federation, Portugal, Greece, Chile, Philippines, Norway, Brazil and Bangladesh.

Thai (2006) in her paper has estimated bilateral trade flows between Vietnam and twenty three European countries from 1993 to 2004 by applying gravity model. In this study GDP, population, real exchange rate, distance etc. are considered as independent variables whereas, bilateral trade flows between Vietnam and its partner countries are considered as dependent variable. The result of the empirical analysis shows that the bilateral trade between Vietnam and European countries depends on GDP, population and the real exchange rate volatility. However, physical distance has no effects on bilateral trade. The study also reveals that Vietnam has tremendous opportunity to improve the trade potential with countries like Austria, Finland, Luxembourg.

Lawless (2010) in a study has empirically analysed the geographical pattern of Irish exports by applying gravity model. The study is based on the period of 1980 – 2007. The study reveals that distance has negative impact on Irish export demand. The study also finds that if both the trading countries share the common language then Irish export increases. Moreover, the study has also revealed that Irish export also depends on the level of the development of communications infrastructure. The study has also examined the relationship between the trade costs and the number of exporting firms

(Indigenous) and their average exports in each market. Moreover, the study also examined the sectoral variation for four major sectors.

Montenegro and Isidro (2006) in her study has empirically analysed the impact of NAFTA on US – Mexico and US – group of countries trade flows. The study has tried to explain to what extent the trade flows between US and different countries differ from a standard gravity type specification. The study has concluded that NAFTA did not have any significant impact on US trade flows with Mexico and other countries.

Montenegro (2013) conducted an empirical analysis of bilateral trade flows between MERCOSUR countries. In this study the major objective is to find out the determinants of bilateral trade flows between MERCOSUR countries. For the empirical analysis gravity model is applied to bilateral export data between 75 countries during the period of 1980–2008. The model is estimated by using pooled ordinary least squares and panel fixed effects techniques. The study finds that NAFTA agreement has positively impacted the bilateral trade flows, however, the impact is not great.

Deardorff (2001) in a theoretical work has examined the role of services trade liberalization not only in services trade but also in goods trade. The study argues that restriction on trade in services created additional costs and hindrance for international trade. According to this study service trade liberalization can yield several benefits through facilitating trade in goods which are significantly higher than the trade in services alone. In this work the relationship between goods and services trade has been established through simple theoretical models. The paper also argues that the production process can be separated across different location without increasing the cost in terms of the services inputs. However, the cost of services due to international fragmentation may increase if the restrictions on services trade are imposed. Thus,

according to this liberalizing services trade may stimulate fragmentation of production of goods and services which increases international trade and the gains from trade.

Celine Carrere (2006) in her study applied gravity specifications to evaluate the impact of regional trade agreement for a large set of countries (130 countries) over the period of 1962 – 1996. This paper uses a gravity model to assess ex-post regional trade agreements. The study has examined the effects of trade creation and trade diversion on bilateral trade through dummy variables. The study has employed panel data estimation method to capture the unobservable features of each country pair. The study has concluded that regional trade agreements have significant and positive impact on bilateral trade between country pairs.

Mattoo et al. (2001) have provided empirical evidence that countries which fully liberalize their telecommunication and financial services may expect to grow 1.5 percentages faster than other countries. They have also explained how the output growth effect from services trade liberalization is different from goods trade liberalization. Moreover, in their study they have provided econometric evidence that liberalizing financial and telecommunication sectors influences long run growth also.

Blyde and Sinyavskaya (2007) in their study has employed gravity model to find out the determinants of bilateral trade flows for a large set of countries. Their study is based on sixty two countries and covers the period of 1980 – 1999. One of the major objectives of the study is to find out the impact of services trade liberalization on bilateral trade flows. In their study they have captured services trade liberalization through the service trade openness since the data on direct measure of service trade openness is not available. In their study they have employed Pooled panel least square methods to estimate the gravity specification for bilateral trade flows. The study finds that For

instance, economically larger countries (measured by product of GDP of two trading countries) trade more, countries sharing common language and common border trade more. However, landlocked and countries with large extensions of land trade less. The study also reveals that bilateral trade decreases with the increase in physical distance. The study has also investigated the types of trade in services are more vital for the goods trade. The study finds that cross border trade in transportation and communication services are most vital for the bilateral trade in goods.

From the detailed review of literature related to the interlinkages between trade in goods and liberalization with special reference to gravity model it is observed that there exists relatively voluminous number of studies on the application of gravity model to assess the impact of trade liberalization on trade in goods.

2.4 The Interlinkages between Trade Liberalization and Services Trade

Despite the fact that services trade comprises more than 20% of global trade it is observed that economists have not paid much attention to the empirical modelling and research in trade in services and its liberalization episodes.

Recently, the trend towards liberalizing goods trade and services trade have created enormous pressures on political and economic actors to become more competitive not only in the domestic market but also in the global market. The increased mobility of the skilled labour coupled with the technological and knowledge diffusion has opened up the global economy exponentially. This opening up of global economy has contributed a lot in the creation of dynamic trading environment (goods and services trade).

The most important trait about services is that its production and consumption take place at same point of time. Because of this trait trade in services often requires direct contact between producers and consumers. It is also noted that there are services like telecommunications which are traded globally in a similar way of goods trade. However, there are other services (For example, tourism services) that demands consumer to move to the location of the producer. Moreover, because of the necessary closeness between consumers and producers, there is a need that factors of production travel across geographical boundaries instead of consumption. There is a need of cross border of labour movement (may be temporary) to serve foreign consumers.

Hoekman and Braga (1997), in their study have mentioned that implementation of tariffs in services trade is generally difficult since it is extremely difficult for the customs agents to observe whether the services have crossed the border or not. The main reason behind this unobservable nature is the simultaneity of production and consumption of services. Hence, in general the restrictions on trade in services are aimed to limit the access of cross border suppliers to the domestic markets. Hoekman and Braga have mentioned four major types of services trade barriers: (i) quotas, local content, and embargoes as part of quantitative restrictions (QR)[2] , (ii) instruments based on prices[3] ,(iii) standards, licensing, and procurement[4] and (iv) discriminatory access to distribution networks[5].

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[2] The examples of QR are bilateral agreement regulating international airline services and ocean cargo sharing. Other examples are not allowing foreign services providers in education, domestic transports etc.

[3] The examples are visa fees, entry and exit taxes, discriminatory airline landing fees, etc.

[4] Need of license or certification for foreign services providers of professional and business services. Sometimes foreign services providers may also have to follow environmental regulations. Government procurement policies may also designed in such a manner that it favour the domestic suppliers.

Kimura and Lee (2006) have empirically investigated the impact of the factors on bilateral service trade relative to that on bilateral goods trade. They have employed gravity model of trade for the study. The study is based on bilateral services and goods trade between 10 OECD member countries and other economies comprised of OECD member and non-member countries for the years 1999 and 2000. The study finds that bilateral trade in services is better predicted by gravity model compared to bilateral goods trade. Interestingly, they find that there exists complementarity between import of services and export of goods.

Ramesh and Roger (2008) in their study have empirically investigated the economic performance in the region of CARICOM (Caribbean Community). The CARICOM region is exposed to the acute problem related to the growth of regional and international trade. The paper has gained importance since the study is undertaken against the backdrop of the problem faced by CARICOM region. The study concludes that CARICOM has failed to accelerate the intra-regional trade. Moreover, the region has failed to build a competitive and efficient manufacturing sector and hence failed to reap the benefit of the growing transparent international market.

Gruenfeld and Moxnes (2003) in their study have employed gravity model to emphasize the relationship between trade in services and FDI. The study is based on bilateral trade and FDI data. The study has also utilised the indicators of trade barriers (macro and disaggregated levels). The study reveals that trade in services and FDI are affected by the size of the trading partners. The size has more impact on FDI compared to trade. It indicates that multinational corporations (MNC) is benefited by the convergence of

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[5] In many sectors especially in telecommunications, air transport, insurance etc. foreign services providers face discriminatory access to distribution networks and communication systems.

income of the countries. The study has also confirmed the complementarity between trade in services and FDI. The study has also tried to predict the volume of services trade and FDI after removing the barriers. The study reveals that continuation of liberalization effort will lead to larger gains in terms of trade in services and FDI. However, there is uneven distribution of gains from liberalization.

Karmali and Sudarsan (2009) in their study have mentioned that trade in services is essential for trade in goods and it is also impossible to separate trade in goods from trade in services. The study has examined the causality between services trade and goods trade over the sample of 20 countries from different income groups for the period of 21 countries. They have applied Granger Causality test to investigate the causality between goods trade and services trade. They find that in thirteen countries goods trade is causing trade in services. The study also reveals that differences in income do not play any significant role in determining the causality.

Hikari (2015) in an empirical work has tried to quantitatively analyse the impact of free trade agreements (FTAs) on the services trade liberalization. The study has attempted to empirically investigate the impact of ASEAN related FTAs on mode 3 based services trade. The study is based on Japan and its trading partners from six ASEAN countries (Indonesia, Philippines, Singapore, Malaysia, Thailand and Vietnam). The study has tried to analyse the impact of Japan's bilateral FTAs with six ASEAN countries on Japanese firms in the service sector. The result reveals that there is positive association between the services trade liberalization and the service firms' commercial presence.

Darren (2002) in his study has mentioned that GATS is the first multilateral and enforceable agreement which covers services trade including tourism services. The agreement aims to eliminate the barriers in trade in services so that market for

investment can grow. The agreement is also supposed to have a significant impact on the development of sustainable tourism. However, the GATS has been criticised mainly on the ground of environmental degradation and undermining the local governance structures. The major criticism comes from the human rights and environmental activist groups. However, supporters of the GATS are excited because of its potential in mitigating the trade disputes and the development through the employment generation. Against this background the study has outlined the GATS and also examines the legal principles. The study also seeks to explain the potential impact of GATS on sustainability and on other issues like participation of locals, tourism etc.

Sudarsan and Karmali (2011) have examined the growth structure and determinants of India's services export. The study finds that the growth rate of services export is much higher than the growth rate of exports of merchandise items in recent years. On the basis of static and dynamic models the study has concluded that major determinants of India's services trade exports are (i) Share of goods trade in GDP (Goods trade openness) and (ii) Share of services trade in GDP (Services trade openness). Moreover, they also find that services trade has dynamic relationship with the share of services sector in GDP. The study concludes that the value of service sector GDP has significant influence in determining trade in services in long run.

Karmali and Sudarsan (2009) in another stylized work have mentioned that economists haven't paid much attention to international trade in services based on the conjecture of its non-tradability. However, in recent years the growth rate of trade in services is exceeding the growth rate of trade in goods. The study has examined the impact of trade in goods on trade in services for a large set of countries taken from different income groups over the period of 1985 to 2003. The study has employed panel data estimation

methods (fixed effects and random effects models) to analyse the impact of goods trade on services trade. The study reveals that trade in goods is a significant determinants of trade in services. The study also reveals that FDI is not an important factor in determining trade in services. Finally, the study concludes that the impact of trade in goods on trade in services is much higher for developed nations as compared to developing nations.

Sudarsan (2013) did an excellent study on the movement of natural persons (under mode 4 of GATS). The study is based on India. The study is important since very few studies are there in this area. The study mainly focuses on India's perspective on the movement of natural persons. It has been noted that India receives the highest amount of remittances from abroad. The study finds that in recent years India has paid special attention to movement of natural persons in all FTAs. The study concludes that India has great potential in movement of natural persons and should promote movement of natural persons through FTAs.

In another stylized work Markusen et al.(1999) have developed a small-country, two-good model of services trade. This model provides guidance for modelling services trade. They have captured the core of imported services through (1) the distinctive understanding required to create the foreign variety of services combined with (2) the import of specific intermediate inputs. In this model services have been considered as inputs of the production of a specific good. The services inputs are differentiated by firm and it is provided by both national and overseas firms. Foreign firms are required make a fixed capital investment to enter in the domestic market for services. In this model it is assumed that market is monopolistically competitive. Relatively free entry ensures the normal profit in this model. The model is useful since it is very much useful

to theoretically evaluate the differences in equilibrium exists between no trade in services is permitted with free trade in services is permitted.

In this section the literature review related to the trade in services and the interlinkages between liberalization and trade in services have been presented. From the review of literature it is quite evident that though researchers have neglected the issue of trade in services. However, it is found that researchers have started to focus on this issue. One of the major reasons behind this is that the increased share of services value in GDP across all the countries.

2.5 Research Gap in the Existing Literature

This chapter has presented a detailed review of literature in the following areas of international economics.

(i) The interlinkages between trade liberalization and economic growth

(ii) The interlinkages between trade liberalization and trade in goods with special reference to gravity model of trade and services trade liberalization

(iii) Trade liberalization and trade in services with special reference to goods trade liberalization

The detailed review of literature (theoretical and empirical) in the field of liberalization growth linkages it is observed the most of the studies in this area are either theoretical in nature or applied panel data (mostly FE and RE methods) techniques to understand the linkage between liberalization and growth. The standard panel data estimation methods are not enough to capture the heterogeneity present in the effectiveness of liberalization on economic growth. There is an urgent need for methodological improvement in this area. Moreover, the impact of liberalization may vary on the basis

of income categories of the countries. The study of impact of liberalization on economic growth requires incorporation of this essential issue which is absent in the existing literature. The present study has tried to to fill these lacunas in the existing literature by applying quantile regression method to capture the heterogeneity and incorporating indicator variable for different income categories of the countries.

There are plenty of theoretical and empirical studies which dealt with the determinants of bilateral trade flow. However, there are very few studies which dealt explicitly the interlinkages between goods and services trade for a large set of countries. Moreover, there are very few studies which have dealt with the role of trade bloc in bilateral trade flows. Our study is an attempt to fill this lacuna in the existing literature. The present study has aimed to investigate the impact of services trade liberalization on bilateral trade flows. Moreover, it has also aimed to investigate the role of trade bloc in determining the bilateral trade flows.

Finally, the review of literature in the area of linkages between liberalization and trade in services has revealed that there exists a clear dearth of studies in this field. However, the importance of trade in services is increasing rapidly. Thus there is a need of empirical research which deals with the impact of liberalization on the trade in services. Moreover, the impact of liberalization on services trade may not be similar for different trading blocs. Thus researcher needs to incorporate this aspect also to get the better policy results. The present study has identified these research gaps and has attempted to fill these gaps in the existing literature.

CHAPTER III

THE IMPACT OF TRADE LIBERALIZATION ON

ECONOMIC GROWTH

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THE IMPACT OF TRADE LIBERALIZATION ON ECONOMIC GROWTH

3.1 Introduction

The role of trade policy influencing macroeconomic factors especially economic growth and development is one of the key issues in the field of international economics. Neo classical economists argue that free trade is beneficial not only for developed nations but also for developing nations. Whereas some economists argue that free trade is not beneficial for developing or less developed nations. They argue that trade restriction may help in the prosperity of the economy or in other words it may improve the economic performance. Though the world has seen unprecedented period of trade liberalization, this controversy is still continuing. Several empirical studies have found a positive effect of openness on growth. One of the most important works related to openness and growth is of Krugman (1994) and Rodrik (1995), who have argued that the effect of openness on growth is not only questionable, but also very vague. The core of these controversies is the theoretical models which failed to capture the link between trade policy and rapid economic growth

Romer (1986) and Lucas (1988) pioneer of 'new' growth theories have delivered convincing scholarly support for the hypothesis that openness has positive role in determining growth. Romer (1992), Grossman and Helpman (1991) and Barro and Sala-i-Martin (1995), have also advocated that greater openness in trade enhance the capability to imbibe the advanced technologies generated in developed countries. Barro and Sala-i-Martin (1995), with the help of two- countries model (one advanced and one developing) with perfect capital immobility and differentiated inputs, have shown that

developing countries restrict itself in reproducing new techniques only whereas, advanced countries innovates technology.

Liberalization also helps domestic firms to be more competitive which is likely to reduce market power resulting in lower prices and an increased variety and improvement in quality. However, there is a general presumption that poorer will lose from global goods and services trade liberalization since their domestic industries are inefficient and non-competitive. Recent experience and evidence also suggests that the benefits of trade reforms have not been as high as may have been expected (Taylor, 1991; Winters, 2004). In addition, evidence suggests that the response of growth to liberalization has varied a great deal across countries, with many countries benefiting, but others losing out from trade reform. A number of explanations have been put forward for these outcomes, relating for example to the timing and sequencing of reforms, as well as their credibility and the commitment to reforms shown by political actors. A further reason relates to the fact that many trade reforms are undertaken at a time of crisis, characterised by low output growth, which could be considered the worst time to undertake trade reforms. It has been argued that consumer gets benefits from free trade through lower price and better quality and free trade is also mutually beneficial for both exporting and importing countries[1]. However, trade reforms mitigate expected supply responses, resulting in a limited impact of reforms on output growth (Foster, 2008). It is also despite the commonly held view that the production of many services are labour intensive, which economists believe should be the source of comparative advantage for poorer developing countries in services provision. Thus, it is important to understand how trade liberalization could affect countries of different economic status. Empirical studies based on quantile regression may answer these

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[1] Resulting from comparative advantage and greater access to the market

questions. There are no scarcity in the empirical studies on liberalization and growth. However, the empirical study on trade liberalization and growth by employing quantile regression is quite limited. The present study is an attempt towards this.

The organisation of this chapter is as follows; Section 3.2 presents analytical background to the liberalization and economic growth linkage. Section 3.3 deals with the methodology and data, section 3.4 presents the comparative analysis of High income (HI), Upper middle income (UMI) and Lower middle income (LMI) countries, section 3.5 represents results of the empirical analysis and also provides a discussions of the major findings. Finally section 3.6 provides a summary.

3.2 Analytical Background: Trade Liberalization and Economic Growth

Trade liberalization has been seen as an important of policy device for countries in last two decades. Trade liberalization is expected to speed up the economic growth especially in the context of lower income countries. However, economists are totally divided in this particular issue. Some studies suggest that openness enhances economic growth. However, cross -country studies face problems in defining and measuring openness. Krueger (1998) in his stylized paper has provided worthwhile survey of gains from trade liberalization. Endogenous theories of growth provide a role for trade liberalization in enhancing the income growth. According to these models liberalization can raise growth by facilitating imports of capital and intermediate goods not available domestically. Such imports raise the productivity of manufacturing production and can affect growth (Lee, 1995). Trade liberalization would also be expected to facilitate the spillover of knowledge and technology, which is shown in many endogenous growth models to enhance productivity and growth (Grossman and Helpman, 1991). Krueger (1998) argues that exporters in developing countries may acquire more knowledge from

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their interactions with foreign buyers than domestic consumers, implying that firms that engage in trade are likely to have higher productivity. Similarly, she argues that learning by doing may be more rapid in export industries, providing further benefits from trade liberalization. Liberalization also helps domestic firms to be more competitive which is likely to reduce market power resulting in lower prices and an increased variety and improvement in quality. From a static point of view trade liberalization is meant to work by getting relative prices 'right', which should lead to a reallocation of resources from import-substitution to export sectors. While this reallocation should raise the steady-state level of income, the growth rate of income will only be increased in the transition to the new steady state, a transition however that may take some time. The static gains from trade liberalization may not be limited to such resource allocation gains however. Krueger (1998) identifies further gains from a reduction in rent seeking and reductions in corruption and smuggling. Other studies find that liberalization tends to lead to a growth in exports and an improvement in the current account (although some of this arises as a result of import compression), and that while some countries have increased investment following liberalization, others suffer an investment slump, so that the impact on growth may be positive or negative, although there seem to be more cases of a positive than a negative growth effect (Greenaway, 1998).

Although empirical studies have shown that trade liberalization improves economic growth, this support is far from universal and it is a fact that some liberalizations have been more successful than others. Trade liberalization is only likely to be successful and sustained if it is not met by scepticism from the private sector. If the private sector does not respond to changed incentives, which is particularly likely when there are sunk costs associated with shifting resources between import competing and export sectors,

then efficiency gains will be delayed. In such a situation there will be few that gain from reform, while some will lose due to markets being lost to foreign competitors. Such an outcome is likely to make it politically difficult to sustain reforms as well as limiting their impact. Scepticism on behalf of the private sector may be related to the fact that reforms are often undertaken in times of economic crisis[2]. Papageorgiou et al. (1991) noted that 36 liberalization incidents they identified had been preceded by balance of payments crises. Undertaking liberalization at a time of crisis could be the worst time to undertake liberalization (Rodrik, 1992). Trade reform is meant to work by correcting distortions in relative prices, which leads to a shift in resources from import substituting to export activities. High and variable inflation can confound price signals, making it difficult to disentangle relative price changes from changes in the general price level, thereby blunting the incentives to move resources between industries. Moreover, the slowdown in domestic activity associated with crises can exacerbate transitional unemployment as resources shift between sectors, increasing opposition to reforms and increasing the likelihood they will be reversed (Rodrik, 1992). Against this background the present study is an attempt to measure the impact of trade liberalization on economic growth. The present study has also tried to find out whether this impact is same for all countries or it is different for countries of different income group categorised by World Bank. World Bank has classified countries on the basis of Gross National Income (GNI) per capita. On the basis of GNI per capita in 2015 (i) low income economies are defined as those with less than $ 1025, (ii) Lower middle-income economies are those with a GNI per capita between $1,026 and $4,035 (iii) upper middle-income economies are those with a GNI per capita between $4,036 and $12,475 and (iv) high-income economies are those with a GNI per capita of $12,476 or more.

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[2] Economic crisis is characterised by negative or low growth rates, persistently high level of inflation, high fiscal deficit and imbalances in balance of payments.

The classification of the sample based on World Bank definition is given in Table 3.1.

Table 3.1 Classification of Countries Based on World Bank Definition

Classification	Countries
Lower Middle Income	India, Sri Lanka, Philippines,
Upper Middle Income	Mexico, Malaysia, Thailand, China
Higher Income	US, Canada, Singapore, Germany, France, Italy, UK, Spain, Austria, Australia

Source: World Bank Database, 2017

Next section provides detailed discussion on methodology and data.

3.3 Empirical Method and Data

The present study is related to the estimation of the effect of the trade liberalization on economic growth. The starting point for the empirical analysis is a model similar to the initial regression model estimated by Greenway et al. (2002). The model has openness, share of GCF in GDP (investment) and growth in population as independent variables. Moreover, the study has also considered indicator variables based on the income category of countries as classified by the World Bank.

$$(\Delta PGDP)_{it} = \beta_0 + \beta_1(Openness)_{it} + \beta_2(\Delta Population)_{it} + \beta_3(GCF/GDP)_{it}$$
$$+ \beta_4(LMI)_{it} + \beta_5(UMI)_{it} + \varepsilon_{it}$$

(3.1)

Where; 'i' denotes country

Δ = Growth

PGDP: Real per capita GDP (Constant 2005 US$)

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Openness = Trade openness

ΔPopulation = Population growth

GCF/GDP: Gross Capital formation as percentage of GDP

LMI: Lower middle income country

UMI: Upper middle income country

HI: High income country (base category)

$LMI_i = 1$ *if* country '*i*' is from LMI group

$\quad$ = 0 otherwise

$UMI_i = 1$ *if* country '*i*' is from LMI group

$\quad$ = 0 otherwise

If a country is neither from LMI or UMI then country is of HI category.

The above specification has been estimated by using OLS and quantile regression method. Initially, specification 3.1 has been estimated without incorporating dummy variables (Income category). However, in the later stage the study has estimated the above equation with the dummy variables.

To consider the importance of parameter heterogeneity in the liberalization growth relationship the study has employed quantile regression methods, which has enabled the researcher to identify a different response of growth to liberalization at different points on the conditional growth distribution.

Quantile regression models seek to model the conditional quantile functions, in which the quantiles of the conditional distribution of the dependent variable are expressed as functions of observed covariates. The main advantage of quantile regressions is that potentially different solutions at distinct quantiles may be interpreted as differences in

the response of the dependent variable to changes in the regressors at various points on the conditional distribution of the dependent variable. Such heterogeneity will not be taken into account by standard OLS techniques, the coefficients of which describe how the conditional mean of the dependent variable changes with changes in the independent variables. Thus, present study departs from OLS and employs quantile regression methods to find out the impact of liberalization on growth.

The quantile estimator solves the following optimisation problem;

$$\min \sum_{i=1}^{n} \sigma\tau (y_i - x_i' \beta)$$

where y_i is the vector of the dependent variable, x_i is a matrix of independent regressors, β is the estimated vector of parameters and $\sigma\tau$ is the absolute value function that yields the τth sample quantile as its solution. In general, the linear model for the θth quantile $(0<\theta<1)$ solves,

$$\min \frac{1}{n} \{ \sum_{i:y_i \geq x_i'\beta} \theta |y_i - x_i'\beta| + \sum_{i:y_i < x_i'\beta} (1-\theta) |y_i - x_i'\beta| \}$$

As one keeps increasing θ from zero to one, one can trace the entire conditional distribution of the dependent variable, conditional on the set of regressors. In terms of this study therefore quantile regression enables to trace the entire per capita conditional growth distribution, conditional on the regressors listed in the above equation. The resulting minimisation problem can be solved using linear programming methods. The coefficient for a regressor j can be interpreted as the marginal change in the θth conditional quantile of y due to a marginal change in j.

For the empirical analysis data on PGDP, openness, population growth and investment (Gross fixed capital formation) is taken from World Development Indicators (WDI) of the World Bank (WB).

3.4 Comparative Statistics of HI, UMI and LMI Countries

In this section some comparative statistics of some key indicators of HI, UMI and LMI have been presented. This analysis will help to understand the similarities and dissimilarities between HI, LMI and UMI category countries. The study has identified population growth, gross capital formation as percentage of GDP, growth in GDP per capita and trade openness as key indicators.

Figure 3.1 Comparison of Population Growth of HI, UMI and LMI Countries
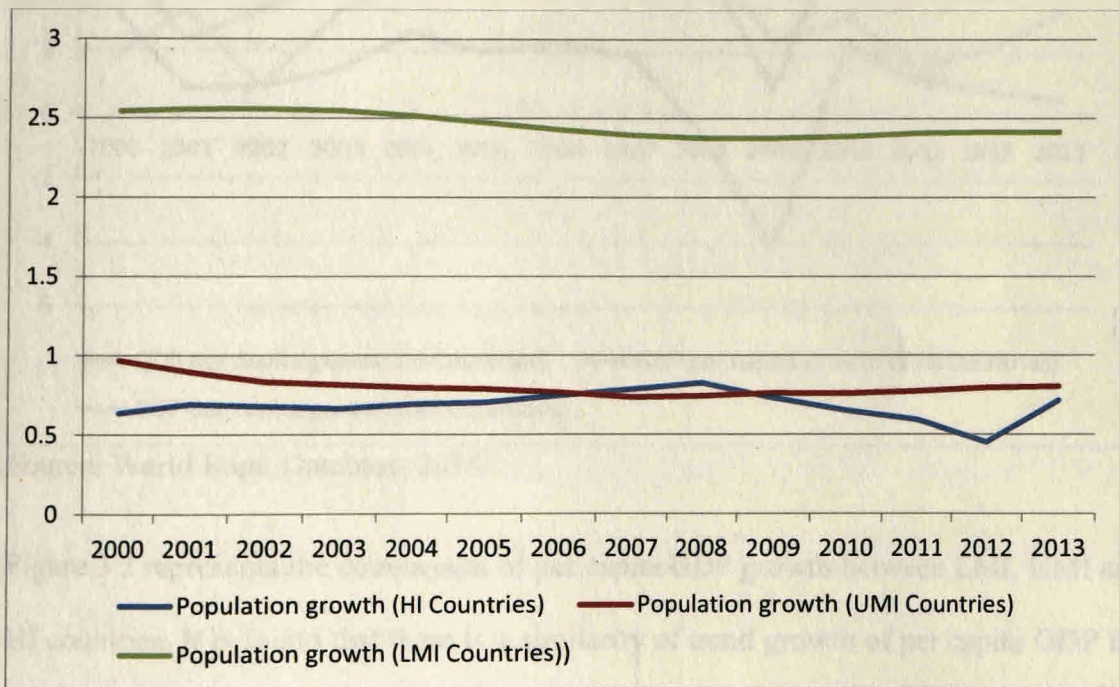
Source: World Bank Database, 2016

Figure 3.1 represents a comparative analysis of population growth for HI, UMI and LMI countries. It is found that population growth in LMI countries are much higher than UMI and HI countries. Population growth of UMI countries is higher than the HI countries (except period of 2007 – 2009). However, it is also observed that post 2011

period population growth is in increasing trend for HI countries. Though population growth for LMI countries is much higher than UMI and HI countries, it is found that the rate of growth of population is decreasing for LMI countries. Similarly, the rate of growth of population is also decreasing for UMI countries. However, for HI countries, initially increasing, curve reaches the peak, then decreasing and curve reaches the bottom and again starts increasing.

Figure 3.2 Comparison of Growth in GDP Per Capita of HI, UMI and LMI Countries
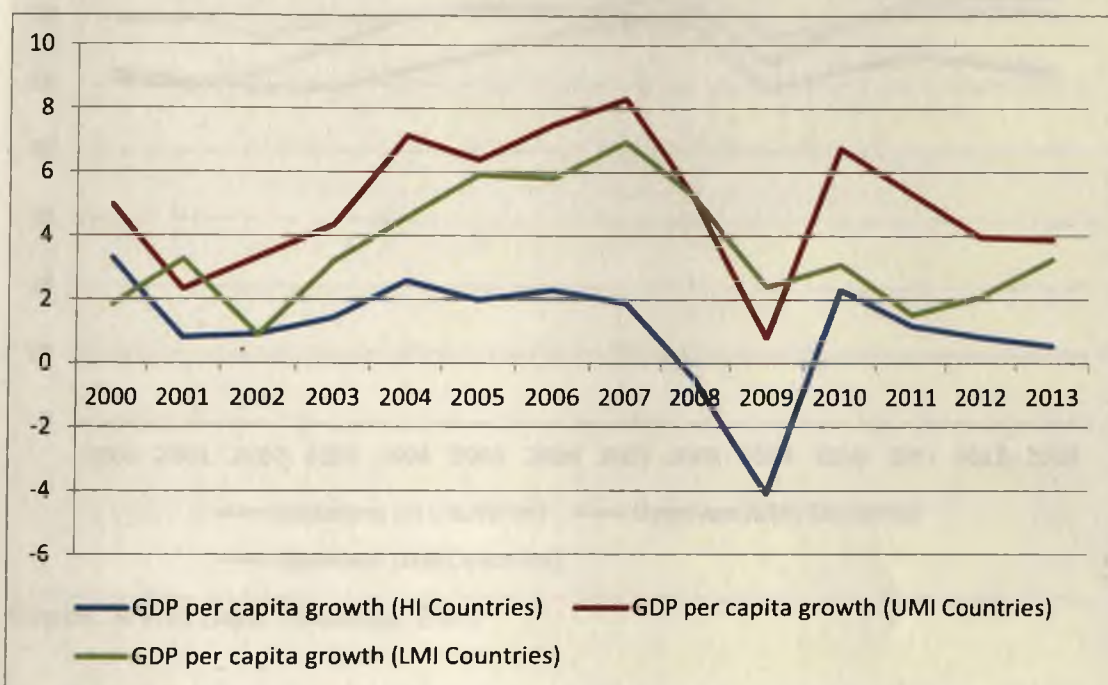
Source: World Bank Database, 2016

Figure 3.2 represents the comparison of per capita GDP growth between LMI, UMI and HI countries. It is found that there is a similarity of trend growth of per capita GDP for LMI, UMI and HMI countries. Moreover, it is observed that the growth in per capita GDP has decreased during the period of 2007- 2009. It reflects the impact of global recession economic growth. In fact during 2007-2009 the growth rate was negative for HI countries. for most of the years per capita GDP growth is much higher for LMI countries compared to UMI and HI countries (especially for HI countries).

Figure 3.3 represents a comparative analysis of openness for HI, UMI and LMI countries. It is observed that openness has decreasing trend during period of global recession (2008-2009). Post 2009 period it is observed that openness for HI countries are higher than LMI and UMI countries. Per capita GDP growth has also decreased during the period of 2007 – 2009.

Figure 3.3 Comparison of Trade Openness of HI, UMI and LMI Countries
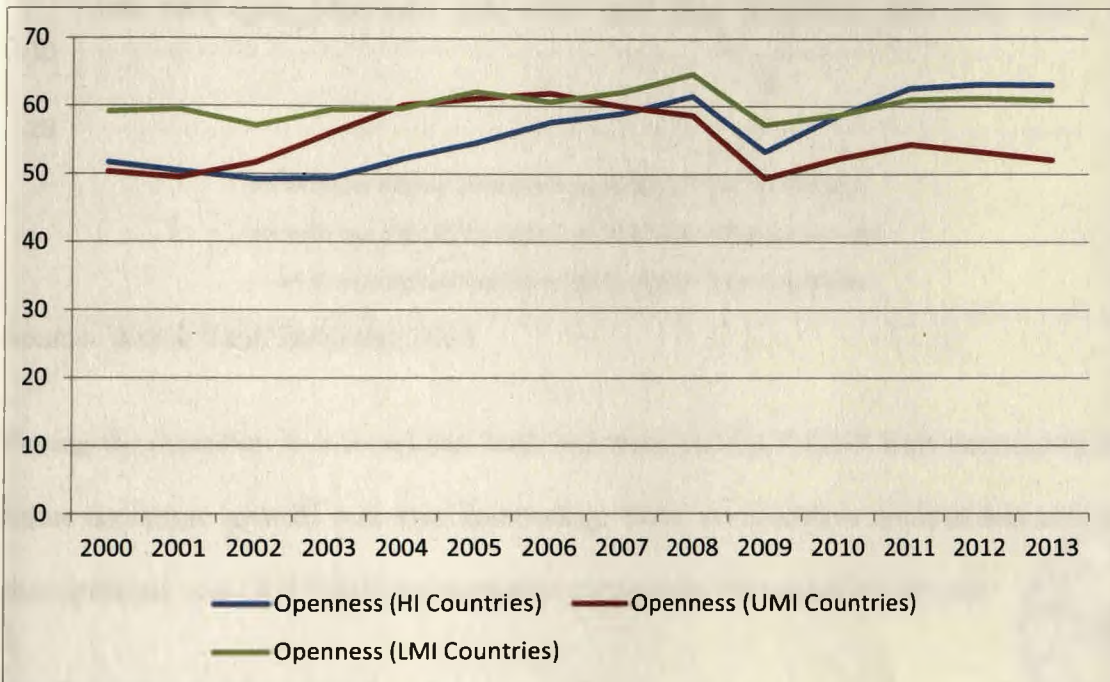
Source: World Bank Database, 2016

Thus, it can be inferred that with the decrease in the trade as percentage of GDP has also negative impact on per capita GDP growth. Again, the openness trend is similar for HI, UMI and LMI countries.

Figure 3.4 represents a comparative analysis of gross capital formation as percentage of GDP for HI, UMI and LMI countries. It is found that GCF/GDP is lowest for the LMI countries. In fact during the recession period GCF/GDP is negative for LMI countries. However, GCF/GDP is much higher for UMI countries as compared to HI countries.

Figure 3.4 Comparison of Gross Capital Formation as Percentage of GDP of HI, UMI and LMI Countries
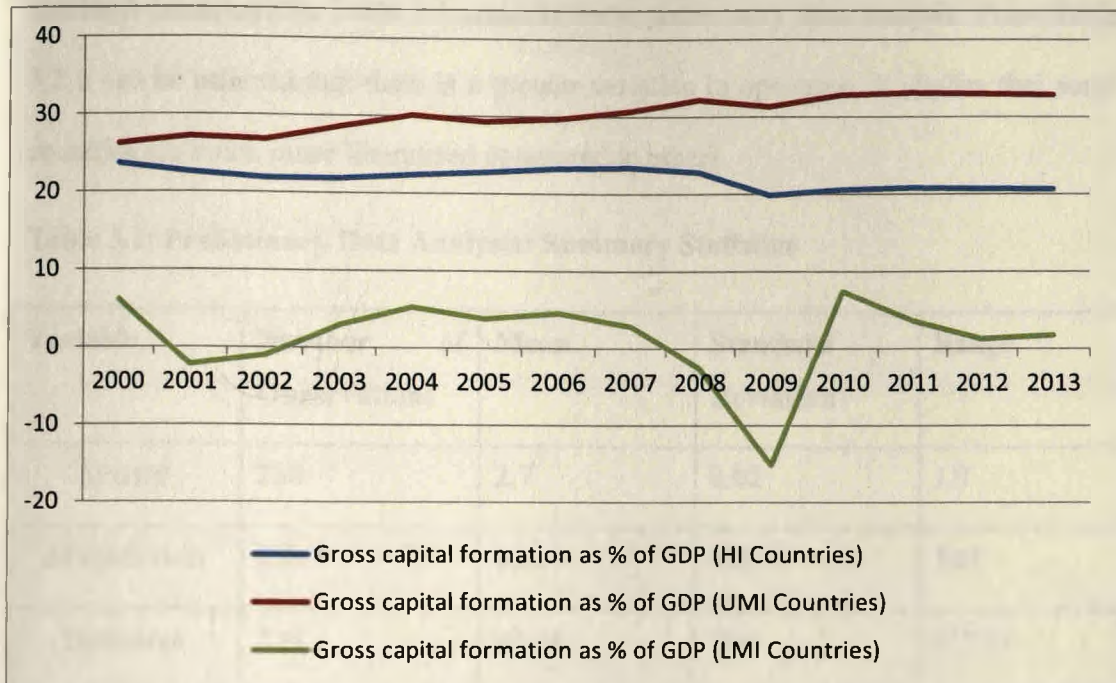
Source: World Bank Database, 2016

During the recession it is found that both openness and GCF/GDP were decreasing and hence economic growth was also decreasing. Thus, comparative analysis has inferred that openness and GCF/GDP are important parameters for economic growth.
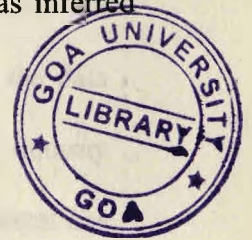
3.5 Results and Discussion

This section presents the results along with the discussions of the results of the study. The equation 3.1 has been estimated by using OLS and quantile regression method, with and without dummy variables. Impact of liberalization on economic growth may not be uniform for all countries. In fact, liberalization may have different impact on countries of different income group. The study has made an attempt to examine this by incorporating dummy variables.

World Bank has classified income categories of countries. The study has considered World Bank definition of income categories of countries only. The study is based on the

sample of countries from Lower middle income (LMI), Upper middle income (UMI) and High income (HI). Table 3.2 presents some preliminary data analysis. From Table 3.2 it can be inferred that there is a greater variation in openness. It implies that some countries are much more liberalized compared to others.

Table 3.2: Preliminary Data Analysis: Summary Statistics

Variable	Number of Observations	Mean	Standard Deviation	Range
ΔPGDP	238	2.7	0.02	1.9
ΔPopulation	238	1.01	0.05	7.01
Openness	238	90.54	5.41	417.51
Investment	238	24.92	0.41	32.39

Source: Authour's calculation based on World Bank Database

Equation 3.1 has been estimated by using OLS and quantile regression. Table 3.3 represents the summary of OLS estimates. It is observed that the model fits the data well. OLS results for both the models (with dummy variables and without dummy variables) are qualitatively similar. In both the cases the study finds that investment has positive and significant impact on economic growth. It implies that investment is a precursor for economic growth. The coefficients of investment in both the estimates are close to each other. In both the cases population has significant and negative impact. It implies that population growth and economic growth are negatively associated. On the other hand the coefficients of openness are positive and significant for both the models. Thus, empirical analyses find that openness has positive impact on economic growth. The present study has captured liberalization by using openness, i.e. higher the openness greater is the liberalization. It can be inferred that openness is an engine of

economic growth. Interestingly, the study finds that the impact of liberalization is greater in case of lower middle income and upper middle income countries compared to higher income countries. Thus, it implies that in term of economic growth, from liberalization lower middle income and upper middle income countries are benefited more compared to higher income countries.

Equation 3.1 has been estimated by using quantile regression method also. The results of quantile regression throw some interesting findings. Table 3.4 and Table 3.5 represent the results of quantile regression.

Table 3.3: Results of OLS Estimation of Equation 3.1

Dependent Variable: ΔPGDP		
Coefficients	Pooled OLS	Pooled OLS
C	-5.20^{***} (-7.01)	-4.6^{***} (-6.41)
Openness	0.007^{***} (2.94)	0.009^{***} (4.12)
ΔPopulation	-0.72^{***} (-2.77)	-1.13^{***} (-4.43)
Investment	0.32^{***} (11.48)	0.27^{***} (9.5)
LMI	NA	2.74^{***} (5.61)
UMI	NA	1.43^{***} (3.28)
R^2	0.37	0.45
Adjusted R^2	0.36	0.44
F Statistic	46.06	38.22
Prob F Statistics	0.00	0.00
N	238	238

t statistics in parentheses,

*** significant at 1%, ** significant at 5%, *significant at 10%

Firstly, equation 3.1 has been estimated without incorporating the dummy variables by quantile regression method. The main advantage of quantile regression is that potentially different solutions at distinct quantiles may be interpreted as differences in the response of the dependent variable to changes in the regressors at various points on the conditional distribution of the dependent variable. OLS cannot capture this heterogeneity. Table 3.4 represents the quantile regression results of equation 3.1.

Table 3.4: Results of Quantile Regression (Without Dummy) of Equation 3.1

	Quantile				
Coefficients	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**
C	-7.37^{***} (-8.14)	-6.64^{***} (-7.23)	-5.7^{***} (-5.26)	-5.8^{***} (-5.69)	-5.78^{***} (-5.97)
Openness	-0.007 (-1.47)	-0.004 (-0.71)	0.006 (0.80)	0.013^{***} (4.53)	0.012^{***} (4.01)
ΔPopulation	-0.49 (-1.25)	-0.77^{**} (-2.30)	-0.89^{**} (-2.05)	-0.60^{**} (-2.29)	-0.40 (-1.33)
Investment (GCF/GDP)	0.32^{***} (9.64)	0.33^{***} (9.25)	0.30^{***} (7.80)	0.30^{***} (7.54)	0.32^{***} (8.42)
Pseudo R^2	0.19	0.15	0.15	0.16	0.20
N	238	238	238	238	238

Table 3.4 Continued

Coefficients	Quantile			
	0.6	**0.7**	**0.8**	**0.9**
C	-5.72***	-5.71***	-4.64***	--2.09***
	(-6.24)	(-5.75)	(-5.47)	(-1.23)
Openness	0.01***	0.01***	0.01***	0.01**
	(3.37)	(4.72)	(4.91)	(2.39)
ΔPopulation	-0.25	-0.57**	-0.42	-0.47
	(-0.77)	(-2.00)	(-1.37)	(-0.79)
Investment(GCF/GDP)	0.34***	0.35***	0.34***	0.29***
	(9.66)	(10.85)	(12.32)	(6.64)
Pseudo R^2	0.25	0.30	0.33	0.33
N	238	238	238	238

t statistics in parentheses,
*** significant at 1%, ** significant at 5%, *significant at 10%

Quantile regression estimate of equation 3.1 (without incorporating the dummy variables) shows that openness is insignificant for the lower quantile. In fact it is up to third quantiles. It implies that countries with lower economic growth are not affected by liberalization. The result is quite realistic and doesn't contradict with the evidences provided by other studies. Countries with lower economic growth generally are higher income countries. Higher income countries have higher base of GDP. Thus, the growth rate is not that high as compared to lower income countries. The results of the empirical analyses reveal that after 0.3 quantile openness has positive impact on economic growth, which confirms that lower or middle income countries have benefited more from the liberalization[3].

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[3] Benefits in terms of economic growth only.

The present study has considered population growth as one of the independent variables. Quantile regression estimate shows that the impact of population on economic growth is mixed. For some countries it has significant and negative impact, whereas, for some countries it has insignificant impact.

Moreover, the study has considered domestic investment (GCF/GDP) as one of the independent variables. Econometric investigation reveals that domestic investment is significant and positive for all the quantiles. It implies that economic growth increases with the increase in domestic investment. Thus, domestic investment is a precursor of economic growth.

Table 3.5 shows the quantile regression estimates of equation 3.1. However, in this analysis dummy variables have been incorporated. The analyses find similar kind of results.

The present study reveals that openness is significant and positive after 0.4 quantile. This result reveals that after 0.4 quantiles openness has significant and positive impact on economic growth. It implies that countries with lower economic growth are not affected by liberalization. The result is quite realistic and doesn't contradict with the evidences provided by other studies[4]. Countries with lower economic growth generally are higher income countries.

Thus, it can be inferred that lower or middle income countries have benefited[5] more from the liberalization[6].

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[4] Similar to the without dummy variables quantile regression estimates

[5] Benefits in terms of economic growth only

[6] Higher income countries have higher base of GDP. Thus, the growth rate is not that high as compared to lower income countries.

Population growth as independent variable is either insignificant or negatively significant. The study concludes that higher growth in population may have insignificant or negative impact on economic growth.

Investment is one of the independent variables used in the study. The econometric analyses find that the coefficients of investment for all the quantiles are significant and positive. Thus the present study concludes that investment is an engine of growth[7].

Table 3.5: Results (Quantile Regression) of Equation 3.1 with Dummy Variables

Dependent Variable ΔPGDP	Quantile				
Coefficients	0.1	0.2	0.3	0.4	0.5
C	-7.2^{***} (-7.43)	-6.2^{***} (-5.93)	-5.2^{***} (-4.64)	-5.2^{***} (-4.46)	-4.4^{***} (-3.69)
Openness	-0.0085 (-1.61)	-0.0006 (-0.14)	0.002 (0.24)	0.009 (1.64)	0.009^{**} (2.03)
ΔPopulation	-0.5 (-0.98)	-1.12^{***} (-4.28)	-1.05^{***} (-2.97)	-0.8^{***} (-2.65)	-1.1^{***} (-3.43)
Investment (GCF/GDP)	0.3^{***} (8.65)	0.3^{***} (6.89)	0.28^{***} (6.02)	0.27^{***} (7.12)	0.26^{***} (7.20)
LMI	1.9^{*} (1.76)	2.7^{***} (4.59)	2.8^{***} (6.22)	2.8^{***} (6.42)	2.70^{***} (6.13)
UMI	0.90 (1.45)	0.77 (1.12)	1.05 (1.11)	1.59^{**} (2.33)	2.00^{***} (3.34)
Pseudo R^2	0.21	0.20	0.21	0.25	0.30
N	238	238	238	238	238

Continued.....

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[7] Similar to the result of quantile regression (Without dummy variables)

Table 3.5 continued

Dependent Variable ΔPGDP	Quantile			
Coefficients	**0.6**	**0.7**	**0.8**	**0.9**
C	-4.14*** (-3.42)	-3.56*** (-3.65)	-2.94*** (-3.48)	-1.96*** (-2.75)
Openness	0.01** (2.17)	0.01*** (3.33)	0.02*** (5.43)	0.02*** (6.19)
ΔPopulation	-0.99*** (-2.96)	-0.98** (-2.39)	-1.18 (-2.84)	-1.36*** (-3.30)
Investment(GCF/GDP)	0.26*** (7.24)	0.25*** (7.26)	0.25*** (7.12)	0.23*** (8.28)
LMI	2.80*** (6.02)	2.77*** (4.95)	2.89*** (4.35)	3.37*** (5.38)
UMI	1.83*** (2.94)	1.59*** (2.97)	1.97*** (3.46)	1.67*** (3.14)
Pseudo R^2	0.33	0.36	0.39	0.35
N	238	238	238	238

t statistics in parentheses,
*** significant at 1%, ** significant at 5%, *significant at 10%

One of the purposes of this study was to find out that whether the impact of liberalization on economic growth is same for all the countries or not. The empirical analyses find that it is not same for all the countries. The coefficients of dummy variables (LMI, UMI) show that the impact is higher for LMI and UMI countries compared to the HI countries. In general HI countries are developed nations and GDP of these countries are very high. Thus the growth rate is low for these countries.

However, the GDP of LMI and UMI countries are much lower than HI countries. Especially, GDP of LMI countries is much lower in comparison with HI countries. Under these circumstances GDP growth for these countries are much higher compared to the GDP growth of HI countries. The results show that impact of liberalization on economic growth is higher for LMI and UMI countries. Thus, the study concludes that impact of liberalization on economic growth for LMI and UMI countries is higher because of their low base of GDP.

Figure 3.5 represents the impact of openness, population growth and investment (GCF/GDP) on economic growth at different quantiles. It is observed that openness coefficient is positive from 0.4 quantiles onwards. It implies openness has positive impact on growth from 0.4 quantiles. In other words, the figure reveals that openness has positive impact for relatively higher growth rate country group (mostly comprised of LMI and some UMI countries). Gross fixed formation (Investment) coefficient is positive for all the quantiles.

Figure 3.6 represents the impact of openness, population growth and investment (GCF/GDP) on economic growth at different quantiles. It is observed that openness coefficient is positive from 0.4 quantiles onwards. It implies openness has positive impact on growth after 0.4 quantiles. Gross fixed formation (Investment) coefficient is positive for all the quantiles. Moreover, it is found that economic growth is higher for LMI countries compared to HI countries for all the quantiles. Economic growth for UMI countries is higher compared to HI countries after third quantiles.

Figure 3.5 The Impact of Trade Openness, Investment and Population Growth on Economic Growth in Different Quantiles

Quantile Process Estimates (95% CI)
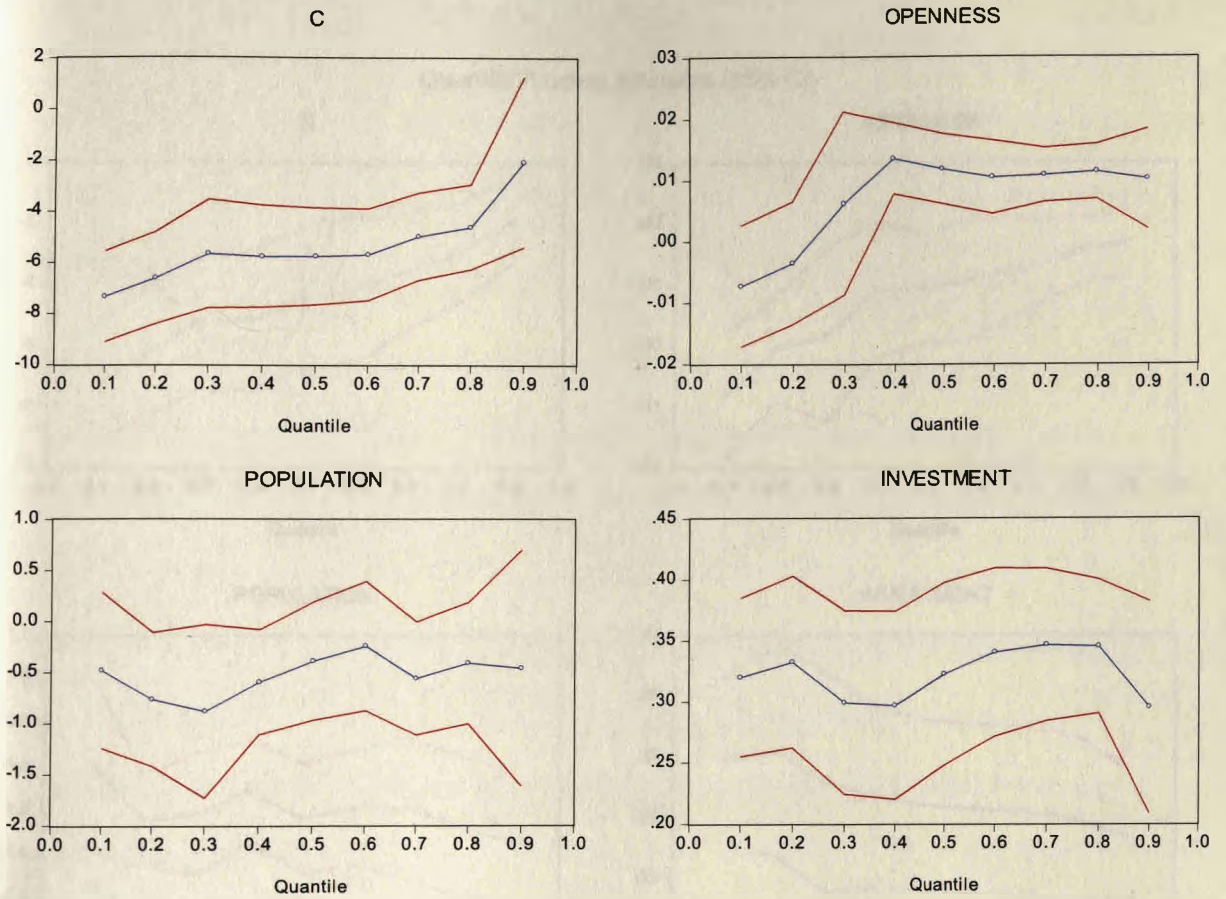
Figure 3.6. The Impact of Trade Openness, Investment, Population Growth, LMI

and UMI on Economic Growth in Different Quantiles
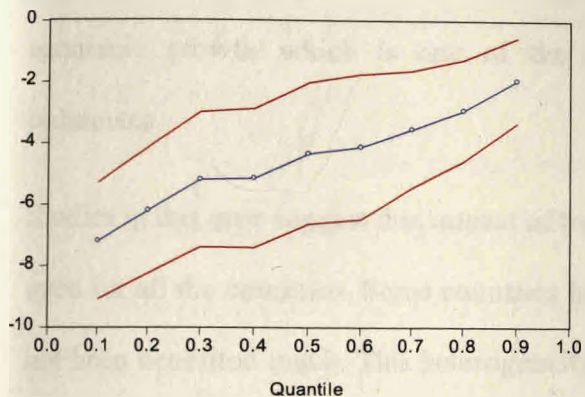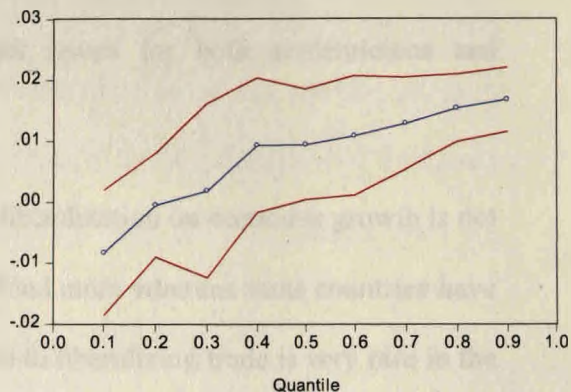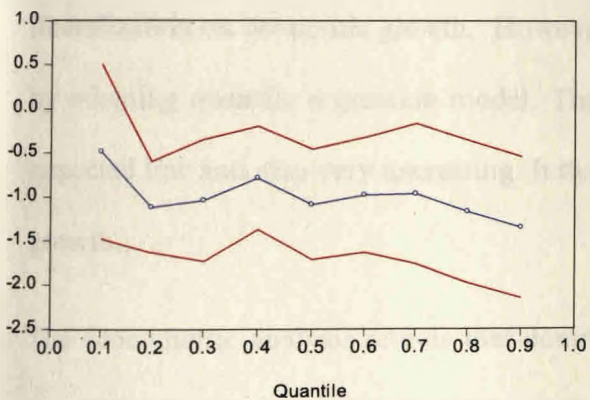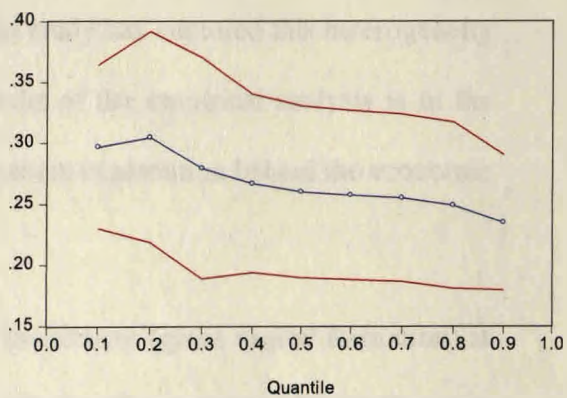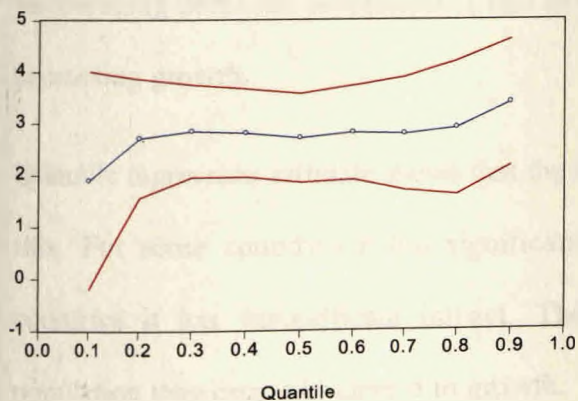
Quantile Process Estimates (95% CI)
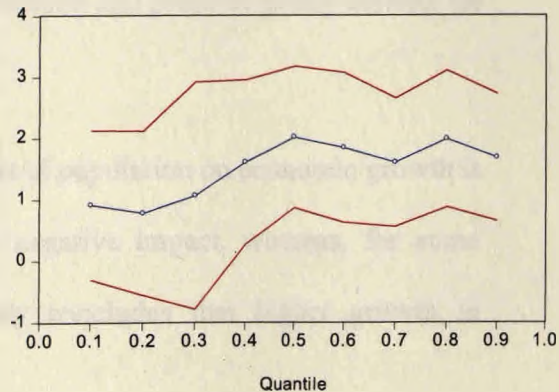
3.6 Chapter Summary

The present study has investigated some important issues in international economics. The issues are not only important for domestic economy but also very important for world economy. The study has investigated the impact of trade liberalization on economic growth which is one of the major issues for both academicians and politicians.

Studies in this area suggest that impact of trade liberalization on economic growth is not even for all the countries. Some countries benefited more whereas some countries have not been benefited much. This heterogeneity due to liberalizing trade is very rare in the empirical studies where the results generally confirm positive impact of trade liberalization on economic growth. However, the study has captured this heterogeneity by adopting quantile regression model. The results of the empirical analysis is in the expected line and also very interesting. It throws some explanation behind the economic growth.

The econometric analysis reveals that domestic investment (gross capital formation) is one of the major determinants of economic growth for all countries. This implies that encouraging domestic investment is one of the realistic and possible policy actions for promoting growth.

Quantile regression estimate shows that the impact of population on economic growth is mix. For some countries it has significant and negative impact, whereas, for some countries it has insignificant impact. The study concludes that higher growth in population may create hindrance to growth.

The present study has captured liberalization by trade openness. The study finds that trade openness has much higher impact on the countries having higher economic

growth. Generally, it is found that developing or less developed countries experience higher economic growth. Thus from the result of empirical analysis it can be inferred that trade openness is an engine of growth for developing or less developed countries. However, the results find that the coefficient of trade openness is not significant for countries having low growth rate. Generally developed nations experience low growth in GDP. Thus the study concludes that for developed nations the benefits of trade openness is insignificant. The research on impact of trade liberalization on economic growth incorporating the income group of countries is very rare. The present study has tried to fill this lacuna in the existing literature.

CHAPTER IV

THE IMPACT OF SERVICE TRADE LIBERALIZATION

ON BILATERAL TRADE IN GOODS

CHAPTER IV

THE IMPACT OF SERVICE TRADE LIBERALIZATION ON

BILATERAL TRADE IN GOODS

4.1 Introduction

The importance of assessing the role of services trade liberalization on various economic factors especially on trade in goods is rising. Trade in goods require inputs from services sector of the economy and could not take place without international trade in some basic services like transportation, communication, banking and insurance etc. The restriction on these basic services can reduce the growth in trade in goods. Hoekman and Braga (1997) in their case studies found that elimination of services trade restrictions in a particular sector is likely to bring down prices, improved quality, and provide greater variety. In a stylised paper Mattoo et al. (2002) have found that average growth rate of countries which fully liberalize financial and telecommunication services is likely to be increased by 1.5 percentage points as compared to other countries. Blyde and Sinyavskaya (2007) also opined that liberalization of trade in services could impact international trade in goods. However, there are very few studies which deal explicitly the role of liberalizing services trade. The present chapter aims to investigate the impact of services trade liberalization on the goods trade. The present chapter also makes an attempt to examine the role of physical distance as well as the differences in the per capita income level on the trade in goods in bilateral context along with the role played by services trade liberalization. The present study has considered seventeen countries[1].

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[1] The countries are India, Sri Lanka, USA, Canada, Mexico, Singapore, Malaysia, Philippines, Thailand, Germany, France, Italy, United Kingdom, Spain, Austria, Australia and China. China is not a member of any major trade blocs e.g. SAARC, ASEAN, NAFTA and EU.

The organisation of the chapter is as follows: Section 4.2 presents analytical background on the interlinkages between services trade liberalization and bilateral trade in goods as well as the background framework in support of the empirical analysis. Section 4.3 deals with the Empirical method and data, section 4.4 presents the results of the empirical analysis, major findings and discussions. Finally section 4.5 presents chapter summary.

4.2 Analytical Background: Interlinkages between Services Trade Liberalization and Bilateral Trade in Goods

As trade in services is one of the essential factors affecting trade in goods. Developing as well as developed countries have been putting efforts to eliminate services trade barriers to reap the benefits of higher volume of goods trade. Deardorff (2001) with the help of a partial equilibrium trade model has examined the role of services trade liberalization on trade in services and trade in goods. In this model, he argues that a reduction in the transportation cost has similar impact on the goods trade as a reduction in tariff. He has used the trucking example to frame a cross-border services trade model. Prior to the liberalization, truckers from two adjacent countries are not permitted to operate across the border. If a good needs to be transported by truck between the two countries, first it has to be carried to the border in one country's trucks, unloaded, reloaded onto the other country's trucks, and shipped from the border to its final destination. However, the transportation cost can be lowered if the cross border transportation is allowed. Beside transportation there are many services whose liberalization could stimulate the growth of trade in goods. For example, liberalization of services like telecommunication, insurance services, banking services may accelerate the trade in goods. Thus it is important to find out the impact of services trade liberalization on the bilateral trade in goods.

Blyde and Sinyavskaya (2007) have used large dataset to find out the impact of services trade liberalization on the international trade in goods. They found the positive impact of services trade liberalization on the bilateral trade in goods. In this paper they have also identified the types of trade in services that are more important for the bilateral goods trade. According to this study transportation and communication are the most important services in determining the value of goods trade.

The present study is not limited to transportation and communication services because the liberalization of other services could also stimulate the goods trade. Though the primary objective of the study is to find out the impact of services trade liberalization on bilateral trade, the study also investigates the impact of the differences in the per capita real GDP between the two trading countries on the bilateral trade in goods. The difference in the per capita real GDP is a measure of the *economic distance'* or the economic gap between two countries. As the *economic distance* between two countries increases it is expected that the volume of trade in goods decreases. The economic distance tends to be high for countries with dissimilar economic conditions. The study hypothesizes that the volume of trade varies inversely with the economic distance.

4.3 Empirical Method and Data

Since present study wants to investigate the effect of the services trade liberalization on international trade in goods, the gravity model of trade has been adopted for the econometric analysis. The gravity model is one of the most commonly used devices in empirical trade research. Gravity model of trade adopts the Newton's function of force to explain the bilateral trade patterns. Gravity model explain the bilateral trade between a pair of countries as proportional to their GDP and inversely proportional to the

physical distance. In gravity model GDP is considered as economic 'mass. Tinbergen (1962) and Poyhonen (1963) have specified the gravity model as follows;

$$T_{ij} = \alpha \, (GDP_i GDP_j)/(Distance_{ij})$$

(4.1)

Where,

T_{ij}: Value of total trade in goods between countries i and j

GDP: GDP at Constant Price

Distance$_{ij}$: Physical distance between two countries (in Kilometre)

α : *Proportional constant*

Equation 4.1 has been translated to equation 4.2 after taking natural logarithms on both sides of the equation 4.1.

$$\ln(T_{ij}) = \ln\alpha + \ln \, (GDP_i) + \ln(GDP_j) - \ln(Distance_{ij})$$

(4.2)

Gravity model of international trade in the form of equation 4.2 is used to predict or estimate bilateral trade flows between two countries. In this case the estimated equation becomes;

$$\ln(T_{ij}) = \beta_0 + \beta_1 \ln \, (GDP_i) + \beta_2 \ln(GDP_j) + \beta_3 \ln(Distance_{ij})$$

(4.3)

In general the expected signs of β_1 and β_2 are > 0, and expected sign of β_3 is <0. However, the researcher may substitute GDP by per capita GDP in the above specification to eliminate the problem of heterogeneity due to the population.

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Moreover, the researcher may also incorporate other variables like trade openness, difference in the per capita GDP between two countries etc. to capture the impact of liberalization and difference in purchasing power on bilateral trade flows. Due to log linear structure the estimated coefficients of gravity model represent elasticities. These unit free coefficients are comparable across countries and provide direct measure of responsiveness of the bilateral trade flows to the above mentioned variables. Gravity model as given in equation 4.3 can also be extended by incorporating time invariant variables like common border, common language, common bloc etc. In this chapter, the econometric analyses are based on various types of gravity model to understand the nature and determinants of bilateral trade flows.

Literally scores of studies employing gravity equations have appeared in the literature, with considerably increased use of late. The reason for this use is summed up in leading surveys of empirical evidence on international trade theory. Deardorff (1984) writes that gravity models are "extremely successful empirically" judging by their ability to explain variance in bilateral trade volumes. Leamer and Levinsohn (1997) write that gravity models "have produced some of the clearest and most robust empirical findings in economics." In its most common use, the gravity model provides a baseline against which to measure deviations from "normal" or frictionless bilateral trade. Three recent and prominent examples include Frankel, Stein and Wei (1995), who measure the effects of regional trading blocs, McCallum (1995) who measures the effect of international borders and the existence of "home bias". As in the standard gravity model physical distance between two countries is an important variable in determining the volume of bilateral trade, the study has incorporated physical distance between two countries in gravity specification. However, along with physical distance the present study has also incorporated the concept of *economic distance* in the specification. The

volume of bilateral trade is expected to decrease with the increase in the economic distance. The direct measure of protection for services trade is extremely difficult[2]. For this reason, protection to trade in services is measured by the share of trade in services on GDP[3]. With the reduction in barriers to trade in services this share is expected to increase. The study has estimated the following models:

4.3.1 Gravity Model 1

The present study has estimated the following gravity model and following model is a departure from standard gravity model. In standard gravity model physical distance is considered as one of the independent variable. However, in Model 1 the study has incorporated 'economic distance' instead of physical distance as one of the independent variables.

$$\ln(T_{ij})_t = \beta_0 + \beta_1 \ln(S_i S_j / Y_i Y_j)_t + \beta_2 \ln(PGDP_i PGDP_j)_t$$
$$+ \beta_3 \ln\left(SquarePGDPDiff_{ij}\right)_t + u_{ij} + \varepsilon_{ijt}$$

(4.4)

Moreover, in this model the study hasn't incorporated any dummy variables[4].

i and j denotes countries and t denotes time and the variables are defined as follows:

T_{ij}: Value of total trade in goods between countries i and j *in US$*

$S_i S_j / Y_i Y_j$: Product of share of services trade of countries i and j

$PGDP$: Real per capita GDP (Constant 2005 US$)

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[2] For details see Juan Blyde and Natalia Sinyavskaya (2007)

[3] Juan Blyde and Natalia Sinyavskaya (2007)

[4] The reason for not incorporating dummy variables is that the study has estimated this model1 by using OLS, FE and RE.

SquarePGDPDiff: Square of the differences of *PGDP* between countries i and j

The study has estimated the above specification (equation 4.1) by OLS, FE and RE methods.

4.3.2 Gravity Model 2

$$\ln(T_{ij})_t = \beta_0 + \beta_1 ln(S_i S_j / Y_i Y_j)_t + \beta_2 \ln(PGDP_i PGDP_j)_t$$

$$+ \beta_3 \ln\left(SquarePGDPDiff_{ij}\right)_t + \beta_4 ln(Distance_{ij}) + \beta_5 (Lang_{ij})$$

$$+ \beta_6 (BLOC_{ij})_t + \beta_7 (CB_{ij}) + \varepsilon_{ijt} + u_{ij}$$

$$(4.5)$$

The notations of all the four models are given below,

i and j denotes countries and t denotes time and the variables are defined as follows:

T_{ij}: Value of total trade in goods between countries i and j *in US $*

$S_i S_j / Y_i Y_j$: Product of share of services trade of countries i and j

PGDP: Real per capita GDP (Constant 2005 US$)

SquarePGDPDiff: Square of the differences of *PGDP* between countries i and j

CB: Common Border

Lang: Common Language

BLOC: Common Bloc

In this model the study has incorporated 'economic distance' as well as 'physical distance'. Moreover, 'CB', '*Language*' and '*BLOC*' variables has also been incorporated in this study.

$CB_{ij} = 1$ *if* country 'i' and country 'j' have common border

= 0 if country 'i' and country 'j' don't have common border

$Lang_{ij}$ = 1 if country 'i' and country 'j' have common language

= 0 if country 'i' and country 'j' don't have common language

$BLOC_{ij}$ = 1 if country 'i' and country 'j' are from same trade bloc

= 0 if country 'i' and country 'j' are not from same trade bloc

Gravity model 2 has been estimated by using OLS and RE.

4.3.3 Gravity Model 3

It will be interesting to find out whether bilateral trade is depending on the lag values of the variables mentioned in Gravity Model 1. Thus, the following model has been estimated.

$$\ln(T_{ij})_t = \beta_0 + \beta_1 ln(S_i S_j / Y_i Y_j)_{t-1} + \beta_2 \ln(PGDP_i PGDP_j)_{t-1} +$$

$$\beta_3 \ln\left(SquarePGDPDiff_{ij}\right)_{t-1} + u_{ij} + \varepsilon_{ijt}$$

(4.6)

Model 3 is similar to model 1 except the fact that in model 3 bilateral trade is regressed on the lag value of the regressors. In this model the aim is to find out that whether past value of services trade openness, product of per capita GDP and economic distance determines bilateral trade in goods or not.

The model has been estimated by using OLS, FE and RE method.

4.3.4 Gravity Model 4

Model 4 is similar to Model 2. However, in model 4 the bilateral trade in goods has been regressed on the lag values of service trade openness, per capita GDP product and economic distance to find the lag impact.

The following model has been estimated for the purpose.

$$\ln(T_{ij})_t = \beta_0 + \beta_1 ln(S_i S_j / Y_i Y_j)_{t-1} + \beta_2 \ln(PGDP_i PGDP_j)_{t-1}$$

$$+ \beta_3 \ln\left(SquarePGDPDiff_{ij}\right)_{t-1} + \beta_4 ln(Distance_{ij}) + \beta_5(CB_{ij})$$

$$+ \beta_6(Lang_{ij}) + \beta_7(BLOC_{ij}) + u_{ij} + \varepsilon_{ijt}$$

$$(4.7)$$

The study has employed OLS, fixed effects and random effects model to estimate the gravity specifications of bilateral trade flows. The methods of estimation are summarised in Table 4.1.

Table 4.1 Methods of the Model Estimation

Model	OLS	Fixed Effects	Random Effects
Model 1	Yes	Yes	Yes
Model 2	Yes	NA	Yes
Model 3	Yes	Yes	Yes
Model 4	Yes	NA	Yes

The models are estimated on a panel of seventeen countries (136 pairs) using annual data over the period 2000 - 2013. It is to be noted that though the variable trade in goods (T_{ij}) is bilateral in nature, the variable trade in services (S_K) is not. It measures

the total trade in services of country K (i or j) with the rest of the world. The study has not considered the bilateral trade in services because bilateral trade in goods might be facilitated by the services provided by the other countries. Consider the truck example in previous section. Gains from comparative advantage could arise by replacing the service providers in both the countries with the lower – cost provider in one of the countries or from a third country. In both the cases bilateral trade could increase as a consequence of lower transportation costs. For this reason the present study has incorporated $S_i S_j / Y_i Y_j$ as a measure of services trade liberalization. Although S_K is not bilateral, however, the specification $S_i S_j / Y_i Y_j$ generates the same number of independent observations as the T_{ij} variable.

The data on bilateral trade in goods is taken from United Nations Trade Statistics Database (UN COMTRADE). Per capita GDP (current and constant US \$) and share of services trade on GDP are from the World Development Indicators (WDI) of the World Bank (WB). The distance data is from Jon Haveman's compilation of data of International trade.

4.4 Results and Discussion

This section presents the results along with the discussions for all the four models that are estimated in this chapter. The preliminary data analysis has been presented in Table 4.2. The summary statistics reveals that though the standard deviation is low for all the major variables of the study, the gap between maximum and minimum (range) is very high for all the variables.

Table 4.2: Preliminary Data Analysis: Summary Statistics

Variable	No. of Obs	Mean	Standard Deviation	Minimum	Maximum
$ln(T_{ij})$	1904	22.22	1.96	15.98	27.00
$ln(PGDP_i PGDP_j)$	1904	18.68	1.96	13.31	21.36
$ln(S_i S_j / Y_i Y_j)$	1904	5.19	0.02	2.93	7.90
$ln(SquarePGDPDiff_{ij})$	1904	18.47	2.88	1.33	21.41

Table 4.2 represents the descriptive statistics of the variables. The following subsections will present the empirical specifications and also the empirical analysis.

4.4.1 Results and Discussion of Gravity Model 1

The summary of results of the Gravity model 1 is given in the Table 4.3. Econometric analyses find that the results are almost similar for all the estimates. Since the data are transformed in logarithmic form the estimated coefficients are elasticities. The results are more or less on the expected line. The only exception is the services trade openness. In OLS estimate it is significantly negative. This implies that services trade openness has negative impact on the bilateral trade flows. However, the results reveal that FE and RE estimates, the coefficient of services trade openness is positive and significant. Since, the study has used panel data OLS method is not appropriate. In this case results of panel data estimation methods are more reliable. The empirical analyses reveal both RE and FE estimates the coefficient of services trade openness is positive and significant. In fact the values of the coefficient are almost same in both the estimates. The sign of other variables '$ln(PGDP_i PGDP_j)$' and '$ln(SquarePGDPDiff_{ij})$' are similar in all the estimates. The present study finds that

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the coefficient of '$ln(PGDP_iPGDP_j)$' is positive and significant across all the estimates. This implies that bilateral trade flow increases with the increase in the product of per capita real GDP. On the other hand in all the estimates the coefficient of '$\ln\left(SquarePGDPDiff_{ij}\right)$' is negative and significant. The negative coefficient of '$\ln\left(SquarePGDPDiff_{ij}\right)$' supports the Linder hypothesis[5]. More interestingly the values of all the coefficients are almost same in FE and RE estimates.

As expected the goodness of fit is highest in fixed effect model followed by RE and OLS. The empirical analysis reveals that FE model can explain 99% of the total variation in bilateral trade flow for the selected countries and the sample period. The results of the empirical investigation conclude that services trade liberalization has positive and significant impact on bilateral trade in goods. Thus liberalizing services trade is a precursor for bilateral trade flows.

The present study has also tested that whether classical linear regression model with a single constant term is appropriate for these data or not. The result of the test is given in Table 4.4 and the test is to reject the null hypothesis in favour of random effects model.

The Lagrange multiplier test statistic value (chi square) is 11754.64 which far exceeds critical value of chi square. Thus the study concludes that the classical regression model with a single constant term is inappropriate for these data.

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[5] Linder hypothesis states that countries with similar GDP per capita or of same economic conditions should trade more with each other.

Table 4.3 Results of Gravity Model 1

Dependent Variable: LN(Bilateral trade in goods between country 'i' and 'j')			
Coefficients	Pooled OLS	FE	RE
C	12.88251*** (25.76)	6.303584*** (13.52)	6.85*** (14.47)
$\ln(PGDP_i PGDP_j)$	0.452492*** (22.24)	0.906161*** (41.68)	0.88*** (41.90)
$\ln\left(SquarePGDPDiff_{ij}\right)$	-0.03156** (-2.28)	-0.0121** (-2.13)	-0.01** (-1.98)
$ln\left(S_i S_j / Y_i Y_j\right)$	-0.36613*** (-8.64)	0.194914*** (6.71)	0.19*** (6.75)
R^2	0.221	0.99	0.547
Adjusted R^2	0.220	0.99	0.546
F Statistic	179.96	12224.790	765.36
Prob F Statistics	0.00	0.00	0.00
N	1904	1904	1904

t statistics in parentheses

*** significant at 1%, ** significant at 5%, *significant at 10%

However, it is best to reserve the judgement on whether RE or FE is more consistent with these data. Random effects model assume that individual effects are uncorrelated with the other regressors.

Table 4.4 *Breusch Pagan Lagrangian Multiplier Test for Random Effects Results (Gravity Model 1)*

Lagrange Multiplier Test Statistic (LM)	11754.64
Prob > chi – squared (1)	0.00

To test this hypothesis Hausman's specification test for the random effects model has been employed. The result of the Hausman Test is given in Table 4.5;

Table 4.5 *Hausman Test Results (Gravity Model 1)*

Correlated Random Effects - Hausman Test			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	51.59	3	0.00

Hausman test results reveal that the hypothesis that the individual effects are uncorrelated with the other regressors in the model cannot be accepted. Thus FE model is consistent.

4.4.2 Results and Discussion of Gravity Model 2

The results of the empirical analysis of Gravity Model 2 is summarised in Table 4.6. Qualitatively, the results in both the estimates are quite similar except few exceptions. The study finds that both the estimates can explain substantial portion of the total variation. R – Square is 46% and 55% for OLS and RE respectively. Product of per capita real GDP is highly significant in both the estimates. Similarly, common language and distance are significant in both the estimates. The coefficient of $'(Lang_{ij})'$ is positive and significant. This implies that if both the countries have common language then it increases bilateral trade flows between these countries. The

coefficient of $'LN(Distance_{ij})'$ is negative and significant. This is in accordance with the theory of gravity model and also with the findings of the existing literature. The negative coefficient of distance implies that bilateral trade flow decreases with the increase in distance or in other words trade between nearby countries are higher compare to far off countries. This is because of the higher transportation cost between far off countries. $'(BLOC_{ij})'$ has significantly negative coefficient in both the estimates. It implies that bilateral trade within same trade bloc is lower than the countries from different trade bloc. The countries from same trade bloc may produce similar kind of goods and sometimes the cultural differences between same bloc countries are insignificant. Thus product diversification index is very low for same bloc countries. As a result it is observed that same bloc countries trade less between them. RE estimates also confirms that bilateral trade flow decreases as the difference between per capita real incomes between two countries increases. This supports Linder Hypothesis. Interestingly, from RE estimates it is revealed that that the coefficient of service trade openness is positive and significant which implies that bilateral trade in goods increases with the liberalization in trade in services. Thus, the study concludes that liberalizing services trade is essential for the goods trade. RE estimates confirm that trade between neighbouring countries may not be higher since the coefficient of $'(CB_{ij})'$ is insignificant.

The econometric analysis has been also conducted to test whether classical linear regression model with a single constant term is appropriate for these data or not. The result of the test is to reject the null hypothesis in favour of random effects model. The result of the test is given in Table 4.7.

Table 4.6 Results of Gravity Model 2

Coefficients	Pooled OLS	RE
Dependent Variable: LN(Bilateral trade in goods between country 'i' and 'j')		
C	20.23^{***}	15.80^{***}
	(37.04)	(8.84)
$\ln(PGDP_i PGDP_j)$	0.41^{***}	0.87^{***}
	(22.45)	(41.80)
$\ln\left(SquarePGDPDiff_{ij}\right)$	0.06^{***}	-0.01^{*}
	(5.22)	(-1.77)
$ln\left(S_i S_j / Y_i Y_j\right)$	-0.56^{***}	0.18^{***}
	(-15.04)	(6.46)
(CB_{ij})	0.46^{***}	0.36
	(2.68)	(0.57)
$(Lang_{ij})$	0.50^{***}	$0..71^{*}$
	(4.94)	(1.90)
$LN(Distance_{ij})$	-1.06^{***}	-1.00^{***}
	(-19.10)	(-5.13)
$(BLOC_{ij})$	-0.16	-1.03^{***}
	(-1.38)	(-2.52)
R^2	0.458	0.547
Adjusted R^2	0.456	0.545
F Statistic	229.3061	326.64
Prob F Statistics	0.00	0.00
N	1904	1904

t statistics in parentheses

*** Significant at 1%, ** significant at 5%, *significant at 10%

The value of the Lagrange multiplier test statistic is11311.35 which far exceeds critical value of chi square with one degree of freedom. Thus it can be concluded that the classical regression model with a single constant term is inappropriate for these data.

Table 4.7 *Breusch Pagan Lagrangian Multiplier Test for Random Effects Results (Gravity Model 2)*

Lagrange Multiplier Test Statistic (LM)	11311.35
Prob > chi − squared (1)	0.00

4.4.3 Results and Discussion of Gravity Model 3

The study finds that the results of the empirical analyses are on the expected line but there are one or two exceptions. The results are qualitatively similar in all the estimates. Bilateral trade flow increases with the increase in the product of real per capita income. However, Linder Hypothesis is not confirmed in lag model. In RE and FE the coefficient of $'\ln\left(SquarePGDPDiff_{ij}\right)_{t-1}'$ is insignificant (Though the sign is negative) which implies that Linder hypothesis is not confirmed[6]. FE and RE estimates confirm that $'ln\left(S_iS_j/Y_iY_j\right)_{t-1}'$ has positive impact on bilateral trade. In other words, it can be concluded that the bilateral trade depends on the past value of services trade openness.

The study has also conducted Breusch Pagan Lagrange Multiplier Test to find out whether classical linear regression model with a single constant term is appropriate for these data or not. The result of the test is given in Table 4.9. Table 4.9 reveals the value

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[6] In OLS the coefficient of $\ln\left(SquarePGDPDiff_{ij}\right)_{t-1}$ is significantly negative which supports Linder Hypothesis

of the Lagrange multiplier test statistic is 10135.33, which far exceeds the critical value

of chi square. Thus the study concludes that the classical regression model with a single

constant term is not suitable for these data.

Table 4.8 Results of Gravity Model 3

Dependent Variable: LN(Bilateral trade in goods between country 'i' and 'j')			
Coefficients	**Pooled OLS**	**FE**	**RE**
C	13.13[***] (25.37)	7.29[***] (14.85)	7.83[***] (15.87)
$\ln(PGDP_i PGDP_j)_{t-1}$	0.44[***] (20.85)	0.85[***] (36.75)	0.82[***] (37.02)
$\ln\left(SquarePGDPDiff_{ij}\right)_{t-1}$	-0.03[**] (-2.29)	-0.01 (-1.26)	-0.01 (-1.13)
$\ln(S_i S_j / Y_i Y_j)_{t-1}$	-0.38[***] (-8.55)	0.19[***] (6.25)	0.18[***] (6.27)
R^2	0.214	0.99	0.507
Adjusted R^2	0.213	0.99	0.506
F Statistic	160.37	1225.754	604.12
Prob F Statistics	0.00	0.00	0.00
N	1768	1768	1768

t statistics in parentheses

*** Significant at 1%, ** significant at 5%, *significant at 10%

Table 4.9 *Breusch Pagan Lagrangian Multiplier Test for Random Effects Results*

(Gravity Model 3)

Lagrange Multiplier Test Statistic (LM)	10135.33
Prob > chi − squared (1)	0.00

Table 4.10 gives the summary of Hausman Test. Hausman test result concludes that the hypothesis that the individual effects are uncorrelated with the other regressors in the model cannot be accepted. Thus FE model is consistent.

Table 4.10 *Hausman Test Results (Gravity Model 3)*

Correlated Random Effects - Hausman Test			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	44.48	3	0.00

4.4.4 Results and Discussion of Gravity Model 4

Table 4.11 represents the summary of the results. Econometric investigation reveals that, in general, the results are on the expected line. The results of the empirical analysis reveal that $'ln(S_i S_j / Y_i Y_j)_{t-1}'$ has positive impact on bilateral trade in goods. $'(CB_{ij})'$ is insignificant in RE estimate[7]. RE estimates also shows that past value of services trade openness has positive impact on bilateral trade. RE doesn't confirm the Linder Hypothesis. However, the coefficient of language dummy is significant and positive for both the estimates. Moreover, the study reveals that bilateral trade decreases with the increases in physical distance between two countries. The '$(BLOC_{ij})$' dummy has negative coefficient in RE estimate. This implies that inter bloc trade is higher compared to intra bloc trade.

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[7] The coefficient of common border is significantly positive in OLS.

Table 4.11 Results of Gravity Model 4

Dependent Variable: LN(Bilateral trade in goods between country 'i' and 'j')		
Coefficients	Pooled OLS	RE
C	20.49*** (36.04)	16.64*** (9.23)
$\ln(PGDP_i PGDP_j)_{t-1}$	0.40*** (20.88)	0.81*** (36.92)
$\ln\left(SquarePGDPDiff_{ij}\right)_{t-1}$	0.06*** (5.05)	-0.01 (-0.91)
$\ln(S_i S_j / Y_i Y_j)_{t-1}$	- 0.57*** (-14.69)	0.173*** (5.99)
(CB_{ij})	0.46*** (2.56)	0.40 (0.62)
$(Lang_{ij})$	0.48*** (4.55)	0..70* (1.85)
$\ln(Distance_{ij})$	-1.06*** (-18.35)	- 0.99*** (-5.01)
'$(BLOC_{ij})$'	-0.16 (-1.31)	-0.94** (-2.29)
R^2	0.452	0.508
Adjusted R^2	0.45	0.506
F Statistic	207.19	259.28
Prob F Statistics	0.00	0.00
N	1768	1768

t statistics in parentheses

*** Significant at 1%, ** significant at 5%, *significant at 10%

The present study has attempted to find out whether classical linear regression model with a single constant term is appropriate for these data or not by using Breusch Pagan Lagrange Multiplier Test. The result of the test is given in Table 4.12 reveals the value

of the Lagrange multiplier test statistic is 9797.61 which far exceeds the critical value of chi square. Thus the study concludes that the classical regression model with a single constant term is unfit for these data.

Table 4.12 *Breusch Pagan Lagrangian Multiplier Test for Random Effects Results*

Lagrange Multiplier Test Statistic (LM)	9797.61
Prob > chi − squared (1)	0.00

The summary of all models[8] are given in the Table 4.13.

Table 4.13: Summary of Results of Gravity Model 1 - 4

Dependent Variable: LN(Bilateral trade in goods between country '*i*' and '*j*')												
Variables	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
	OLS	FE	RE	OLS	RE	FE	OLS	FE	RE	OLS	FE	RE
C	+ve,*	+ve*	+ve,*	+ve,*	+ve,*		+ve,*	+ve,*	+ve,*	+ve,*		+ve,*
$\ln(PGDP_i PGDP_j)$	+ve,*	+ve,*	+ve,*	+ve,*	+ve,*							
$\ln\left(\dfrac{Square}{PGDPDiff_{ij}}\right)$	-ve,*	-ve,*	-ve,*	+ve,*	-ve,*							
$\ln(S_iS_j/Y_iY_j)$	-ve,*	+ve,*	+ve,*	-ve,*	+ve,*							
(CB_{ij})				+ve,*	+ve					+ve,*		+ve,
$(Lang_{ij})$				+ve,*	+ve,*					+ve,*		+ve,*
$LN(Distance_{ij})$				-ve,*	-ve,*					-ve,*		-ve,*
'$(BLOC_{ij})$'				-ve	-ve,*					-ve,		-ve,*
$\ln\left(\dfrac{PGDP_i}{PGDP_j}\right)_{t-1}$							+ve,*	+ve,*	+ve,*	+ve,*		+ve,*
$\ln\left(\dfrac{Square}{PGDPDiff_{ij}}\right)_{t-1}$							-ve,*	-ve	-ve	+ve,*		-ve
$\ln(S_iS_j/Y_iY_j)_{t-1}$							-ve,*	+ve,*	+ve,*	-ve,*		+ve,*

*Indicates significant.

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[8] Four gravity specifications in this study

4.5 Chapter Summary

The present study has empirically investigated the impact of liberalizing services trade on the bilateral trade in goods considering seventeen countries. In this chapter total numbers of four gravity specifications have been estimated.

In standard gravity model physical distance is considered as one of the impediments of trade in goods. However, along with physical distance economic distance between two countries may also restrict bilateral trade flows. Hence, instead of considering physical distance the study has considered economic distance in Gravity Model 1 and 3. If bilateral trade increases with the increase in the economic distance then it supports Hecksher Ohlin Theorem. However, if bilateral trade decreases with the increase in economic distance then the result supports Linder hypothesis.

Interestingly, the present study has specified gravity model on the basis of lag independent variables to measure the impact of past values of the independent variable on the current value of bilateral trade. This is also rare in the existing literature.

Regional trade bloc can also have some role to play in determining bilateral trade flows. However, it is also possible that countries within same trade bloc are similar in nature i.e. they may produce similar kind of goods and even they have demand for similar kind of goods. Under these circumstances it is quite possible that bilateral trade within same trade bloc is lower. However, there are very few studies which deal with this issue. In this chapter the study has attempted to fill this lacuna.

This chapter has estimated four gravity specifications in this chapter and the results of the econometric analyses are quite interesting. The empirical analyses reveal that product of per capita real GDP is significant and positive for all models and for all the

estimates. This result is in accordance with the existing literature. Per capita GDP is viewed as purchasing power of a country. It is expected that if product of per capita real GDP between two countries increases then bilateral trade flows also increases. Econometric analyses reveal exactly same result in all the specification of gravity model.

Economic distance is one of the important variables in this study. The results of the analyses reveal that the coefficient of economic distance is negative and significant for almost all the estimate. The result is quite encouraging because according to Linder hypothesis as economic distance increases bilateral trade decreases. The empirical investigation supports this hypothesis and contradicts Hecksher Ohlin theory. The only case where the study has found that the coefficient of economic distance is significantly positive is OLS estimate of Model 2. However, the analysis of present research is based on the panel data and in case of panel data OLS estimate is inappropriate. Thus it can be concluded that economic distance and bilateral trade are inversely related with each other for the sample and sample period. Based on the RE and FE estimates the study find that the lag value of economic distance has no significant impact on the bilateral trade flows.

One of the focuses of this chapter was to find out the impact of liberalizing services trade on the bilateral trade in goods. The present study has incorporated $S_i S_j / Y_i Y_j$ as a measure of services trade liberalization. The results show that the coefficient of $S_i S_j / Y_i Y_j$ is positive and significant for RE and FE estimates of all the model specifications. The implication of this result is quite intriguing. This result confirms that service trade liberalization is very important for the bilateral trade in goods. Bilateral trade flow increases with the liberalizing trade in services. Empirical analyses reveal

that $'ln(S_iS_j/Y_iY_j)_{t-1}'$ has also positive impact on bilateral trade flows. Thus the importance of liberalizing service trade on bilateral trade in goods is enormous.

In this chapter, beside continuous variables the study has also considered time invariant variable, like distance. Trade in goods depends on the physical distance because with the increase in physical distance the transportation cost also increases. It is expected that bilateral trade in goods decreases with the increase in the physical distance between two countries. Empirical analyses also confirm this. The study concludes that physical distance is one of the impediments for merchandise trade.

The present study has also considered dummy variables for common border, common language and common bloc. These are important in this analysis. The econometric analyses confirm that countries sharing common language trade more. This finding is in accordance with the existing literature.

The present study finds mixed results related to common border. In RE estimates it is insignificant; however in OLS it is positive and significant. This implies that countries sharing common border generally trade more. However, OLS estimate in panel data is inappropriate. Thus, the present study has failed to accept the hypothesis that countries sharing common border generally trade more. This is quite interesting finding and contradicts with many studies. However, this finding is not unrealistic. The reason is that countries sharing common border are likely to produce similar kind of product and also their demand could be similar. The cultural differences may also be low. Thus it is possible that they trade less.

The present study has considered bloc dummy and it finds that bilateral trade is lower if both the countries are from the same bloc. Possible explanation behind this is

insignificant cultural differences, low on product diversification index etc. Hence, the study concludes that the trade within bloc is lower than the inter bloc.

CHAPTER V

THE IMPACT OF LIBERALIZING GOODS TRADE ON

TRADE IN SERVICES

CHAPTER V

THE IMPACT OF LIBERALIZING GOODS TRADE ON

TRADE IN SERVICES

5.1 Introduction

There are few interesting traits that distinguish trade in services from merchandise trade. For example, the consumption and production of services have to be at the same point of time. However, in case of merchandise trade the production and consumption of goods may take place at different time periods. This important trait makes the study on services trade more interesting. Lee and Lloyd (2002) in their study mentioned that theory of trade should cover both merchandise and services trade[1]. However, it is found that most of the empirical studies on international trade have only concentrated on the merchandise trade (especially the studies related to the liberalization and trade flows). One of the reasons for this is that the lack of availability of data on services trade. Against this background the aim of the study is to examine the role of trade liberalization (goods trade liberalization) on the trade in services for the selected countries In general, trade liberalization can be measured by trade openness[2]. In trade openness, both merchandise and services trade are included. However, it is interesting to study the impact of goods trade openness (Goods trade liberalization) on the trade in services. Thus the present study focuses on the role of goods trade liberalization on

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[1] The analysis of services trade flows and its effects on allocation of resources and the welfare follows the similar methodology.

[2] Trade openness is share of total trade in GDP.

trade in services. The present study has considered seventeen countries from different trade blocs[3].

The analytical background of the study is presented in section 5.2. In section 5.3, the discussion on SAFTA, ASEAN, EU and NAFTA trade blocs is presented. Section 5.4 represents methodology and data sources. Section 5.5 is on the results and finally section 5.6 provides chapter summary..

5.2. Analytical Background: Goods Trade Liberalization and Trade in Services

The present study has tried to find out the impact of goods trade liberalization on per capita services trade. There are few studies which tried to investigate the determinants of trade in services. Grunfeld and Moxnes (2003) in their work have estimated the determinants of trade in services using OECD data set. Kimura (2003) also uses the OECD data set to estimate the overall services trade flows between Japan and Korea.

Most of the empirical works related to the bilateral trade in services are based on the OECD data set. The reason behind this is lack of data for bilateral trade in services. However, there are very few studies which dealt with the estimation of trade in services for non OECD countries. The present study has investigated the impact of liberalizing goods trade on trade in services for a large set of countries taken from different blocs. Moreover, the study has also tried to find out whether the impact of goods trade liberalization is same for different trade blocs or not. There are very few research works which have incorporated the impact of trade blocs on the trade in services. The present study has tried to fill this lacuna in the existing literature.

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[3] Seventeen countries are from SAFTA, ASEAN, NAFTA and EU.

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5.3 A Brief Discussion on ASEAN, EU, NAFTA and SAFTA

In last few decades almost all countries have tried to enhance trade and economic cooperation. To promote trade and economic cooperation countries have entered in various negotiations and agreements which have resulted in the creation of trade blocs.

The primary objective of the trade bloc is to work for the promotion of trade between the member countries by reducing existing trade barriers. This section discusses about the four major trade blocs: the European Union (EU), the North American Free Trade Agreement (NAFTA), the Association of Southeast Asian Nations (ASEAN), and the South Asian Free Trade Area (SAFTA).

5.3.1. The European Union (EU)

The EU is an economic and political union between twenty eight countries which was created after the World War II. The primary objective was to promote trade with another member country so that member countries become economically interdependent which is expected to reduce conflict. As a result, European Economic Community (EEC) was created in the year of 1958 to promote economic cooperation between six countries; Belgium, Germany, France, Italy, Luxembourg and the Netherlands. The EU was formally established in the year of 1993 when Maastricht Treaty came into force. Austria, Finland and Sweden joined the EU in the year of 2002. The EU has worked towards delivering peace, stability and well-being and also launched a single currency (Euro). Moreover, EU has worked as an economic engine for its member countries through raising trade in goods and services and transfer of knowledge.

5.3.2 The South Asian Free Trade Area (SAFTA)

SAFTA is motivated by the commitment to reinforce the economic cooperation to maximize the well-being of the member countries. SAARC Preferential Trading Arrangement (SAPTA) of 1993 has offered the opportunity of implementation of various process of trade liberalization on preferential basis. On the basis of preferential trade agreements SAARC member countries are supposed to work together towards the development of the region and also to strengthen the national and economic resilience. Countries are also supposed to work for the development of the region through expansion of investment, increased production opportunities and greater trade. The SAFTA countries have also recognised the fact that there is an urgent need of removal of trade restrictions by bringing more FTAs for better economic cooperation and higher level of trade.

5.3.3 The North American Free Trade Area (NAFTA)

The NAFTA came into effect on January, 1994. It is the largest free trade region of the world and working towards the attainment of higher economic growth and also aiming towards the raising standard of living for the member states (USA, Mexico and Canada). NAFTA has already proved to establish a solid foundation for building Canada's prosperity through the agreements governing trade and investment. Canada's prosperity has already set an example of the benefits of trade liberalization. Under NAFTA member countries have consented towards the reduction of trade barriers among the three countries.

5.3.4 Association of Southeast Asian Nations (ASEAN)

The ASEAN[4] was formed in the year of 1967 with the aim of promoting political and economic cooperation and regional stability. The three pillars of ASEAN community are (a) Political security community (b) Economic community and (c) Socio – Cultural Community. The main objectives of ASEAN countries are;

i.   Promotion of economic, social, political and cultural development

ii. To promote the economic growth through better cooperation and enhancing trade among the member countries by reducing the intra – regional differences and the trade barriers.

The major contributions of ASEAN are industrial development, enhancement in investment, increasing the trade volume.

5.4 Empirical Method and Data

The present study has dealt with the estimation of the effect of goods trade liberalization on services trade. The study has adopted the log log model for the estimation purpose. Log – Log model is nothing but taking the logarithmic transformation of both sides of the equation. The present study has adopted natural log transformation. In log-log model the estimated coefficients of an independent variable is basically elasticity with respect to that variable.

The study has estimated the impact of goods trade liberalization on the trade in services for 17 countries. The countries have been selected from different trade blocs. Goods trade liberalization has been measured by goods trade openness. Goods trade openness

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[4] The member countries are Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei Darussalam, Vietnam, Laos and Myanmar.

is defined as share of total merchandise trade on GDP. With the increase in the share of merchandise trade in GDP it is expected that services trade will also increase. The reason is as the goods trade increases it requires more services (e.g. insurance, transportation, telecommunication etc.). Per capita GDP is also an important determinant of trade. It is expected that trade increases with the increase in per capita GDP. One of the objectives of the creation of trade blocs is to promote economic cooperation and trade. However, it is worth studying whether this objective is met or not since the impact of liberalizing goods trade on services trade may vary across different trade blocs. The possible reasons behind this are the implementation of the agreements and the conflicts among the member countries. Thus it will be interesting to find out whether this impact is different or not. For this reason the study has incorporated dummy variables for ASEAN, SAFTA, NAFTA and EU. China and Australia are the only countries which do not belong to any of these blocs.

The following models have been estimated.

Model 1: This model has incorporated 'Per capita GDP' and 'Goods trade openness' as independent variables. The dependent variable is 'Per capita services trade'. Model 1 of the study has not included any dummy variable[5]. The model is estimated by using Ordinary Least Square (OLS), Fixed Effects (FE) and Random Effects (RE).

$$\ln(PCST)_{it} = \beta_0 + \beta_1 \ln(PGDP)_{it} + \beta_2 \ln(OPNGOOD)_{it} + u_i + \varepsilon_{it}$$

(5.1)

where, i and j denotes countries and t denotes time and the variables are defined as follows:

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[5] The reason for not incorporating dummy variables is that we the study attempts to estimate this model1 by using OLS, FE and RE.

PCST: Per capita services trade in US$

PGDP: Real per capita GDP (Constant 2005 US$)

OPNGOOD: Goods trade openness

Model 2

$$\ln(PCST)_{it} = \beta_0 + \beta_1 \ln(PGDP)_{it} + \beta_2 ln(OPNGOOD)_{it} + \beta_3(ASEAN)_{it} + \beta_4(SAFTA)_{it} + \beta_5(EU)_{it} + \beta_6(NAFTA)_{it} + u_i + \varepsilon_{it}$$

$$(5.2)$$

Model 2 is similar to model 1 except the fact that in model 2 the dummies for the trade blocs have been incorporated.

ASEAN $= 1$ if Country '*i*' is from ASEAN bloc

$\qquad = 0$ Otherwise

SAFTA $= 1$ if Country '*i*' is from SAFTA bloc

$\qquad = 0$ Otherwise

EU $= 1$ if Country '*i*' is from EU bloc

$\qquad = 0$ Otherwise

NAFTA $= 1$ if Country '*i*' is from NAFTA bloc

$\qquad = 0$ Otherwise

The study has employed OLS, and random effects model to estimate Model 2.

Present study has attempted to find out the impact of PGDP and OPNGOOD on the PCST. Model 1 and Model 2 have been employed for this purpose. However, it will be interesting to investigate the lag impact of these variables on PCST. Model 3 and

Model 4 have been employed to investigate the lag impacts of PGDP and OPNGOOD on PCST.

Model 3

$$\ln(PCST)_{it} = \beta_0 + \beta_1 \ln(PGDP)_{i,t-1} + \beta_2 \ln(OPNGOOD)_{i,t-1} + u_i + \varepsilon_{it}$$

$$(5.3)$$

In this model the study has incorporated lag of 'Per capita GDP' and lag of 'Goods trade openness' as independent variables. The dependent variable is 'Per capita services trade'. However, trade bloc dummies have not been incorporated. The model is estimated by using OLS, FE and RE.

Model 4

$$\ln(PCST)_{it} = \beta_0 + \beta_1 \ln(PGDP)_{i,t-1} + \beta_2 \ln(OPNGOOD)_{i,t-1} +$$

$$\beta_3(ASEAN)_{it} + \beta_4(SAFTA)_{it} + \beta_5(EU)_{it} + \beta_6(NAFTA)_{it} + u_i + \varepsilon_{it}$$

$$(5.4)$$

In addition to all the variables in model 3 the study has incorporated dummies for the trade blocs in model 4. The model has been estimated by applying OLS and RE model. The methods of estimation of all the models (Model 1 - Model4) are summarised in the Table 5.1.

The models are estimated on a panel of seventeen countries using annual data over the period 2000 - 2013.

Table 5.1: Methods of Model Estimation

Model	Ordinary Least Square (OLS)	Fixed Effects (FE)	Random Effects (RE)
Model 1	Yes	Yes	Yes
Model 2	Yes	NA	Yes
Model 3	Yes	Yes	Yes
Model 4	Yes	NA	Yes

The data on 'PGDP' has been collected from World Development Indicators (WDI) of the World Bank (WB). The data on 'Share of services trade on GDP' and 'Trade Openness' are collected from WDI database. Using 'PGDP' and 'Share of services trade on GDP' the data on 'PCST' has been calculated. Moreover, 'OPNGOOD' is calculated by using 'Trade Openness' data and ''Share of services trade on GDP'.

5.5 Results and Discussion

Table 5.2 to 5.7 show the preliminary data analysis of the study. The observations of these preliminary data analysis reveal the following facts;

1. The mean of PGDP is highest in the sample of EU countries followed by NAFTA.

2. The mean of PGDP is lowest in the sample of SAFTA countries.

3. The variation in PGDP is highest in the sample of ASEAN bloc countries[6].

4. PCST average is highest in the sample of EU countries

5. Average of OPNGOOD is highest in the sample of ASEAN countries followed by the sample of EU region. It implies that Goods trade openness index is highest for ASEAN sample.

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[6] It is highest for China and Australia. However, China and Australia are not part of common trade bloc.

Table 5.2: Preliminary Data Analysis (SAFTA Region)

LNPCST		LNOPNGOOD		LNPGDP	
Mean	9.495651	Mean	3.674426	Mean	6.965568
Standard Error	0.095019	Standard Error	0.073022	Standard Error	0.066025
Median	9.698176	Median	3.694418	Median	6.990666
Standard Deviation	0.502795	Standard Deviation	0.386398	Standard Deviation	0.349372
Sample Variance	0.252802	Sample Variance	0.149304	Sample Variance	0.122061
Range	1.725184	Range	1.415993	Range	1.243078
Minimum	8.397092	Minimum	2.878864	Minimum	6.35995
Maximum	10.12228	Maximum	4.294857	Maximum	7.603028
N	28	N	28	N	28

Table 5.3: Preliminary Data Analysis (ASEAN Region)

LNPCST		LNOPNGOOD		LNPGDP	
Mean	11.86955	Mean	4.936659	Mean	8.512852
Standard Error	0.252768	Standard Error	0.073766	Standard Error	0.159277
Median	11.65829	Median	4.829481	Median	8.307803
Standard Deviation	1.891539	Standard Deviation	0.552011	Standard Deviation	1.191921
Sample Variance	3.577921	Sample Variance	0.304716	Sample Variance	1.420675
Range	5.664091	Range	1.99412	Range	3.549366
Minimum	9.331494	Minimum	3.839821	Minimum	6.966543
Maximum	14.99558	Maximum	5.833941	Maximum	10.51591
N	56	N	56	N	56

Table 5.2: Preliminary Data Analysis (SAFTA Region)

LNPCST		LNOPNGOOD		LNPGDP	
Mean	9.495651	Mean	3.674426	Mean	6.965568
Standard Error	0.095019	Standard Error	0.073022	Standard Error	0.066025
Median	9.698176	Median	3.694418	Median	6.990666
Standard Deviation	0.502795	Standard Deviation	0.386398	Standard Deviation	0.349372
Sample Variance	0.252802	Sample Variance	0.149304	Sample Variance	0.122061
Range	1.725184	Range	1.415993	Range	1.243078
Minimum	8.397092	Minimum	2.878864	Minimum	6.35995
Maximum	10.12228	Maximum	4.294857	Maximum	7.603028
N	28	N	28	N	28

Table 5.3: Preliminary Data Analysis (ASEAN Region)

LNPCST		LNOPNGOOD		LNPGDP	
Mean	11.86955	Mean	4.936659	Mean	8.512852
Standard Error	0.252768	Standard Error	0.073766	Standard Error	0.159277
Median	11.65829	Median	4.829481	Median	8.307803
Standard Deviation	1.891539	Standard Deviation	0.552011	Standard Deviation	1.191921
Sample Variance	3.577921	Sample Variance	0.304716	Sample Variance	1.420675
Range	5.664091	Range	1.99412	Range	3.549366
Minimum	9.331494	Minimum	3.839821	Minimum	6.966543
Maximum	14.99558	Maximum	5.833941	Maximum	10.51591
N	56	N	56	N	56

Table 5.4: Preliminary Data Analysis (NAFTA Region)

LNPCST		LNOPNGOOD		LNPGDP	
Mean	11.88125	Mean	3.678571	Mean	10.05007
Standard Error	0.168288	Standard Error	0.073702	Standard Error	0.118786
Median	12.45202	Median	3.915103	Median	10.49812
Standard Deviation	1.090634	Standard Deviation	0.477644	Standard Deviation	0.769824
Sample Variance	1.189482	Sample Variance	0.228144	Sample Variance	0.592629
Range	2.566627	Range	1.411014	Range	1.814342
Minimum	10.30513	Minimum	2.862436	Minimum	8.915736
Maximum	12.87175	Maximum	4.27345	Maximum	10.73008
N	42	N	42	N	42

Table 5.5: Preliminary Data Analysis (EU Region)

LNPCST		LNOPNGOOD		LNPGDP	
Mean	13.12964	Mean	3.860887	Mean	10.43603
Standard Error	0.041319	Standard Error	0.026381	Standard Error	0.016239
Median	13.03077	Median	3.76541	Median	10.4725
Standard Deviation	0.378699	Standard Deviation	0.241784	Standard Deviation	0.14883
Sample Variance	0.143413	Sample Variance	0.05846	Sample Variance	0.02215
Range	1.33242	Range	0.917964	Range	0.535686
Minimum	12.56993	Minimum	3.463651	Minimum	10.09939
Maximum	13.90235	Maximum	4.381616	Maximum	10.63507
N	84	N	84	N	84

Table 5.6: Preliminary Data Analysis of Australia and China

LNPCST		LNOPNGOOD		LNPGDP	
Mean	11.01561	Mean	3.693003	Mean	9.030593
Standard Error	0.301369	Standard Error	0.045459	Standard Error	0.27756
Median	11.22577	Median	3.614992	Median	9.260579
Standard Deviation	1.594695	Standard Deviation	0.240546	Standard Deviation	1.468712
Sample Variance	2.543051	Sample Variance	0.057862	Sample Variance	2.157115
Range	3.945035	Range	0.791627	Range	3.508702
Minimum	8.73608	Minimum	3.345895	Minimum	7.023099
Maximum	12.68112	Maximum	4.137523	Maximum	10.5318
N	28	N	28	N	28

Table 5.7: Preliminary Data Analysis (Seventeen Countries)

LNPCST		LNOPNGOOD		LNPGDP	
Mean	11.93661	Mean	4.040149	Mean	9.341773
Standard Error	0.106807	Standard Error	0.041443	Standard Error	0.092895
Median	12.57092	Median	3.899948	Median	10.30898
Standard Deviation	1.647741	Standard Deviation	0.639348	Standard Deviation	1.433109
Sample Variance	2.715051	Sample Variance	0.408766	Sample Variance	2.053802
Range	6.598492	Range	2.971505	Range	4.370128
Minimum	8.397092	Minimum	2.862436	Minimum	6.35995
Maximum	14.99558	Maximum	5.833941	Maximum	10.73008
N	238	N	238	N	238

Table 5.8 represents the OLS, FE and RE estimates of model 1. Model 1 has not incorporated the bloc dummies. The study finds that OLS model fits the data well and it explains 94% of the total variation in per capita trade in services. It is expected that the goods trade liberalization process will have a positive impact on the trade in services and the results reveal that it is positive and highly significant. The study reveals that the coefficient of per capita GDP is also significantly positive. Qualitatively similar kind of results is found in other estimates viz. FE and RE. The study also finds that the coefficient of PGDP is almost similar for all the estimates. Moreover, the study finds that the coefficient of goods trade openness is almost similar for RE and FE estimate. Since the study has considered log on both the sides of equations, it can be inferred that these coefficients of the regression equations are elasticities. Moreover, trade in

Table 5.8: Results of Model 1

Dependent Variable: LN(PCST) of Country 'i'			
Coefficients	**Pooled OLS**	**FE**	**RE**
C	-1.642190*** (-6.48)	-0.575441 (-1.17)	-0.453510 (-1.04)
$ln(OPNGOOD)$	0.865642*** (20.78)	0.420521*** (8.21)	0.46*** (9.49)
$ln(PGDP)$	1.079182*** (58.06)	1.157498** (23.48)	1.125803*** (27.59)
R^2	0.939	0.996	0.547
Adjusted R^2	0.939	0.996	0.546
F Statistic	1810.08	3152.88	426.14
Prob F Statistics	0.00	0.00	0.00
N	238	238	238

t statistics in parentheses

*** Significant at 1%, ** significant at 5%, *significant at 10%

services increases with the increase in per capita GDP.

Table 5.9 is the representation of Breusch Pagan Lagrangian Multiplier Test. From the summary of the test it can be concluded that RE is more consistent than Pooled OLS.

Table 5.9: *Breusch Pagan Lagrangian Multiplier Test for Random Effects (Model 1)*

Lagrange Multiplier Test Statistic (LM)	1276.461
Prob > chi − squared (1)	0.00

However, it is best to reserve the judgement on whether RE or FE is more consistent with these data. Random effects model assume that individual effects are uncorrelated with the other regressors. To test this hypothesis the study has applied Hausman's specification test for random effects model. The result of the Hausman Test is given in Table 5.10.

Table 5.10: *Hausman Test (Model 1)*

Correlated Random Effects - Hausman Test			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.20	2	0.02

Hausman test concludes that the hypothesis that the individual effects are uncorrelated with the other regressors in the model cannot be accepted. Thus FE model is consistent.

Table 5.11 represents the OLS and RE estimates of model 2. Model 2 has incorporated bloc dummies (ASEAN, SAFTA, EU and NAFTA). The study finds that both the estimates (OLS and RE) explain substantial portion of the total variation in the PCST. OLS estimate explains 98% of the total variation of the PCST whereas RE estimate

explains 86% of the total variation. All the estimates show that liberalizing goods trade has positive impact on the PCST. In other words, as the Goods trade openness (OPNGOOD) increases PCST also increases. Moreover, increase in PGDP also increases PCST.

This model has incorporated bloc dummies and the study reveals interesting results. In OLS estimates all the dummies are significant. The study finds that in OLS the coefficients of ASEAN, SAFTA and EU dummies are positive whereas the coefficient of NAFTA is negative. RE estimates also reveals qualitatively similar results. Coefficients of ASEAN, SAFTA and EU are significantly positive whereas, the coefficient of NAFTA is insignificant. The results are quite interesting and quite realistic. The ASEAN and SAFTA regions are considered to be the restrictive trade blocs. Thus there are greater scopes for these trade blocs. If, ASEAN, SAFTA and EU countries open up their trade in goods it will automatically enhance the trade in services. Moreover, the base in services trade is also very low for ASEAN and SAFTA trade blocs. Therefore, the dummies are significant and positive for these three trade blocs. From the empirical analysis it can be inferred that EU also benefited from the liberalizing goods trade[7], since the dummy for EU is significantly positive.

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[7] Benefited in terms of increase in PCST through the increase in OPNGOOD

Table 5.11: Results of Model 2

Dependent Variable: LN(PCST) of Country 'i'		
Coefficients	Pooled OLS	RE
C	-2.767344*** (-15.60))	-1.539252*** (-3.66)
$ln(OPNGOOD)$	0.567992*** (15.60)	0.439602*** (9.02)
$ln(PGDP)$	1.293975*** (75.67)	1.210487** (30.10)
ASEAN	0.817500*** (11.87)	0.933949*** (4.40)
SAFTA	1.162682*** (17.52)	0.987892*** (4.0)
EU	0.200068*** (3.89)	0.338960* (1.71)
NAFTA	-0.445342*** (-8.20	-0.362081* (-1.67)
R^2	0.984	0.863
Adjusted R^2	0.984	0.859
F Statistic	2377.242	242.577
Prob F Statistics	0.00	0.00
N	238	238

t statistics in parentheses

*** Significant at 1%, ** significant at 5%, *significant at 10%

Table 5.12 is the representation of Breusch Pagan Lagrangian Multiplier Test.

Summary of the test concludes that RE is more consistent than Pooled OLS.

Table 5.12: *Breusch Pagan Lagrangian Multiplier Test for Random Effects (Model 2)*

Lagrange Multiplier Test Statistic (LM)	801.65
Prob > chi − squared (1)	0.00

The present study has also investigated the lag impact of independent variables on PCST. In Model 3 and Model 4 the study has considered the lag of the variables LNPGDP and LNOPNGOOD as independent variables. Model 3 hasn't incorporated any dummy variables; however, in model 4 dummy variables for trade blocs have been incorporated.

Table 5.13 represents the OLS, FE and RE estimates of model 3. Model 3 hasn't considered the bloc dummies. The results reveal that OLS model fits the data well and it explains 94% of the total variation in per capita trade in services. It is expected that the lag of goods trade liberalization process will have a positive impact on the trade in services and the study finds the same. The study also reveals that the coefficient of lag of per capita GDP is also significantly positive. Qualitatively similar results are found in other estimates viz. FE and RE. Empirical analysis reveals that the coefficient pertaining to lag of PGDP is almost similar for all the estimates. Since the study has considered log on both the sides of equations, it can be inferred that these coefficients of the regression equations are elasticities. Empirical investigation reveals that goods trade liberalization has significant and positive impact on the trade in services. Moreover, trade in services increases with the increase in per capita GDP.

Table 5.13: Results of Model 3

Dependent Variable: LN(PCST) of Country 'i'			
Coefficients	Pooled OLS	FE	RE
C	-1.47*** (-5.47)	0.25 (0.45)	0.24 (0.52)
$\ln(OPNGOOD)_{t-1}$	0.86*** (19.51)	0.36*** (6.39)	0.41*** (7.79)
$\ln(PGDP)_{t-1}$	1.07*** (54.32)	1.1*** (19.49)	1.07*** (24.05)
R^2	0.935	0.996	0.750
Adjusted R^2	0.935	0.996	0.748
F Statistic	1580.89	2753.395	327.18
Prob F Statistics	0.00	0.00	0.00
N	221	221	221

t statistics in parentheses

*** Significant at 1%, ** significant at 5%, *significant at 10%

Table 5.14 is the representation of Breusch Pagan Lagrangian Multiplier Test.

Summary of the test concludes that RE is more consistent than Pooled OLS.

Table 5.14: *Breusch Pagan Lagrangian Multiplier Test for Random Effects (Model 3)*

Lagrange Multiplier Test Statistic (LM)	1090.56
Prob > chi − squared (1)	0.00

However, it is best to reserve the judgement on whether RE or FE is more consistent with these data. Random effects model assume that individual effects are uncorrelated with the other regressors. To test this hypothesis the study has applied Hausman's

specification test for random effects model. The result of the Hausman Test is given in Table 5.15;

Table 5.15: *Hausman Test (Model 3)*

Correlated Random Effects - Hausman Test			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.7	2	0.01

Hausman test concludes that the hypothesis that the individual effects are uncorrelated with the other regressors in the model cannot be accepted. Thus, FE model is consistent.

Table 5.16 represents the OLS and RE estimates of model 4. Model 4 has incorporated bloc dummies (ASEAN, SAFTA, EU and NAFTA). The results reveal that both the estimates (Pooled OLS and RE) explain substantial portion of the total variation in the PCST. OLS estimate explains 98% of the total variation of the PCST whereas RE estimate explains 84% of the total variation. In all the estimates the study finds that lag of goods trade liberalization process has positive impact on the PCST. Moreover, the study finds that the coefficients are quite similar. The present study finds that increase in the lag value of PGDP $(PGDP)_{t-1}$ also increases PCST.

The present study has incorporated bloc dummies in this model. The results are interesting. In OLS estimates all the dummies are significant. It is found that in OLS the coefficient of ASEAN, SAFTA and EU dummies are positive whereas the coefficient of NAFTA is significantly negative. However, in RE estimates the study finds that though the coefficients of ASEAN, SAFTA and EU are positive and significant, the coefficient

of NAFTA is insignificant. The results are quite interesting and quite realistic. The results imply that countries from ASEAN, SAFTA and EU have benefited more compared to China and Australia from the liberalizing goods trade. However, NAFTA countries have not benefited much from liberalizing goods trade.

Table 5.16: Results of Model 4

Dependent Variable: LN(PCST) of Country 'i'		
Coefficients	Pooled OLS	RE
C	-2.61*** (-13.25)	-0.96** (-2.09)
$ln(OPNGOOD)_{t-1}$	0.57*** (14.07)	0.38*** (7.15)
$ln(PGDP)_{t-1}$	1.28*** (67.70)	1.18*** (26.10)
ASEAN	0.79*** (10.23)	0.97*** (4.21)
SAFTA	1.15*** (15.64)	0.93*** (3.47)
EU	0.18*** (3.07)	0.36* (1.68)
NAFTA	-0.48*** (-7.92)	-0.37 (-1.60)
R^2	0.982	0.841
Adjusted R^2	0.981	0.837
F Statistic	1899.652	189.04
Prob F Statistics	0.00	0.00
N	221	221

t statistics in parentheses

*** Significant at 1%, ** significant at 5%, *significant at 10%

Table 5.17 is the representation of Breusch Pagan Lagrangian Multiplier Test. Summary of the test concludes that RE is more consistent than Pooled OLS. Thus, results of RE is more consistent.

Table 5.17: *Breusch Pagan Lagrangian Multiplier Test for Random Effects (Model 4)*

Lagrange Multiplier Test Statistic (LM)	703.03
Prob > chi − squared (1)	0.00

5.6 Chapter Summary

The present study has empirically investigated the impact of liberalizing goods trade on the trade in services for seventeen countries. The countries are from different trade blocs. In this study the impact of trade blocs on the per capita trade in services has also been investigated. The findings of the study are interesting. The results of the study reveal that for all the models and for all the estimates goods trade liberalization has positive impact on the per capita services trade. The results of all the models are qualitatively similar. Moreover, the study finds that the impact of liberalization on per capita services trade is not same for all the blocs. There is a greater impact for the ASEAN and SAFTA region. Per capita GDP also has positive impact on PCST across all the models and all the estimates.

The present study has also considered the lag of PGDP and lag of Goods trade liberalization in the analyses. Lag models (one period lag) with and without the bloc dummy variables have been considered. The bloc dummy variable in the lag model is used to find out the impact of trade blocs on PCST. The results are quite interesting.

The study finds that Lag of goods trade liberalization and lag of LNPGDP have positive impact on PCST for all the lag models. It implies that the trade liberalization in previous period has positive impact on the PCST. Moreover, previous period PGDP has positive impact on the PCST.

Moreover, the present study finds that the impact of trade bloc is significantly negative on PCST for NAFTA bloc countries in OLS estimates. However, dummy variable for NAFTA is insignificant in RE estimates. This result is on the expected line since; the countries taken NAFTA area are already having higher PCST. On the contrary the services trade in countries taken from SAFTA and ASEAN are in the growing stage and hence the results show that dummy variables (SAFTA and ASEAN) are significantly positive. Similarly, the study finds countries from EU are also benefited (in terms of PCST) from liberalizing goods trade.

CHAPTER VI

SUMMARY, FINDINGS AND CONCLUSIONS

CHAPTER VI

SUMMARY, FINDINGS AND CONCLUSIONS

6.1 Background

It has been accepted that the international trade is one of the major factors in accelerating economic growth. International trade and economic integration has increased rapidly with the increase in world GDP since mid-eighties. Trade in goods and services are one of the major components of economic integration. Trade in goods and services enhances productivity, raises employment opportunities, provides improved quality and more varieties to the consumer.

As international trade in goods and services is critical to economic growth, the developing as well as developed countries are constantly working towards the liberalization of goods as well as services trade. There are theoretical and empirical researches which have discussed about the gains from trade liberalization. Trade liberalization stimulates economic growth through the transfer of technology; knowledge and technical know how about the products. Learning by doing is also one of the route through which trading partners benefit from each other. However, there are also studies which have discussed how trade liberalization has impacted poorer or developing countries negatively. Empirical evidence suggests that African countries haven't benefited much from the trade liberalization. There are various reasons behind these which include inefficient and lack of competitiveness of the domestic firms and industries, wrong timing of liberalization, etc. Thus, it is important to find out the impact of trade liberalization on economic growth.

Trade in some essential services are important for the trade in goods. Without the trade in services it is almost impossible to have goods trade. On the other hand, liberalization of trade in goods along with PGDP could also impact the flows of trade in services. There are studies which have dealt with the interlinkages between goods and services trade. However, there are very few studies which have explicitly dealt with the role of goods trade liberalization on trade in services. The study has tried to fill this lacuna in the existing literature through analysing the role of liberalizing goods trade on the trade in services.

The study has dealt with three major issues in the field of international economics. The first issue is related to the linkage between trade liberalization and economic growth. The study has investigated how liberalization has affected the economic growth for a large set of countries. The second important issue in the study was to investigate the inter-linkages between goods and services trade. The impact of service trade liberalization on bilateral trade in goods has also been examined in this research. The third important issue in the area of international economics is to find out the impact of goods trade liberalization on trade in services. The study has empirically examined this issue also.

6.2 Summary

The present study is organised in six chapters. Chapter I is the introductory chapter which states the background, research problem, objectives and relevance of the study. Moreover, in chapter I a brief discussion on methodology and limitations of the study are also presented. This chapter also present a discussion on liberalization and its measurement. The introductory chapter has also given the definitions and measurement

of goods trade liberalization, services trade liberalization and the trade liberalization in general.

Chapter II presents a detailed review of literature. Literature review is broadly focused on three sections. The first section focuses on research studies related to the liberalization and economic growth. The second section examines the literature related to the impact of services trade liberalization on bilateral trade in goods. This section is further subdivided in to two sub sections, namely, literature related to gravity model of trade, and literature related to the impact of liberalizing services trade on bilateral trade in goods. Finally, third section deals with the literature related to impact of liberalizing merchandise trade on services trade.

Chapter III, Chapter IV and Chapter V are the core chapters of the study. Chapter III deals with the empirical investigation of the impact of liberalizing trade on economic growth. Chapter III investigates the relationship between trade liberalization and growth. The present study has examined this relationship by applying quantile regression technique for a sample of 17 liberalizing countries for the period 2000-2013. To consider the importance of parameter heterogeneity in the liberalization and economic growth relationship, method of quantile regression has been applied which allows to identify a different response of growth to liberalization at different quantiles of the conditional distribution of growth. It is found that trade openness has significantly positive impact on economic growth for LMI countries (higher growth rate countries). Gross capital formation (investment) has positive impact on the economic growth for all the quantiles. However, growth in population has either insignificant or significantly negative impact in determining economic growth.

Chapter IV focuses on the empirical analysis of impact of liberalizing services trade on bilateral trade in goods. This chapter has empirically investigated the impact of liberalizing services trade on the bilateral trade in goods for the seventeen countries (136 country pairs). In chapter IV it is found that liberalizing services trade has positive impact on bilateral trade in goods. The study also reveals that bilateral trade decreases with the increase in physical distance and economic distance.

In this chapter four gravity specifications were estimated and the results are quite interesting. The results of the econometric analysis reveal that product of per capita real GDP is significant and positive for all models and for all the estimates. This result is in accordance with the existing literature. Per capita GDP is viewed as purchasing power of a country. It is expected that if product of per capita real GDP between two countries increases then bilateral trade flows also increases. The empirical analysis finds exactly same result in all the specification of gravity model.

Beside continuous variables the study has also considered time invariant variable like distance. The study concludes that physical distance is one of the impediments for merchandise trade.

Gravity models have also included dummy variables like common border, common language and common bloc. These are important in this analysis. Empirical investigation reveals that countries sharing common language trade more. This finding is in accordance with the existing literature.

Econometric analysis of the impact of liberalizing goods trade on the trade in services for seventeen countries has been conducted in Chapter V. The countries considered are from different trade blocs. The study has also investigated the impact of trade blocs on the per capita trade in services. The findings of the study are interesting. It reveals that

for all the models and for all the estimates goods trade liberalization has positive impact on the per capita services trade. The results of both the models are qualitatively similar. Moreover, the results reveal that the impact of liberalization on per capita services trade is not same for all the blocs, the impact are more in the ASEAN, SAFTA and EU region. The study also finds that the per capita GDP has positive impact on PCST across all the models and all the estimates.

6.3 Major Findings of the Study

The major findings of the studies are summarised below;

i. The study finds that the role of trade openness is significant in determining economic growth of the countries. Quantile regression estimates shows that trade openness has significant and positive impact on economic growth for LMI countries (having higher economic growth). The study found that the impact of liberalization is positive and significant for all LMI countries. However, trade openness is insignificant in raising the economic growth for UMI and HI countries (having lower economic growth). The study finds that the coefficient of trade openness is significantly positive after 0.4 quantiles for UMI countries. It implies that trade openness has proved to be beneficial for the higher growth rate countries. In general, lower or middle income group countries have higher economic growth. Thus it can be inferred that for lower and middle income group countries trade liberalization is one of the important determinants of economic growth. This result is also supported by the coefficients of dummy variables. The dummy variable coefficient for LMI is significant and positive for all quantiles.

ii. The impact of trade liberalization on economic growth is higher for LMI countries compared to HI countries. Hence, LMI countries have benefitted more from the trade liberalization. Impact of trade liberalization on economic growth for UMI countries is also higher than HI countries.

iii. Beside trade openness gross capital formation as percentage of GDP has positive impact on economic growth. OLS estimates reveal that the coefficients of GCF/GDP are significantly positive. Coefficient of GCF/GDP in quantile regression is also significantly positive for all the quantiles for LMI and UMI countries. The study supports that investment plays an important role along with trade openness, in determining economic growth.

iv. The major focus of this study was to find out the impact of liberalizing services trade on the bilateral trade in goods. The study has incorporated $S_i S_j / Y_i Y_j$ as a measure of services trade liberalization. The study finds that liberalizing services trade has positive role in determining bilateral trade in goods. It is found that the coefficient of $S_i S_j / Y_i Y_j$ is positive and significant for all the estimates. The implication of this result is quite intriguing. This result confirms that service trade liberalization is very important for the bilateral trade in goods. Bilateral trade flow increases with the liberalizing trade in services. For both the estimates FE and RE (without dummy variables) the coefficient of service trade openness is similar (0.19). Since the study has considered natural log transformation on both the sides it can be concluded that the elasticity of services trade openness is 0.19. This implies that 1% increase in share of services trade in GDP will lead to 0.19% increase in the bilateral trade in goods. The coefficient of services trade openness is 0.18 when the model has

considered dummy variables. Thus services trade openness elasticities are almost similar for all the models.

v.   The present study reveals that lag value of $S_i S_j / Y_i Y_j$ also has a positive impact on bilateral trade in goods. Lag of services trade liberalization has positive impact on bilateral trade in goods. The study finds that lag of services trade openness elasticities are 0.19 and 0.18 for FE and RE estimates respectively. Moreover, estimation of model with dummy variables also shows that lag of services trade openness elasticities is quite similar (0.17).

vi.   Other time variant determinants of bilateral trade are economic distance and product of GDPs. Economic distance has negative impact on bilateral trade in goods. In other words, bilateral trade decreases with the increase in economic distance. In fact the study finds that the economic distance elasticities are -0.01 for FE and RE estimates of the models (with and without dummy variables). If bilateral trade increases with the increase in the economic distance then it supports Hecksher Ohlin Theorem. However, if bilateral trade decreases with the increase in economic distance then the result supports Linder hypothesis. The present results supports Linder hypothesis. It is also found that the lag value of economic distance has no significant impact on the bilateral trade flows. On the other hand study finds that product of GDPs has positive impact on bilateral trade.

vii.   Though the positive role of liberalizing services trade on bilateral trade in goods cannot be denied, it is also found that some time invariant factors have impact on it. Bilateral trade in goods decreases with the increase in physical distance. Physical distance is a proxy for measuring transportation cost. Transportation cost varies directly with the physical distance. With the increase in physical

distance between two countries it is expected that transportation cost also increases. Hence, as the physical distance increases bilateral trade decreases because of the higher transportation cost.

viii. Bilateral trade increases if the country pair shares common language, i.e., If both the trading countries share common language. The coefficients of common language are 0.71 and 0.70 for models without lag and with lag respectively. Econometric analysis reveals that bilateral trade is lower if both the countries are from the same bloc. Bilateral trades between countries from common trade bloc are less compared to the countries from different trade bloc.

ix. The coefficient of the dummy variable 'Bloc' is ranging from -0.94 to -1.03 for various estimates. This is because of the fact that countries within same bloc may produce similar kind of product and hence product diversification is low for same bloc countries also their demand could be similar. Cultural differences are also insignificant within same trade bloc. The study, thus, finds that the trade within bloc is lower than the inter bloc countries.

x. The empirical analysis show mixed result related to common border. In RE estimates it is insignificant; however in OLS it is positive and significant. This implies that countries sharing common border generally trade more. However, OLS estimate in panel data is inappropriate. Thus the study has failed to accept the hypothesis that countries sharing common border generally trade more. However, this finding is not unrealistic. The reason is that countries sharing common border may produce similar kind of product and also their demand could be similar. The cultural differences may be low. Thus it is possible that they trade less.

xi.   Liberalizing goods trade has positive role in determining PCST. The goods trade openness elasticity is almost similar for FE (0.42) and RE (0.46) estimates of all the models. Lag of liberalizing goods trade has positive impact on PCST. Lag of liberalizing goods trade elasticity is also similar for FE (0.36) and RE (0.41) estimates of all the lag models. Thus the study finds that the liberalization of goods trade is an important determinant for growth in service trade.

xii. Impact of liberalizing goods trade on PCST is higher for ASEAN and SAFTA and EU countries. The dummy variable coefficients for ASEAN, SAFTA and EU are 0.93, 0.99 and 0.34 respectively. The dummy variable coefficients indicate that SAFTA countries have benefited most from the goods trade liberalization followed by ASEAN and EU countries.

xiii. Beside goods trade openness it is found that PGDP and Lag of PGDP have positive impact on PCST. The PGDP and Lag of PGDP elasticities are more than one for FE and RE estimates for all the models[1]. The study reveals that trade in services increases more than proportionately to the change in PGDP.

6.4 Conclusions

The present study has dealt with some growing concerns of trade and economic growth in world economy. The conclusions that emerge from the above findings are:

(i) The trade liberalization has an impact on economic growth. The impact of trade liberalization on economic growth is not even for all the countries. Some countries benefited more whereas some countries have not been benefited much. The results, in general, confirm the positive impact of trade liberalization on economic growth. It throws some explanation behind the economic growth. The study concludes that the

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[1] PGDP elasticities are 1.16 for FE estimate and 1.13 for RE estimate. Lag PGDP elasticities are 1.1 for FE estimate and 1.07 for RE estimate

trade openness has much higher impact on the LMI countries having higher economic growth.

(ii) The service trade liberalization has positive impact on bilateral trade in goods. Thus, the study concludes that the service trade liberalization is one of the essential factors behind bilateral trade in goods. The present study also concludes that (i) physical distance is a deterrent for bilateral trade in goods since transportation cost increases with the increase in physical distance, (ii) higher economic distance is an impediment for the bilateral trade in goods which supports Linder hypothesis. Further, the intra bloc trade is less compared to inter bloc trade since country pair from different trade blocs may have higher variety of products.

(iii) The other important area of the study is to find out the impact of liberalizing goods trade on per capita trade in services. The study concludes that goods trade openness has positive impact on per capita trade in services. Besides, the trade in services also increases with the increase in per capita GDP. Thus, the study concludes that PCST depends on the PGDP and also on the lag of PGDP. It may be concluded that ASEAN, SAFTA and EU countries have benefited much from the liberalizing goods trade. Thus it is important for ASEAN and SAFTA countries to device strategies to improve the speed of goods trade liberalization process[2].

6.5 Policy Implications

The present study has investigated some key issues in the area of international economics. One of the key issues is the impact of trade liberalization on economic growth. The results reveal that trade liberalization has positive impact on economic growth particularly for the LMI and UMI countries. Thus liberalizing trade is one of the

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[2] This recommendation is restricted only for the higher value of services trade.

policy alternatives to stimulate economic growth. The present study also reveals that higher population growth may lower the economic growth. Thus control in population growth is one of the policies to enhance the economic growth. Policy makers may adopt policies for the betterment of investment climate as investment is one of the major factors in enhancing the economic growth.

The study has investigated the impact of liberalizing services trade on bilateral trade in goods. The empirical analysis reveals that liberalizing services trade has positive impact on bilateral trade in goods. This finding has serious policy implications. Policy makers need to accelerate the process of services trade liberalization in order to stimulate bilateral trade in goods. On the other hand, the present study reveals that countries from same trade bloc trade less compared to countries from different trade bloc. Thus policy makers have to initiate the process of liberalizing trade particularly when the countries are from different trade bloc. Inter bloc free trade agreement (FTA) would be one of the options to stimulate trade between countries of different trade bloc. As having common language is beneficial for the stimulation of bilateral trade international community and may consider development of common international language to enhance the trade.

As services trade is an important issue for the economic health, enhancement of services trade is one of the major concerns for the policy makers. The present study finds that liberalizing goods trade has positive impact on the PCST. Thus, the policy makers may try to frame policies towards the acceleration of the liberalization of the goods trade. Moreover, the scope for ASEAN and SAFTA countries are enormous in raising the PCST. Policy makers of these trade blocs are therefore should pay more attention towards the liberalization of goods trade.

6.6 Limitations of the Study

The present study has tremendous policy relevance in the field of international trade and macroeconomics. The present study has considered many variables as the determinants of economic growth, such as, bilateral trade in goods and trade in services etc. However, the economic growth, bilateral trade in goods, and trade in services depend on many other factors which the present study has not considered.

For example, economic growth depends on the various domestic factors like political system, stability of the government, investment climate etc. Though the study has not considered investment climate explicitly in the analysis, it has captured investment climate implicitly in the analysis through the gross fixed capital formation. Economic growth also depends on the technological progress of the country. However, the present research has not considered technological progress as one of the independent variables in the analysis. Role of education and skill formation is also important for economic growth. The study has incorporated these aspects explicitly in the empirical analysis.

Bilateral trade in goods and trade in services also depend upon political, cultural and also demographic factors. Though the present study has incorporated common language, common border etc., it has not incorporated factors like gender ratio, female labour participation in work force, literacy rate etc. in the empirical investigation.

6.7 Scope for Future Research

The present study dealt with many important aspects of trade and macroeconomics. The study has tried to fill some gap in the area of international trade and macroeconomics. Findings of the study have also some important policy relevance. However, the study has not incorporated factors like, gender ratio, literacy rate, technological progress or innovation, female labour participation in the work force, etc. primarily because of lack

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of availability of data. However, developing theoretical models incorporating these factors is a future possibility.

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