Free markets and centralized planning may be looked upon as two alternative ways of allocating resources. The replacement of central planning in Central Eastern European Countries (CEECs) by a decentralized market system has led to the coining of the term 'Transition Economies'. Transition implies a rapid or a gradual move towards the decentralized market system from a pre-existing centrally planned system.

The two transition economies selected for our study are: Hungary and Poland. These two countries were the first in transition to democracy and to strengthen their commitment the European Commission launched a programme called ‘PHARE’ (Originally a French acronym, which translated into English means: Poland and Hungary, Assistance to the Restructuring of the Economy). Hungary and Poland were also the first to benefit from the international community’s involvement in the process of transition through assistance and advice.

Most programmes of economic reforms undertaken in the developing countries and the transition economies aim at the integration of the national economy with the world economy and/or with regional trading blocs. Only economic integration will allow the developing countries and the transition economies to become equal partners in the regional and global economic community. The transition economies, Hungary and Poland, desire speedy and full entry into the world market as market economies through regional integration as well as global integration. The ‘Europe Agreements’ signed by
Hungary, Poland and Former Czechoslovakia with the European Union (EU) in December 1991 aimed at facilitating the transition and the integration process. The Stabilization, Liberalization and Institutional package implemented by Hungary and Poland, the preferential access granted by the EU and the other factors reinforcing with each other have enhanced the competitiveness of Hungary and Poland as suppliers to the EU markets. The rapid Eastern enlargement of EU raises important issues for outsiders especially the developing countries regarding the likely consequences for their foreign trade, in particular the sectors and products that may be affected and ultimately their development prospects. The study investigates the sectors and products in which the developing countries are likely to face competition from Hungary and Poland in the EU markets. It also examines whether there is a possibility of the developing countries being displaced from the EU market due to presence of Hungary and Poland as preferred trade partners. For this purpose we estimate the gravity model with a view to compute the trade potential index that reflects the relative strength of Hungary and Poland as suppliers in the EU market versus that of a sample of developing countries.

In the early 1980s and 1990s, many countries in Central America and Asia, plagued by a multitude of economic problems, undertook reforms under the guidance of IMF and World Bank. But the transformation process, which began in the CEEC’s in 1990, is unique. The transition economies aim to integrate regionally and globally that raises the issue of regional versus global integration. The uniqueness of transition economies and their integration is taken up in Section 1.1. In Section 1.2 we identify the main objectives of the
study. Section 1.3 gives a brief description of the methodology employed and Section 1.4 provides the chapter scheme for the study.

1.1 THE UNIQUE TRANSITION IN EASTERN EUROPE

At the end of 1980s, it was generally accepted that economic planning had not delivered what it had promised. The challenge was in introducing a system that would ensure efficient allocation of resources among alternative uses. The ‘transition’ to market economy based on private ownership, healthy competition and free pricing would ensure such efficiency. The transition in CEECs is unique because of the massive scale of change involved. Although each element of reform - price decontrol, privatization, stabilization and external liberalization - are familiar, but the magnitude of change is unprecedented. The reforms are also unique in the sense that it involves the destruction of an existing economic system with the construction of a new one.

The process of transition in the CEECs have no models to follow, no leaders to emulate, not even well founded theories that can be used as a guide. Much is known about how market economies function, although periodic malfunctioning demonstrates how much remains to be learned. Still less is known about how to move from one system to another. One potential source of enlightenment is the experience of Western Europe in the years soon after the Second World War. Recovery was guided by generous aid and was less painful, because Western Europe possessed the institutions needed by a capitalist economy and a well-developed capital market etc. The preconditions for success already existed. In Eastern and Central Europe the foundations
were missing and this inevitably makes the transition more difficult. A second source of enlightenment would be the experiences of some developing countries. The problems faced by the developing countries were similar to those of Eastern and Central European countries - such as huge balance of payments deficits, external debts, and high level of inflation, unemployment and slow or negative growth. But the similarity ends here. The problem confronting the developing countries in 1980s was basically how to improve their existing market economies in order to absorb external shocks. In case of the Eastern European countries the problem was how to make a transition to a market guided economy, while simultaneously absorbing massive shocks such as severe disruptions of long established trading relationships, loss of export markets and curtailment of supply of raw material and energy. Probably some lessons can be learned from Mexico and South Korea about stabilization and restructuring. But again these occurred within an established economic system. They were not accompanied by systemic change (Griffin, 1996).

Transition in the long term can be viewed as a major instrument of development policy, because systemic changes should lead to growth and development. Integration with the international and regional economy is an important goal of transition from central planning to a market system.

Economic integration implies cooperation in the sphere of economic activities. The origin of economic integration may be traced from the gradual process of international economic expansion during the 19th century. The necessity for maintaining economic stability in the world led towards greater international integration.
The emphasis shifts from international to regional integration when there are large-scale disruptions of economic and political orders like wars, natural calamities and more recently the collapse of the centrally planned economies. Regional integration can thus be viewed as a strategy to enlarge trade, markets and economic growth.

Examining the rise of regionalism, we can observe two distinct phases of regionalism. The first wave of regionalism can be traced back to the creation of European Economic Community (EEC) in 1958. The purpose was to reconstruct the war-ravaged economies of Europe and maintain peace between France and Germany. The success of EEC led to proliferation of Regional Trading Arrangements (RTAs) in the 1960s, but suffered a setback in the 1970s. Regionalism in the 1960s failed to bring meaningful benefit to participating countries, except for EEC. The second wave of regionalism, in the early 1980s, was a result of the Single market initiative adopted by the European community in 1987, the decline of American hegemony and abandonment of import substitution by developing countries. Regionalism is now here to stay and is viewed as a threat to the multilateral trading system by its opponents. We can view these issues at two levels: i) to examine the debate between regionalism and multilateralism in general, ii) to examine the rise of regionalism and the probable effect it may have on countries who are not members of important trading blocs. Our study will focus on the second of the above two issues. Therefore in Section 1.1.1 we examine the different forms of integration that an RTA can take; in Section 1.1.2 we examine the multilateral trading system and in Section 1.1.3 we examine the Eastern enlargement of the EU and its implications for the developing countries.
1.1.1 DIFFERENT FORMS OF INTEGRATION

First in order to study the conflict between regionalism and multilateralism, we have to understand as to why they are considered antagonistic. We can begin by briefly examining the varying degrees of integration that an RTA can take.

i) Free Trade Area: In a free trade area (FTA), tariffs and quantitative restrictions between participating countries are abolished but each country retains its own tariff against nonmembers. The Association of South East Asian Nations (ASEAN) and The North American Free Trade Association (NAFTA) are examples of FTA.

ii) Customs Union: It involves the equalization of tariffs in trade with non-member countries and the suppression of discrimination in the field of commodity movements within the union. EEC and Southern Common Markets (MERCOSUR) are examples of Customs Union.

iii) Common Market: A higher form of economic integration is attained in a common market where not only trade restrictions but also restrictions on factor movements are abolished.

iv) Economic Union: Total economic integration presupposes the unification of monetary, fiscal and social policies and requires the setting up of a supra-national authority whose decisions are binding for the member states. The European Union is an example of Economic Union.
v) Preferential Trade Arrangements (PTAs): PTAs are of two kinds:

- When an industrialized country grants the concessions to less developed countries. Examples include the Lomé conventions signed between the EU and the African, Caribbean and Pacific (ACP) countries and the United States-Caribbean Basin Initiative
- When concessions are reciprocal, example the European Free Trade Area (EFTA).

We see that RTAs reduce or eliminate trade barriers among participating countries and it would appear that such agreements represents a movement towards free trade. But the reality is more complex. Viner (1950), distinguished between the potential trade-creating and trade-diverting effects of PTA. According to Viner, trade creation occurs by diverting demand from high cost domestic to lower cost partner products. Trade diversion occurs when the preferential treatment causes a country to replace low cost imports from the rest of the world with higher cost imports from a partner country. The potential for trade diversion is related to the size of external trade barriers maintained by the member countries. Potential for trade diversion may be more under a FTA as compared to a Customs Union.

1.1.2 THE MULTILATERAL TRADING SYSTEM

While an RTA is discriminating, the multilateral trading system is based on the principles of non-discrimination, ‘most-favoured nation’ and reciprocity. Therefore, the proponents of multilateralism view regionalism as a threat, as differences underlying their principles, will result in having varying effects on trade, investment and growth. But on the other hand the proponents
of RTAs view RTAs as ‘Building blocs’ of the multilateral trading system. Moreover, after the Uruguay Round the multilateral trading system has emerged stronger. Major trading powers are learning that their global benefits are larger when multilateralism is functioning than when market is fragmented. The multilateral trading system has advantages for the long-term development of international trade and economic development of nations.

1.1.3 THE EASTERN ENLARGEMENT OF THE EUROPEAN UNION

For the transition economies better market access for their goods was essential because of collapse of intra-Council for Mutual Economic Assistance (CMEA) trade, which formerly accounted for a large proportion of this trade, recession in world markets and increasing use of protectionist’s measures. The ‘Europe Agreements’ signed between EU and the CEEC-5 provided preferential access to the transition economies. But the preferential access granted by EU to Hungary, Poland and the remaining CEEC-5 countries is being seen by other developing countries as being potentially damaging to their own economic interests. This issue forms the central theme of study.

1.2 OBJECTIVES OF THE STUDY

On the background of the issues identified above, the objectives of the present study are:

- To study the distortions presents in the centrally planned economies and in this context examine the principal strategies of

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1 The debate between Regionalism versus Multilateral Trading system will be taken up in Chapter II of the study.
2 CEEC-5 includes Bulgaria, Hungary, Poland, Czech Republic and Romania.
transition adopted by Hungary and Poland to move from a centrally
planned economy to a market economy.

- To look at the experience of EU as a regional trading arrangement
  and at the World Trade Organization and examine the debate on
  Regional versus Global integration in general, as Hungary and
  Poland desire speedy and full entry into the world markets as
  market economies through integration at regional and global level.

- To investigate whether Hungary and Poland have been able to
  increase the share of their exports in the EU and world imports
  indicating increased integration.

- To investigate whether the exports of Hungary and Poland have
  become competitive at regional and global level.

- To study the importance of EU as a trading partner for Hungary,
  Poland and other selected developing countries.

- To investigate the products/sectors in which the developing
  countries are likely to compete with Hungary and Poland.

- To investigate the relative strength of Hungary and Poland as
  suppliers in the EU market versus the developing countries.

1.3 METHODOLOGY

This section covers the period of study, the various data sources and
the statistical tools used.

A) Time Period: The study covers broadly a period from 1991 to 2000
selected for reasons of statistical convenience. The year 1991 was
selected because Hungary and Poland began their transition from
centrally planned economy to a decentralized market economy from January 1990. Although Hungary has a long history of partial reforms since 1968, a large chunk of reforms especially in the external sector were introduced in 1990. Similarly, Poland also experimented with some reforms, but the basic structure of the economy remained intact leading to the failure of earlier reforms. January 1990 marked the beginning of ‘big bang’ reforms in Poland. Moreover, both Hungary and Poland signed the ‘Europe Agreements’ in December 1991, which provided improved market access for their exports into the EU.

B) Data Sources: The statistical indices used extensively in this study are computed from UN, International Trade Statistics Year Book, UNCTAD Handbook of Statistics, IMF, Balance of Payments Statistics Year Book and Direction of Trade Statistics Year Book for various years.

C) Statistical Analysis: The study makes extensive use of various indices to provide empirical evidence to verify the objectives stated in the section 1.2. We begin our investigation by examining whether Hungary and Poland have been able to increase their share of exports to the EU and the world market and whether their export structures have become competitive. We proceed: i) by calculating percentage share of Hungary and Poland in the world and the EU imports at an aggregate level ii) by calculating the correlation coefficient between the commodity-wise share of exports of Hungary / Poland in total exports on the one hand and the commodity-wise share of world imports on the other, at SITC three-digit level of disaggregation. Both these indicators can be taken as verification
of global and regional integration and increased competitiveness achieved by Hungary and Poland in their export baskets. To complement these results the Revealed Comparative Advantage (RCA) index, the compatibility index and the trade structure index are computed at SITC three-digit level.

The RCA index (defined in Appendix-1A) developed by Balassa (1965) has been utilized to study the changes in the commodity-wise export shares in total exports of a country relative to the world share. Further, in order to find out whether a country’s comparative advantage has changed over time, the correlation coefficient of RCAs between 1994 and 2000 is computed for Hungary and Poland. A lower correlation coefficient indicates that the comparative advantage has changed, while a higher value indicates that the comparative advantage has remained almost the same.

The compatibility indices (defined in Appendix-1A) developed by Michaley (1996) matches the structure of EU imports with the export flows of Hungary and Poland. It is one way of evaluating the potential for trade expansion between the EU and Hungary and Poland. The economic logic is that the composition of a country’s exports represents its supply of exports, while the composition of its imports reflects demand for imports. An increasing value of this index would thus indicate a potential for trade expansion between the EU and Hungary and Poland.
The trade structure index reflects how closely the export structure of Hungary and Poland match with that of the world exports. In this case, a declining value of the index implies greater similarity in the export structure of Hungary and Poland with that of the world.

We proceed to examine whether this increased competitiveness attained by the export baskets of Hungary and Poland, has the potential to displace the exports of the developing countries into the EU markets. That is, we try and identify the product categories and the countries that are likely to compete with Hungary and Poland. We adopt the following methodology. We lay down the criteria for selecting a sample of 7 developing countries that are most likely to compete with Hungary and Poland in the EU market and for whom EU is an important trading partner. The empirical evidence is provided by examining the percentage share of exports of sample countries going to EU and other selected regional trading blocs and computing the trade intensity indices. The trade intensity index (defined in Appendix-1A) has been used to determine the relative importance of a RTA for its members/non-members. It is defined as the export share of a trading partner (RTA) relative to the partner's (RTA) share of world imports.

To investigate whether the sample countries will face competition in the EU market from Hungary and Poland: i) we use the compatibility index (defined in Appendix-1A) to match the export structure of the sample countries with that of EU imports to study the potential for trade expansion and, ii) we use the export similarity index developed by
Finger and Kreinin (1979) which measures the similarity of the export pattern of countries i and j to a common market. It is used here with a slight modification. In our study we use the index to compute the similarity in the composition of the exports of country i and j in the world market. The similarity index is computed at SITC two-digit level of disaggregation to get a broad picture of similarity in the export baskets of Hungary, Poland and the sample countries.

We then proceed to identify the product categories and countries that are likely to compete with Hungary and Poland. For this purpose, we lay down the criteria for selecting the commodities and then classify these commodities into five categories based on the technology used i.e. Primary products, Resource based manufactures, Low technology manufactures, Medium technology manufactures and High technology manufactures. We employ the Export Revealed Symmetric Comparative Advantage (XRSCA) index developed by Laursen (1980) which is derived from Balassa and Noland (1978) Export Revealed Comparative Advantage index to identify the product categories in which the developing countries are likely to compete with Hungary and Poland. This index indicates the presence or absence of specialization in a particular product category and also reflects the shifting patterns of exports.

Thus the various indices enable us to identify the product categories and tentatively the countries that are likely to compete with Hungary and
Poland in the EU market (for the formulae used for the various indices see Appendix-1A).

In Chapter VI we estimate a gravity model with a view to compute the trade potential index that reflect the relative strength of an exporting country in the EU market. The gravity equation is estimated using the OLS regression by pooling data for the years 1991, 1994, 1997 and 2000. In the equation total trade (exports plus imports) is the dependent variable. The equations include 9 explanatory variables: GNP of country i GNP of country j, population of country i and j, distance between two countries, three dummy variables – adjacency, common language, common RTA, and the cosine (COS) or export-import similarity (EIS) index. In the gravity model two measures of export import similarity i.e. the cosine index developed by Linnemann (1966) and the export-import similarity (developed by Finger and Kreinin and modified by Linnemann) are used alternatively as explanatory variables. The measures take the value from 0 implying no similarity to unity implying perfect similarity in the trade structure.

The trade potential index developed by Linnemann (1992) has been used in the study. The trade potential index is computed for each of the 24 exporting countries to 14 EU countries that determines the import potential of the trade partner and also reflects the relative strength of an exporting country in the EU market. The estimated coefficient of GNP, population, cosine index and export-import similarity index of the EU importing countries are employed to construct the trade potential index.
Regional and global integration is one of the goals of transition economies of Hungary and Poland. The experience of EU as a successful RTA and the World Trade Organization as multilateral trading system through which Hungary and Poland seek regional and global integration are examined in Chapter II. Chapter III provides a context for the study by examining the distortions present in the centrally planned economies and their strategy of transition, the ‘Europe Agreements’ that provided increased access to exports of Hungary and Poland and the foreign direct investment. These factors working together brought about large-scale changes in the economic structure, spilling into the external sectors of Hungary and Poland. Therefore, Chapter IV examines the developments in the trade structure of Hungary and Poland with a view to investigate whether they have been able to increase their share in the EU and world market and whether their export structures have gained competitiveness. It is this increased competitiveness achieved by Hungary, and to a lesser extent by Poland, which is a cause of concern for the developing countries exports into EU, as they fear increased competition and potential displacement. Chapter V investigates the product categories and countries, which are likely to compete with Hungary and Poland in the EU market. Chapter VI uses the gravity model to estimate the trade potential index that shows the relative strength of exporting countries as suppliers in the EU market.
Chapter I INTRODUCTION

The chapter highlights the uniqueness of the transition economies. The uniqueness arises because of the massive scale of change involved. Although each element - price decontrol, privatization, stabilization and external liberalization - are familiar, the magnitude of change is unprecedented in the transition economies, the reforms are unique in the sense that it involves the destruction of an existing economic system with the construction of a new one.

The chapter looks at the transition process that aims at creating a decentralized market system for the efficient allocation of resources and the reintegration of these economies into the regional and world trading system. It views economic integration as an alternative strategy for the process of economic development in developing and transition economies. In this context the chapter briefly discusses the rise of regionalism in the 1960s and its revival in the 1990s after being dormant in the 1970s. In this context it bring out i) the probable reasons which might give rise to conflict between regional and global integration ii) the Eastern enlargement of EU and the probable effect this may have on developing countries that are not members of EU, but for whom EU is an important trading partner. A section of the chapter provides the objectives of the study. The section on methodology explains how the problem was investigated and why particular methods and techniques were employed. The rest of the chapter provides the chapter scheme of the study.
In this chapter the experience of EU as a regional trading bloc and the World Trade Organization as a multilateral trading system are discussed. For the transition economies, membership in the EU was an important goal, while seeking integration into the global economy.

The chapter begins by tracing the history of EU since its inception in 1957 with the signing of the treaty of Rome and the formation of the European Economic Community, and the Single European Act (SEA) of 1985, which provided the legal framework for the transformation of the EEC to the EU. A subsection examines the economic performance of the EEC during this period and its enlargement from six members to fifteen members in 1995. The EU has woven a complex web of trade preferences with its former colonies, territories and the developing countries. The preferences granted differ in their nature and scope and are briefly examined in this chapter. We are here not concerned about the impact of such preferences on the trade of the preference receiving countries. This aspect will be taken up in detail when we discuss the Europe Agreements in Chapter III and Lomé conventions and the Generalized system of preferences in Chapter IV of the study.

The chapter than traces briefly the journey of the General Agreement of Trade and Tariff (GATT) from its inception in 1948 to the 1986-1993 Uruguay Round and the establishment of the World Trade Organization (WTO). A section of this chapter discusses the founding principles of GATT and the trade liberalization achievements of the GATT. The chapter also discusses the
achievements of the Uruguay round in terms of overall reduction in tariffs, increase in bindings and reductions in tariff escalation. Various measures undertaken by Hungary and Poland in this context are also included with a view to show their commitment to the multilateral trading system and integration into the global economy. The Uruguay Round broke new ground by succeeding in negotiations involving agriculture, textiles, Intellectual Property Rights and non-tariff barriers which remained outside the GATT purview in the previous rounds. This section concludes that the multilateral trading system emerged stronger after the conclusion of the Uruguay Round. But the proliferation of RTAs in the 1990s and the revival of regionalism are perceived as a threat to the multilateral trading system. A section of the chapter therefore deals with Article XXIV of GATT, which allows RTAs to coexist with the general agreement under certain condition, which ensure compatibility of RTA with GATT. In this context the debate on whether RTAs constitute 'building blocs' or 'stumbling blocs' is also examined. The section concludes that these issues have no easy answers. For empirical evidence the intra and interregional trade flows are examined to find evidence of trade diversion relative to trade creation, but the picture that emerges is a sufficiently mixed one. The chapter concludes by examining the benefits that may accrue to Hungary and Poland through regional and global integration.

Chapter III ISSUES AND OUTCOMES IN TRANSITION ECONOMIES WITH REFERENCE TO HUNGARY AND POLAND

The chapter provides a context by examining the historical changes sweeping across the Eastern Europe in the late 1980s. The principle strategies and reforms implemented by Hungary and Poland to reorient
themselves to market economy in 1990, the signing of the ‘Europe Agreements’ which set the framework for mutual economic relations between the transition economies and the EU and the inflow of foreign direct investment form the subject matter of this chapter. The objective of this chapter is to examine the distortions present in the pre-transition period and the reform programs implemented, to move from a centrally planned economy to a decentralized market system, simultaneously, seeking regional and global integration.

The chapter begins by examining the distortions present in the centrally planned economies in general, its eventual collapse and the beginning of a long arduous journey to a market economy, with no clear road map to follow. The process of transition requires a framework, which includes the main elements of the reform package, the speed and sequencing of reform, which forms a section of this chapter. The chapter proceeds to examine the deteriorating economic conditions in Hungary and Poland and their halfhearted experiments with market socialism in the late 1960s and 1970s. A section is devoted to examine the reforms implemented and choice of transition strategy. Given the nature of the transition economies, a recession was anticipated with the implementation of the reform package. The chapter therefore also traces the cause of this ‘transformational recession’ and compares the fall in GDP, rise in unemployment and inflation in Hungary and Poland.

The policy makers in Hungary and Poland face the challenge of not only stabilizing their economies, introducing systematic changes, but also achieve
greater integration into the world economy. These objectives cannot be achieved just by stabilization reforms and liberalization of foreign trade and so on. It depends upon improved access to western markets and financial assistance. The chapter therefore provides detailed analyses of the 'Europe Agreements' and inflows of foreign direct investment. The 'Europe Agreements' imparts an advantage to the signing countries with respect to access in the EU markets vis-à-vis the developing countries. The 'Europe Agreements' have also been decisive in attracting foreign direct investment. The chapter concludes that the transition strategy adopted by Hungary and Poland was dictated more by the prevailing economic distortions in the economy rather than choice. The process of Eastern Europe enlargement initiated by the 'Europe Agreements' has led to increased access for export of Hungary and Poland into the EU.

Chapter IV INTERNATIONAL TRADE OF HUNGARY AND POLAND
- DIRECTION AND COMPOSITION

The chapter examines the significant changes that characterize the trade developments in the transition economies of Hungary and Poland. In view of the important changes taking place such as increased openness, geographical reorientation and changes in the commodity structure of their trade, the chapter investigates whether these developments have increased their competitiveness in the world and the EU markets.

The chapter begins by examining the geographical direction and broad commodity composition of the trade of Hungary and Poland. Trade with the West is found to be increasing, whereas with Eastern European countries and
developing countries it shows a declining trend. The broad commodity composition of the exports of Hungary and Poland also exhibit a change in favour of manufacturing goods, machine and transport equipment.

The chapter computes the RCA’s index, trade compatibility index and trade structure index to investigate whether developments taking place in trade has resulted in increased integration and competitiveness in the export structure of Hungary and Poland. The RCA index captures the changes in the comparative advantage of a country’s export basket. The compatibility indices match the structure of EU imports with the export basket of Hungary and Poland. The trade structure index measures similarity in their export structure with that of the world (These indices have been discussed in detail in section 1.3). The chapter also includes a brief review of literature, which favours the conclusions drawn in this section.

The chapter thus makes extensive use of various trade indices to show that the export baskets of Hungary and Poland have gained competitiveness. It is this increased competitiveness in their export basket brought about by a host of internal and external factors interacting with each other that is the cause of concern among the developing countries. This issue is examined in Chapter V of the study.

Chapter V EXPORT SIMILARITY OF HUNGARY AND POLAND VERSUS DEVELOPING COUNTRIES

The chapter verifies the challenge posed by Hungary and Poland as exporters versus a sample of developing countries to the EU. The chapter begins by examining EU’s preferential trading arrangements with former
colonies and the developing countries under i) The Lomé conventions ii) The Mediterranean agreements iii) The Generalized system of preferences (The ‘Europe Agreements’ between Hungary and Poland and the EU are examined in Chapter III). A section of the chapter than proceeds to lay down the criteria for selecting a sample of developing countries such that they are spread across regions. ACP countries have not been included in the sample because even though EU is their major trading partner, they do not face the threat of being displaced from the EU market. Because the ACP countries have not been able to diversify their export baskets and their advantage remains concentrated in a few primary products only. Among the developing countries the 7 countries selected are Indonesia, Thailand from ASEAN, Argentina, Brazil from Latin America Integration Association (LAIA), Mexico from NAFTA, India from the South Asia region and Turkey from the Mediterranean region. The chapter than proceeds to verify that EU is an important trading partner of the sample countries. The next step is to investigate whether Hungary and Poland have the potential to compete with the sample countries for which two conditions must be fulfilled: i) The EU import flows must match with the sample countries exports, ii) The exports of Hungary and Poland must match with the export flows of sample countries. A section of the chapter therefore computes the compatibility index and the similarity index (Section 1.3 discusses these concept).

The chapter than proceeds to investigate the commodities and countries those are likely to compete with Hungary and Poland. We first set down the criteria for selecting the commodities exported at SITC three-digit level of disaggregation under which 179 commodities are selected. The selected
commodities are than classified into five categories based on the technology used. The classification is based on the UN, *World Investment Report 2002*. The study makes use of the XRSCA index. This index indicates the presence or absence of specialization in a particular product category. We are thus able to identify the product categories and the countries that are likely to compete with Hungary and Poland in the EU market. We would further like to know the relative strength of the competing countries in the EU market. This forms the subject matter of Chapter VI.

Chapter VI TRADE POTENTIAL OF HUNGARY AND POLAND versus DEVELOPING COUNTRIES vis-à-vis THE EU: EMPIRICAL ANALYSIS THROUGH A GRAVITY MODEL

This chapter estimates a gravity model with a view to compute the trade potential index that reflects the relative strength of an exporting country in EU market. The gravity model explains the level of trade between two countries by the pull and push of their respective incomes and by the friction between them, distance being used as a measure of transportation cost. Additional variables are included either to reflect artificial trade barrier or as contributing to explanation of trade flows.

The chapter begins with the general specification of the gravity model, followed by a review of literature that makes use of the model. The review highlights deviations from the normal gravity equation.

The gravity model used in this study is presented in this chapter. Information on the sources used for data collection, variables on which the data are
compiled, the results of estimation procedure along with its interpretation is provided. The gravity model studies bilateral trade flows of 39 countries for the years 1991, 1994, 1997 and 2000. There are 14 countries from the EU, 8 countries from ASEAN, 10 countries from LAIA, 3 countries from NAFTA, in addition to India, Turkey, Hungary and Poland. Thus, while estimating the gravity model we have included countries that are members of selected RTAs. Since U.S. and Canada are members of NAFTA they have been included in spite of the fact that they are developed countries. Common land border, common language and membership in the EU are the three dummy variables included in the gravity equation. The cosine index and the export-import similarity index are included as explanatory variables alternatively. From the estimates obtained in the gravity model, the chapter than estimates the trade potential index developed by Linnemann (1992). The coefficient of GNP, population and cosine / export-import index of the 14 EU importing countries are employed to construct the trade potential index for each of the 25 exporting countries to the 14 EU countries. This index is a relative measure, which shows the relative strength of a country (in our case 25 competing countries) as potential suppliers of exports to 14 EU countries. The results are averaged to find the relative strength of a trading bloc as suppliers of exports to the EU. On the basis of the trade potential index computed the chapter identifies the countries that are likely to compete with Hungary and Poland in the EU market.
Chapter VII  SUMMARY AND CONCLUSIONS

This chapter threads together the conclusions of the previous chapters. It enables us to come to some conclusions regarding Hungary’s and Poland’s integration into EU and its probable impact on the developing countries. The chapter also includes a section on contributions of the study and its limitations.
Definitions of the indices used in the study are presented below:

- The RCA index is defined as:

\[
RCA \text{index} = \frac{X_{ij} / X_j}{(X_{iw} / X_w)}
\]

where 
- \(X_{ij}\) = exports of commodity i by country j
- \(X_j\) = total exports of country j
- \(X_{iw}\) = world exports of commodity i
- \(X_w\) = Total world exports

- The compatibility indices is defined as:

\[
SM_{jX_k} = 1 - \sum \left| \frac{M_{ij} - X_k}{2} \right|
\]

where 
- \(SM_{jX_k}\) = index of compatibility of imports of country j with exports of country k (partner).
- \(M_{ij}\) = Share of good i in total imports of country j.
- \(X_{ik}\) = Share of good i in total exports of country k.

- The trade structure index is defined as follows:

\[
TSI = \left[ \sum |h_{ij} - h_i| \right] \div 2
\]

where 
- \(h_{ij}\) is the share of commodity i in the exports of country j
- \(h_i\) is the share of commodity i in total world exports.

- The trade intensity index (TII) is defined as:

\[
TII_{ij} = \frac{X_{ij} / X_i}{M_j / M_w - M_i}
\]

where 
- \(TII_{ij}\) = Trade intensity index for country i’s exports to RTA j
- \(X_{ij}\) = exports of commodity i by country j
- \(X_i\) = total exports of country j
- \(M_j\) = Share of good i in total imports of country j
- \(M_w\) = Total world exports
- \(M_i\) = Share of good i in total imports of country i
- \(X_w\) = Total world exports
\[ X_{ij} / X_i \quad = \text{Share of the RTA } j \text{ in country } i \text{'s total exports} \]

\[ M_j / M_w - M_i \quad = \text{Share of RTA } j \text{'s imports in total world imports, net of } i \text{'s imports} \]

**The Export Revealed Comparative Advantage**

The Export Revealed Comparative Advantage (XRCA) index is defined as:

\[ \text{XRCA} = \left( \frac{X_i^k / X_w^k}{X_i / X_w} \right) \]

Where

- \( X_i^k \): exports by country \( i \) of commodity \( k \)
- \( X_w^k \): world exports of commodity \( k \)
- \( X_i \): total exports of country \( i \)
- \( X_w \): total world exports particular product category

The XRSCA index derived from the XRCA index is defined as:

\[ \text{XRSCA} = \frac{\text{XRCA} - 1}{\text{XRCA} + 1} \]

**The cosine index and the export-import similarity measures are defined as:**

\[ \text{COS}_{ij} = \frac{\sum_k E_{ik} \cdot M_{jk}}{\sqrt{\left( \sum_k E_{ik}^2 \cdot \sum_k M_{jk}^2 \right)}} \]

\[ \text{EIS}_{ij} = \sum_k \min \left[ \frac{E_{ik}}{\sum_k E_{ik}}, \frac{M_{jk}}{\sum_k M_{jk}} \right] \]

In which

\( E_{ik} = \text{exports of country } i \text{ in commodity class } k \)
$M_{jk} = \text{imports of country } j \text{ in commodity class } k$

$k = \text{commodity class } 1 \ldots n$

The Trade Potential Index is defined as:

$$
\text{TP}_{ij} = \frac{\sum_{i=1}^{14} Y_i^{\alpha 1} N_i^{\alpha 2} \cos_{ij}^{\alpha 9}}{\frac{1}{n} \sum_{j=1}^{24} \sum_{i=1}^{14} Y_i^{\alpha 1} N_i^{\alpha 2} \cos_{ij}^{\alpha 9}} \cdot 100, \quad i = 1 \text{ to } 14
$$

$$
\text{TP}_{ij} = \frac{\sum_{i=1}^{14} Y_i^{\alpha 1} N_i^{\alpha 2} \text{EIS}_{ij}^{\alpha 9}}{\frac{1}{n} \sum_{j=1}^{24} \sum_{i=1}^{14} Y_i^{\alpha 1} N_i^{\alpha 2} \text{EIS}_{ij}^{\alpha 9}} \cdot 100, \quad j = 1 \text{ to } 24
$$

$\alpha 1 = \text{estimated coefficient of GNP}_i$

$\alpha 2 = \text{estimated coefficient of POP}_i$

$\alpha 9 = \text{estimated coefficient of Export-Import similarity where}$

$i = \text{the importing country and } j = \text{the exporting country.}$