Chapter – I

INTRODUCTION

Foreign Trade is one of the instruments of economic growth. It enlarges a country’s consumption capacities, increase world output and provides access to scarce resource and worldwide market. To the classical, neo-classical and modern economists, trade plays a vital role in promoting economic growth. To them, ‘Trade is an Engine of growth’. Adam Smith (1776), David Ricardo (1817), J.S. Mill (1848), Heberler (1933), Heckscher (1935) and Ohlin (1953) have all opined trade stimulates economic growth. Further, Stolper – Samuleson (1948), Raymond Vernon, Bowen, Sveikanskas (1969), Paul Krugman and Helpman (1981) and Learner (1933), Stewart, Frances (1989) also have emphasized that trade influences economic growth.

At the outset International Trade is an important factor in developing an economy, in the past 19th and 20th centuries many countries developed themselves through International Trade. According to Rangarajan C. (1996) “The role of foreign trade in economic development is imperative. Foreign trade possesses great importance for Less Developed Countries (LDCs). Foreign trade is more powerful tool to accomplish economic growth and development. Foreign trade has made lofty
contribution to the development of less developed countries in the 19th and 20th centuries. It can be expected to make sea change on economic prosperity in the coming centuries. When a country specializes in production of a few goods, it exports to abroad for which it imports other required items for domestic uses. It gains from trade and there is increased in national income, raises the level of output and growth rate of economy. As a result of it, foreign trade is considered as an engine of growth”.

International trade has increased enormously in recent times and it is well know that trade has assisted many countries in their process of economic development. Some of the main international trade theories such as the Ricardian theory, Heckcher – Ohlin theory, and recent trade theories claim that there is a positive relation between reduced trade barriers and trade flows. However, it is a topic of constant debate, partly since the competition between developed and underdeveloped countries are very unequal when trading at the world market

1.1 Statement of the problem

As natural resources are unevenly distributed around the World, countries have to depend on one another to satisfy their basic economic requirements. It is possible through foreign trade because all countries in the world which cannot produce all commodities at a specified period of time. The availability of raw materials and other resources are varied from country to country.
Globalization has made countries of the world to trade more freely than ever before. It has also paved the way for the emergence of “Trade Agreements” and “Economic cooperation”.

Along with Globalization, increase in flow of international trade and Regional cooperation such as ASEAN, EU, has further increased interaction and trade within Regional groupings. A decrease in trade barrier and other benefits for countries within regional Cooperation further spurs interaction, but does this offset international interaction infavour of regional Economic Cooperation; is a basic Question.

In this thesis an attempt has been made to examine India`s Comprehensive Economic Cooperation Agreement (CECA) with East Asian countries has really increased trade relations with the East Asian countries.

According to Modern theory of International Trade any reduction in tariff (or) establishment of new market should increase the gains from trade through higher volume of exports.

To find out how the establishments of Comprehensive Economic Cooperation Agreement (CECA) with the countries like Singapore, Malaysia, has influenced the trade relationship between India and these countries.
1.2 Objectives

The following objectives ensured in this study:

1. To analyze how CECA helps in extending trade within the contracting states.

2. To analyze the direction of India`s trade with CECA members countries.

3. To analyze the strength and weakness of economic cooperation between India and contracting states in the CECA.

4. To analyze the reciprocal demand elasticity.

1.3 Hypothesis

Based on four noted objectives, hypothesis is derived and given as follows.

1. India`s Comprehensive Economic Cooperation Agreement has increased the trade relationship within the contracting parties.

2. There is significant change in the direction of trade between India and CECA countries.

3. Comprehensive Economic Cooperation Agreement (CECA) has strengthened India`s trade between the member of contracting parties.

4. There exists a strong reciprocal demand between India and CECA member countries.
1.4 Methodology

This study analyzes the trade relation between India and CECA member countries, the data has been collected from the aftermath of the Asian Financial Crisis. To be more precise the data was collected from 1996-97 to 2011-2012. The Gravity model was used to analyze the trade relation. For this study, the secondary data have been collected from different sources such as ITC Calculations based on UN COMTRADE Statistics, Department of Commerce Export Import Data Bank, The World Bank Group, Central Statistical Organization India, Statistics Singapore and Department of Statistics Malaysia for the period of sixteen years from 1997 to 2012.

Statistical analysis has been done in Ordinary Least Square (OLS) method in Gravity model (Tinbergen 1962) and (Poyhonen 1963) using STATA software, Export performance of CECA Member countries have been examined by computing the percentage share, Trade Intensity Index (Kojima 1964) and Trade reciprocity index (Wadhwa, Charan D. 1982) to analyze the trade relationship between CECA Member.

1.4.1 Gravity Model

The classical and new trade theory can successfully explain the reasons for countries to join in world trade; however they can not answer the question of the size of the trade flows. The gravity model, which has been used intensively in analyzing patterns and performances of international trade in recent years, can be
applied to quantify the trade flows empirically. The model applies Newton’s universal law of gravitation in physics.

Newton’s law of gravitational force states that: “Every particle of matter in the universe attracts every other particle with a force that is directly proportional to the product of masses of the particles and inversely proportional to the square of the distance between them.” That is:

\[
GF_{ij} = \frac{GM_i M_j}{D_{ij}^2} \quad \text{(1)}
\]

Where \( GF_{ij} \) is the Force of gravity between the two particles; \( G \) is the gravitational constant for converting proportionality into equality; \( M_i M_j \) is the product of masses of the two particles; \( D_{ij}^2 \) is the square of straight-line distance between the two particles.

The gravity equation derived from Newton’s Law of Gravity represented by equation (2) is as follows:

\[
TR_{ij} = \alpha \frac{M_i M_j}{DIS_{ij}} \quad \text{(2)}
\]

Where \( TR_{ij} \) is the trade volume between countries \( i' \) and \( j' \) in a particular year; \( \alpha \) is the constant for converting proportionality into equality; \( M_i M_j \) is the product of the masses of the two countries \( i' \) and \( j' \); \( DIS_{ij} \) is the geographical distance between the two countries \( i' \) and \( j' \).
In order to make it conform to usual regression analysis, equation (2) is usually converted into its linear form:

\[
\log(TR_{ij}) = \alpha + \gamma_1 \log(M_i M_j) + \gamma_2 \log(DIS_{ij}) + \mu_{ij} \tag{3}
\]

In Economics ‘Mass’ can be represented by alternative variables which include Gross Domestic Product (GDP), population (Pop) and Distance (Dis).

The standardized form of gravity equations such as Pooled Effect equation (4) and Fixed Effect equation (5) employed in the current study is:

\[
\log(X_{ij}) = \beta_0 + \beta_1 \log(gdp_i) + \beta_2 \log(gdp_j) + \beta_3 \log(Pop_i) + \beta_4 \log(Pop_j) + \log(Dis_{ij}) + \epsilon_{ij} \tag{4}
\]

\[
\log(X_{ij}) = \beta_0 + \beta_1 \log(gdp_i) + \beta_2 \log(gdp_j) + \beta_3 \log(Pop_i) + \beta_4 \log(Pop_j) + \epsilon_{ij} \tag{5}
\]

Where \( \beta_0 \) stands for the constant of proportionality; \( \beta_1, \beta_2, \beta_3 \) and \( \beta_4 \) refer to coefficients to be estimated; \( \log(X_{ij}) \) is the natural log of total Export between country ‘i’ and country ‘j’; \( \log(gdp_i) \) is the natural log of product of GDPs of country ‘i’; \( \log(gdp_j) \) is the natural log of product of GDPs of country ‘j’; \( \log(Pop_i) \) is the natural log of population of country ‘i’; \( \log(Pop_j) \) is the natural log of population of country ‘j’; \( \log(Dis_{ij}) \) is the natural log of geographical distance between country ‘i’ and country ‘j’. 
Distance (dummy) will assume value of 1 if the country has joined CECA and it will take the value of ‘0’ if otherwise. “ɛ’ is the error term. The expected signs of the coefficients of variables in the above model as suggested by the economic theory are such that $\beta_1$ and $\beta_2$ are expected to have positive sign; as the theory proposes the GDP to be a positively influencing factor for trade volume. The variable $\beta_3$ and $\beta_4$ may be positive or negative while the distance is expected to be negative.

1.4.2 Theoretical Aspects of Gravity Model

A absolute advantage theory by Adam Smith is considered the father of trade theory. In his famous book the Wealth of Nation, Adam Smith compared nations to households. Countries specialize in the production of goods according to their absolute advantage, then trade with others, they all gain in international trade (Lindert, 1991). Though Adam Smith’s argument is convincing, only for country which has absolute advantage, it cannot explain the reason for a country which does not have absolute advantage to attend International Trade.

According to David Ricardo’s theory of International Trade, known as the principle of Comparative Advantage. The principle status that “a nation”, like a person, gains from trade by exporting the goods or services in which it has its greatest Comparative advantage in productivity and importing those in which it has the least Comparative advantage” (Lindert, 1991). Comparative advantage and Comparative disadvantage as explained by Ricardian model mean that the opportunity cost of producing the good is lower or higher at one country than in the other country.
From the above, it is clear that Comparative advantage is a basis for International Trade. However, the Ricardian model is still incomplete in many ways. First, the model assumes an extreme degree of specialization, which is unrealistic. Second, it predicts that every country gains from trade because it does not take into considerations the effects of International Trade on income distribution within countries. Third, different resources among countries, role of economies of scale, intra industry trade are absent in Ricardian model.

The Swedish economists Eli Heckscher and Bertil Ohlin had extended the Ricardian model and developed an influential theory, known as factor endowment theory or Hecksher—Ohlin model. The model predicts that “Countries export products that use their abundant factors intensively and import the products using scarce factors intensively” (Lindert, 1991).

The Hecksher—Ohlin (H—O) model had modified the simple Ricardian model in that it added one more factor of production, Capital, beside labour, the original factor in the classical model. The H — O model also assumes that the only difference between countries is the differences in the relative endowments of factors of production, the production technologies are the same, whereas the Ricardian model assumes that production technologies differ between countries. The assumption of same technology is to see what impacts on trade will arise due to difference proportion in factors of production in difference countries.

In the H — O model, trade generally does not lead to complete specialization between countries; this can overcome the defect in Ricardian Model which argues
that trade leads to complete specification. Another argument that separates H—O model from Ricardian model is that not every country gains from trade; international trade has strong income distribution effects. The owners of the country’s abundant factors gain from trade while the owners of scarce factors lose (Husted and Melvin, 2001).

**New trade theory**

The Classical trade theory implies that countries which are less similar tend to trade more. Therefore it is unable to explain the huge proportion of trade between nations with similar factor of endowments and intra industrial trade which dominate the trade of developed economies. This is the motivation for new trade theory which has been established in the 1980s by researchers like Krugman, Lancaster, Helpman, Markusen and many others. New trade theory explain the world trade based on the economies of scale, imperfect competition and product differentiation which relax the strict assumptions of classical theory of constant return to scale, perfect competition and homogeneous goods. Under these assumptions each country can specialize in producing a narrow range of products at large scale with higher productivity and lower costs. Then it can increase the variety of goods available to its consumers through trade. Trade occurs even when countries do not differ in their resources or technology (Markusen et al. 1995; Krugman and Maurice, 2005).

The gravity model has long been criticized for being ad hoc and lacking of theoretical foundation. Therefore in recent years there has been increasing interest
in providing the theoretical support for the gravity model. Linnemann (1966) (cited in Radman, 2003) is perhaps the first author who provided theoretical background for gravity model; he showed that the gravity equation could be derived from a partial equilibrium model. Trade flows between two countries i and j are explained by factors that indicate total potential supply of country i, total potential demand of country j, and the resistance factors to trade flow between i and j. The gravity model is then obtained by equality of supply and demand.

In this study the Gravity Model is used by taking a cue from the Linnemann, in the original version Linnemann suggest that equality between potential Supply of country ‘i’ and potential Demand of country ‘j’ should have an equality. Any inequality is explained by the resistance factor like distance, tariff or any other non-tariff barriers.

In this study the Gravity Model is derived in two ways that is Pooled Effect and Fixed Effect Models. In the Pooled Effect Model the resistance factor is included and the data has been regressed. In the Fixed Effect Model, the resistance factor is removed and the data has been regressed. The difference between the two is presented in the table for the analysis.

1.4.3 Trade Intensity Index

This study to analyze the strength of trade relation between India and CECA member countries’ bilateral trade using simple technique called export and import intensity indices developed by K. Kojima (Kojima, 1964) has been used. This trade intensity index is measure the share of one country’s trade with other country as a
proportion of the latter's share of world. This index provides additional insight into
the secular changes in CECA member countries' trade flows with India. Twelve
year data from 2001 to 2012 has been collected from UN COMTRADE data base
for this analysis.

*Range of values:* The value of Trade intensity index ranges from 0 to 1 (0
to 100 when multiplied with 100). If the value is 0, it implies no trade relationship
between partner countries. On the other hand, if the value is 1 indicates high trade
relations. If import intensity index is more (or less) than 100, it indicates that
country 'i' is importing more (or less) from country 'j' than might be expected from
that country’s share in total world trade. In export too, if the value is 0 it implies
export link between these two countries is negligible and if the value is nearer to
100 that indicates that performance is significant and if it exceeds 100 it indicates
that country 'i' is exporting more to country 'j' than might be expected from that
country’s share in world trade.

*Limitations:* The limitation of the study is that the trade intensity indices
have limited application for measuring bilateral potential trade between nations.

**Mathematical definition**

The Export intensity index between countries 'i' with respect to country 'j'
\((XII_{ij})\) is shown as follows:

\[
XII_{ijt} = \frac{X_{ij} / X_i}{[M_j / (M_w - M_i)]} \times 100
\]

\((1)\)
Where:

\[ X_{ijt} = \text{Export intensity index of trade of country } i \text{ with country } j \]

\[ X_i = \text{Total Exports of country } i. \]

\[ M_j = \text{Total Imports of country } j. \]

\[ M_w = \text{Total World Imports}. \]

\[ M_i = \text{Total Imports of country } i. \]

\( t = 2001 \text{ to } 2012. \)

Import intensity index \( (MII_{ijt}) \) can also be measured in the similar way:

\[ MII_{ijt} = \left(\frac{M_{ij}}{M_i}\right) / \left(\frac{X_j}{(X_w + X_i)}\right) \times 100 \]

Where:

\[ MII_{ijt} = \text{Import intensity index of trade of country } i \text{ with country } j. \]

\[ M_{ij} = \text{Imports of country } i \text{ from country } j. \]

\[ M_i = \text{Total Imports of country } i. \]

\[ X_j = \text{Total Exports of country } j. \]

\[ X_w = \text{Total World Exports}. \]

\[ X_i = \text{Total Exports of country } i. \]
\( t = 2001 \) to \( 2012 \).

The Export Intensity index between countries \( j' \) with respect to country \( i' \) \((XII_{jit})\) is shown as follows:

\[
XII_{jit} = \frac{[X_{ji}/X_j]}{[M_i / (M_w - M_j)]} \times 100
\]

\((3)\)

Where:

- \( XII_{jit} \) = Export intensity index of trade country \( j' \) with country \( i' \).
- \( X_{ji} \) = Exports of country \( j' \) to country \( i' \).
- \( X_j \) = Total Exports of country \( j' \).
- \( M_i \) = Total Imports of country \( i' \).
- \( M_w \) = Total World imports.
- \( M_j \) = Total Imports of country \( j' \).
- \( t = 2001 \) to \( 2012 \).

Import intensity index \((MII_{jit})\) can also be measured in the similar way:

\[
MII_{jit} = \frac{[M_{ji} / M_j]}{[X_i / (X_w - X_j)]} \times 100
\]

\((4)\)

Where:

- \( MII_{jit} \) = Import intensity index of trade of country \( j' \) with country \( i' \).
- \( M_{ji} \) = Imports of country \( j' \) from country \( i' \).
\( M_j = \) Total Imports of country \( j \).

\( X_i = \) Total Exports of country \( i \).

\( X_w = \) Total World Exports.

\( X_j = \) Total Exports of country \( j \).

\( t = 2001 \) to 2012.

### 1.4.4 Trade Reciprocity Index

To measure the Trade Reciprocity for the period 2001 to 2012 between India and CECA member countries, Trade reciprocity index (Wadhwa, Charan D. 1982) has been computed by using the formula

In order to measure the reciprocity in the overall balance of trade of any two partner countries (or groups of countries not including all trade partners at the global level), the trade reciprocity index theta \( (\theta) \) was employed. \( \theta \) is defined as follows:

\[
\theta = 1 - \frac{\sum_{j=1}^{n} \frac{a_{ij} - a_{ji}}{(a_{ij} + a_{ji})} \sum_{i=1}^{n} a_{ij}}{(n-1) \sum_{i=1}^{n} a_{ji} \sum_{j=1}^{n} a_{ij}} \times 100
\]

Where
\[ a_{ij} = \text{exports of country } 'i' \text{ to } 'j' \]

\[ a_{ji} = \text{exports of country } 'j' \text{ to } 'i' \]

\[ n = \text{total number of countries involved in the context of bilateral or regional grouping being consider.} \]

The index will always lie between zero and one. Whenever a pair of countries in a group tends to have a balanced bilateral trade (case of perfectly balanced two way trade), the value reaches its maximum (i.e., unity). On the other hand, when there exists only one way flow of trade between the pair of trading partners (say complete dependence of country ‘i’ on country ‘j’ for its imports or exports), the value of \( \theta \) is at its minimum (i.e., zero). This index thus measures the degree of trade reciprocity. It can be measured at bilateral as well as multilateral levels for a group of countries.

### 1.5 Uniqueness of this study

1. This is a Pioneering study in CECA to estimate the efficacy of India`s trade with CECA countries.

2. One of the specialty of the study is Gravity Model has been used in India and Singapore trade, which cannot be found elsewhere.

3. There is no much study on India`s CECA trade relationship.

4. There is few study in CECA, which concentrate on service sector, this study specialize on Merchandise trade.
1.6 Delimitations of the study

1. India established Comprehensive Economic Cooperation Agreement (CECA) with Singapore and Malaysia. At the same time India also has done a Comprehensive Economic Partnership Agreement (CEPA) with Japan and South Korea. This study mainly deals with Singapore and Malaysia.

2. As CEPA negotiations were completed for Japan and South Korea this study do not analyze CEPA with these countries.

3. This study deals only with merchandise goods in analyzing the trade relation between the CECA member countries.

1.7 Chapter Scheme of the study

The study has been made with the following Chapter Scheme.

1. The first chapter deals with introduction which covers Statement of Problem, Objectives, Hypothesis, Uniqueness of this study, Delimitations and Chapter Scheme of the study.

2. The second chapter discusses Review of previous studies.

3. The third chapter deals with Area profile of India and CECA member countries.

4. The fourth chapter is given Overview of Comprehensive Economic Cooperation Agreement (CECA).
5. The fifth chapter deals with Results and Discussion.

6. Summary, Findings, Conclusions, Policy Implications and Scope for Further Study are given in the sixth chapter.

7. In the end, Appendix, Bibliography pertaining to the works quoted in this study is presented.