ECONOMIC INTEGRATION:

AN OVERVIEW OF THE THEORETICAL AND EMPIRICAL LITERATURE

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1 Introduction

International trade has been seen as the "engine of growth" both for developing and developed countries. As the World Bank (1991, p.7) notes:

> *"When international flows of goods, services, capital, labour and technology have expanded quickly, the pace of economic advance has been rapid. Openness to trade, investment and ideas has been critical in encouraging domestic producers to cut costs by introducing new technologies and to develop new and better products. A high level of protection for domestic industry, conversely, has held development by decades in many places."*

Since free world trade is not a realistic possibility, economic integration is seen as a move towards free trade, despite criticisms from some quarters.[3] El-Agraa (1998) defines the term economic integration as the discriminatory removal of all trade impediments between at least two participating countries and the establishment of certain element of co-ordination and co-operation between them.[4] This definition implies elements of both free trade *and* protection.

The last decade has seen a dramatic increase in the number of preferential trade agreements (PTA), due in part from the frustration arising from the delayed completion of the Uruguay Round of multilateral trade negotiations. Moreover, politicians continue to discuss the expansion of existing regional agreements to include more countries (e.g. the EU), as well as the broadening and deepening of existing trade and investment liberalisation provisions (e.g. APEC, the Asia Pacific Economic Council). According to the World Trade Organisation (WTO), at least 100 regional arrangements had been formed by the end of 1994, nearly a third of them in the previous five years. As a result of the proliferation of PTAs, the share of preferential trade has increased considerably in 1990s, reaching 42 percent of world trade between 1993-1997 (Grether and Olarreaga, 1998). It was estimated by Grether and Olarreaga that Western Europe has the largest preferential trade share, with a 70 percent average between 1988 and 1997. It was followed by the Western Hemisphere and Africa, with a 25-26 percent average. Asia and Oceania, however, recorded very low values, which were around 4 percent.

2 THEORY OF CUSTOMS UNIONS

2.1 Viner and Beyond

Prior to the seminal work of Viner (1950), it had been assumed that a move to a customs union would be an unambiguously good thing for the world welfare, since it resulted in the

[3] See Panagariya (1996 and 1998) and Winters (1996) in the context of multilateralism versus regionalism.
[4] For a detailed discussion see El-Agraa (1998) and Jovanovic (1992).

removal of some tariffs. In contrast, Viner demonstrated that the welfare effects from creating a customs union depend on the net impact of *trade creation* and *trade diversion*.[5]

Viner's work was the catalyst for developments by Meade (1955) and Lipsey (1957). By allowing trade by many countries in many commodities, Meade highlighted the role of prices and international terms of trade for achieving and maintaining equilibrium in international trade and payments under economic integration agreements. Assuming fixed patterns of production, Meade emphasised the effects of substitution in consumption. He showed how the formation of a customs union could alter relative prices and as a result, change consumption patterns, thereby leaving the volume of trade among countries to vary. Since this may give rise to both trade expansion and trade contraction, an increase in welfare will be possible only if there is a net increase in the volume of trade. The net effect on welfare would depend on the level of pre-union tariffs and demand elasticities. In conclusion, Meade argued that while trade creation in a customs union is welfare improving, a trade-diverting customs union might or may not improve welfare depending on the factors mentioned above.

The major contribution of Lipsey (1957),[6] was the introduction of the second-best theory into the analysis of customs unions. The theory of second-best implies that reducing tariffs on a discriminatory basis under a regional integration arrangement does not necessarily lead to a welfare gain for individual countries or for the world as a whole as long as the discriminatory barriers in other countries remain unchanged. Lipsey assumed that there is a unique second best position in the economy. Although this position is not Pareto optimal, it could be a Pareto improvement. He reached the same conclusion as Meade (1956) on the ground that a trade diverting customs union might increase the welfare of the home country. Lipsey argued that Viner had ignored the inter-commodity substitution in consumption. Trade diversion does not necessarily entail a loss in welfare because of the change in the pattern of consumption brought about by changes in relative prices in the domestic market of member countries.

Earlier analyses of classical customs union theory assumed the home country to be an importer. In addition to taking imports as main determinant in their trade creation and trade diversion analysis, they also assumed that the rest of the world does not impose any tariff or

[5] Trade creation occurs when the high cost domestic output of one member is replaced by the importing of lower-cost production from another member. Trade diversion arises when more efficiently produced foreign tariff-ridden imports to the domestic economy are, following the creation of a customs union, replaced by less efficiently produced production from a supplier from within the customs union.

[6] Work which evolved from Lipsey and Lancaster (1956).

non-tariff barriers and there are no transport costs. As noted by Sodersen and Reed (1994), considering the home country as an importer would only lead to losses from trade diversion because it results in a worsening of its terms of trade. However, a partner country that is treated as an exporter gains from trade diversion. Since each member of a customs union will, in practice, be both an exporter and an importer, the losses through trade diversion on imports might be matched by gains through trade diversion on exports. Wonnacott and Wonnacott (1981,1992) provided a possible answer to this question by taking the export argument for customs union in a highlighted two world obstacles to international theory: foreign trade barriers and transport costs. Using the assumption of a tariff-ridden world, Wonnacott and Wonnacott (1981,1992) demonstrated that there could be some welfare gains from a customs union membership, which cannot be secured through unilateral non-discriminating tariff reductions. These arise where the exporting member of the customs union is a low-cost producer, which could not fully exploit its comparative advantage before joining the customs union because of the tariffs imposed by other countries.

Regarding the overall welfare effects of a customs union, it is argued that even some members of the customs union lose by joining the union, the welfare of the customs union as a whole might still be positive if the other partner countries gains are substantially high and outweighs the losses of the remaining members. By allowing transfer payments between countries, Kemp and Wan (1976) argued that a customs union would always be welfare improving. Any customs union is potentially favourable for all countries considering participation, since even if there is loss, they can be compensated. Then, as the argument goes, customs union among n members could be extended to $n+1$ countries, which implies that with expansion, there is an incentive to form and enlarge the customs union until the world becomes a customs union. Kemp and Wan also offered a theoretical perspective regarding the common external tariff towards non-members. In what is popularly termed the *Kemp-Wan theorem*, they demonstrated that a customs union can always find a common external tariff structure that would make the rest of the world's trade with the union just equal to its trade with home and partner countries combined before the union. Thus, the rest of the world would not be worse off as a result of the customs union. Therefore, any improvement to the welfare of the member countries as a result of the customs union would add to world welfare. It also shows that, in theory, it is possible to shift the world economy from tariff-ridden trade to free trade through a series of Pareto-improving customs unions. However, Krugman (1990) pointed out that the optimal CET should be expected to be higher than the pre-union tariff rates of the member nations, given their increased market power derived from

acting jointly. Hence, Krugman (1990) argued that a customs union always provokes trade diversion, leading in all likelihood, to a reduction of non-members' welfare and in some cases the world's welfare as a whole.

In a recent study, Srinivasan (1997) used the Kemp-Wan theorem to offer different approaches to define such tariff structure for a customs union, namely, as a consumption-weighted average of pre-union tariffs and subsidies in members of the customs union. However, as noted by DeRosa (1998), the Kemp-Wan theorem does not shed light into the political-economy problem of reaching a consensus to establish such a common external tariff and determine the transfer payments among the members.

2.2 The Introduction of Imperfect Competition

Classic customs union theory assumes an environment of perfect competition and constant returns to scale in production. This assumption reflects the dominance of the classical and neo-classical approaches of Ricardo and Heckscher-Ohlin-Samuelson (H-O-S). However, from the late 1970s, doubt was cast upon the ability of the orthodox theory to account for *actual* patterns of international trade. This criticism was derived from the fact that, contrary to H-O-S theory, the largest and fastest growing component of world trade since World War II was between industrialised countries. Furthermore, the composition of trade was two-way trade.[7] As a result, the last two decades have experienced enormous explorations in trade theory, which challenged the classical framework, to explain the actual patterns of recent developments in world trade.

The pattern of production and trade is driven in part by relative factor prices (endowments) and in part by economies of scale and scope. The first determinant will give rise to *inter*-industry trade, for example, the exchange of unskilled labour-intensive goods for human capital-intensive products. The more dissimilar are countries' endowments, the greater the volume of trade will be. The second factor will generate *intra*-industry trade: the exchange of similar manufactured products, with firms specializing in different varieties of similar goods, and relying increasingly on foreign suppliers to provide intermediate inputs and components used in their production process. The more similar are countries, the more important the latter type of exchange becomes (Helpman and Krugman, 1985).

Grossman (1992) stated that the most important development in recent years came with the advent of the so-called ‘new trade theories’. These incorporate imperfect competition

and economies of scale into the analysis of trade flows and trade policies. The role of economies of scale as a determinant of trade was emphasised by Krugman (1979) and Lancaster (1980), who independently provided a theoretical framework with which to analyse the motives that determine intra-industry trade. Additionally, Brander (1981) developed a model that analyses the rivalry of oligopolistic firms in each other's market. Amongst other things, these studies highlighted the importance of increasing returns to scale, which suggest that there will be gains from trade even if two countries are completely identical in every aspect.

As noted by Baldwin and Venables (1995), the new wave of studies in economic integration took its roots from these so-called 'new international trade theories', in which imperfect competition plays a crucial role. In order to analyse these possible effects associated with imperfect competition, it is necessary to take a closer look at the recent developments in the theory, starting from the economies of scale as it by itself provides the core of the theory.

2.2.1 Economies of Scale

The argument that economic integration enables the exploitation of scale economies that cannot be reaped in small national markets relies on the basic idea that mass production reduces average costs per unit. However, this is a general argument for trade liberalisation or for world-wide free trade. Inevitably, this depends on the type of product under focus and the relative size of the national market when compared to the customs union's market. Corden (1972) showed that apart from the usual trade creation and trade diversion effects, there are two supplementary effects to acknowledge: one positive, one negative. The positive result of the customs union is the cost reduction effect. The customs union leads to cost reductions for the quantity previously supplied for internal use (under prohibitive protection) by the most efficient producer in the union. In addition, the home country supplies the other members of the union, for which there is a trade creation effect. However, Corden argued that there could also be a trade suppression effect[8] whenever all the partner countries were importing all consumption from non-members before the union (because there was no tariff or the latter was not high enough to be prohibitive). After the customs union is created, the least inefficient partner country might be able to begin producing simply because it now has all the

[7] See Krugman (1991a, 1991b).
[8] For trade suppression effects see also Robson (1987) and Pomfret (1988)

union's markets at the partner country's disposal. This might be sufficient to have average unit costs in the area to be smaller than the price-cum-common external tariff set by the customs union. Thus, other member countries suffer from trade diversion in favour of the exporting country. According to Healey (1995), the justification of the formation of the customs union in the presence of economies of scale will depend on whether or not the net welfare effect is a gain or loss, as there may be an additional social cost for the home country arising from the abandonment of production in favour of the partner country.

Essentially, the inclusion of scale economies in the modern static theory of customs union identifies the possibility that if there were unexploited economies of scale before regional integration, these will increase concentration and firm scale for the firms in member countries to produce greater quantities of either differentiated or homogenous products after the customs union formation. Consequently, it could be expected that when trade preferences and resulting shifts in demand are in favour of intra-regional trade, it is possible to lower output prices as they not only capture but also create larger markets for their output at home and abroad.

2.2.2 Production Shifting

Baldwin and Venables (1995) held that formation of an economic integration tends to shift production of the liberalised product into the tariff free area. With the large-group assumption, which implies that each firm in the economy acts as if its market share were zero, they argue that the volume of output in each country depends particularly on the number of firms and the relative costs they face. The argument is that economic integration provides member country's firms a scale advantage over foreign producers, plus the opportunities to expand market shares in domestic and in unprotected member country markets. By imposing common external tariff towards non-members, a number of partner country firms would enter into the union and non-member country firms would exit. This arises because more varieties are now produced in member countries and because they benefit from free entry into each other's market, and there will be a reduction in prices of the product for the member countries and a price increase for the non-members. This has the effect of expanding domestic production in member countries and thereby increases welfare of the members at the expense of non-member welfare. Helpman and Krugman (1989) refer to this as the home-market effect. This effect is a feature of numerous other models, such as the geography model of Krugman (1991c).

2.2.3 Pro-Competitive Effect

Under more complex specifications of market power and industry structure, allowing for oligopolistic interaction between firms in the industry makes price cost mark-ups endogenous. Pro-competitive effects may relate to increased scale economies and falling costs through the mechanism by which economic integration changes price cost mark-ups.[9] It is argued that, by considering imperfect competition and economies of scale, economic integration might successfully erode market power of dominant firms in member countries through market entry of competing firms from other member countries. This mechanism operates as follows: if two countries engage in trade liberalisation towards each others market, this will reduce the dispersion of market share since firms gain exports and lose home market sales. It is further claimed that the firms' market shares at home are higher and they also enjoy high mark-up pricing. Therefore, with the liberalisation, sales at home would be reduced and meantime sales in export markets would be expanded (Baldwin and Venables, 1995). The pattern of results suggests that the pro-competitive effects of trade liberalization, including falling market power and expanded output in imperfectly competitive sectors, thereby reducing average production costs, may be some of the most substantial effects following from trade liberalization, for member countries.

Since Brander and Krugman (1983), firms' ability to discriminate among markets, known as market segmentation, has been central to many theoretical contributions in international trade and regional integrations with imperfect competition. A number of studies tried to analyse the potential effects of the 1992 Programme for industries focused on the effects of changing from segmented national markets to a fully integrated European market as it capture the effects of eliminating the numerous administrative barriers preventing consumers to arbitrage products across markets.[10] Market segmentation is the essential assumption of models of trade based on imperfect competition since in the simplest versions of such models, the possibility to price discriminate between markets is the only reason for trade.[11]

Finally, regarding the literature incorporating imperfect competition and economies of scale, it is necessary to bear in mind that imperfect competing industries require complex formulations and sometimes require rather restrictive assumptions. As noted by DeRosa (1998), for instance, specification of demands for differentiated products is complex and

[9] For a detailed and more technical analysis see Baldwin and Venables (1995).
[10] See, for instance, Smith and Venables (1988) and Haaland and Wooton (1992).

generally specific functional forms for individual or community preferences underlying demand functions are adopted from other economic studies. Consequently, the results of the studies will be based on such assumptions and restrictive techniques. Therefore, it could be argued that these studies are relatively new and still needs to be developed to date.

2.3 The Growth Effect

The comparative static studies reviewed above simply compare two equilibrium positions (before and after). They ignore the *process* by which the new equilibrium comes about, involving such issues as changing capital stocks (human and physical), levels of industrial concentration or technological innovation. Yet, it is argued that all of these may be influenced by the formation of the customs union**.**

The standard argument that an economic integration can affect the rate of output growth is realised through a faster growth of factor inputs, particularly return on investment in human and physical capital, and through increases in the growth of total factor productivity (Baldwin and Venables, 1995 and Romer, 1994). Baldwin and Venables stated that the former might be transient and associated with the medium term effects, while the latter has permanent effect.

Recent theoretical work and empirical evidence suggest that regional economic integration can provide an important stimulus not only to trade, but also to foreign direct investment (FDI) within the region concerned. The experiences of Spain and Portugal (upon joining the EC) and Mexico (following its decision to negotiate the NAFTA) suggest that joining a regional economic integration scheme can provide an impetus to inward foreign direct investment. This raises the question of whether these increases in incoming FDI affect the flows of direct investment going to other potential host countries that did not offer the advantage of belonging to the regional integration scheme concerned. Baldwin, Forslid and Haaland (1995) suggested that the creation of the Single Market in the EU probably led to investment diversion in the economies of the European Free Trade Association (EFTA) and investment creation in the EU economies, the latter being particularly prevalent in Spain and Portugal. Brenton (1996) also found that the EU Single Market programme led to a significant increase in investment by EU firms in other EU countries in the late 1980s.

An important issue is whether economic integration fosters growth through changes in return on investment among the countries concerned. In this context, factor accumulation

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[11] See Brander (1981) Brander and Krugman (1983).

may be of crucial importance. Much of the effect of trade policy on growth may well work through the domestic rate of physical investment, which is a determinant of economic growth in a nearly tautological sense (Baldwin and Seghezza, 1996). Regional economic integration typically encompasses reductions in regional trade barriers and investment restrictions. Baldwin and Venables argued that factor prices in member and non-member countries could be affected with economic integration. With the assumption of imperfect competition, this could result in an increase in demand for capital, within the union and a decrease in it outside the union. Assuming capital is perfectly mobile internationally, this will lead to investment inflows into the region from non-member countries. These capital flows might lead to an increase in GDP and consequently in GNP in member countries unless the capital owners remit their earnings. Even if there is no capital inflows it is also possible that there could be growth effects that occur as the initial gains in efficiency and output raise factor rewards and generate new savings and investments that contribute further to output growth (Baldwin, 1989). Using a related argument, Wacziarg (1997) argues that the extent of the market is an important determinant of the degree of product market competition. The entry of new firms on export markets, after an episode of liberalisation, may well entail large fixed investments. This points to the rate of investment as a potentially important channel linking trade policy openness and growth. However, Baldwin et al (1995) argued that it is also possible that integration will produce investment diversion with investment being diverted from its most rational location in the world economy to the integrating region because of the tariff discrimination produced by integration.

As mentioned earlier, apart from medium term growth effects there is also the permanent growth effect due to economic integration. The last effect that we consider stems from recent literature on endogenous growth. Recently, a number of studies have addressed the long-term effects of integration. Rivera-Batiz and Romer (1991), and Grossman and Helpman (1991) analysed the growth effects of integration between similar countries (with respect to factor endowment and technology). Rivera-Batiz and Xie (1993), and Coe and Helpman (1995) addressed the growth-rate effects of integration between dissimilar countries with rather different resource endowments.

It is argued that if knowledge spillovers are a driving force for sustained, long-run growth, and open economies are more exposed to a worldwide stock of productivity by enhancing knowledge, then technological transmissions can be a channel through which trade openness affects growth and convergence (Barro and Sala-i-Martin (1997), Grossman and Helpman (1991)). Coe and Helpman (1995) also found that there is some evidence that

developing countries' total factor productivity is positively related to the access of technology and knowledge embodied in imports from developed countries. Member countries could affect output growth through its enhanced access to technology, which could improve productivity, by two potential ways. First, more frequent and sustained trade interactions may make it easier for domestic producers to imitate foreign technologies and to incorporate this knowledge in their own productive processes (Edwards, 1992). This increased exposure can stem from direct imports of high technology goods or from greater interaction with the sources of innovation (through enhanced international communication and mobility brought ahead by economic integration). Second, by providing an incentive to foreign direct investment to locate and produce in countries of the union, it often leads to the direct international transmission of advanced types of technology, either through capital goods imports which are later imitated, or through the diffusion of know-how and expertise (Winters, 1996).

2.4 Extensions to Customs Union Theory

2.4.1 Country Size and Natural Trading Partner

As can be examined in our proceeding analysis, most often, the theory of economic integration assumes a 'small' home country, and a 'large' partner. That is, since the ''home'' country is assumed to be 'small' it is a price taker, either in trade with its partner to the agreement or in its trade with the rest of the world. It is argued that being a small country, unable to influence the terms of trade of partner countries in an economic integration, can be of a distinct advantage. By examining the gains and losses associated with terms of trade and volume of trade effects, when a small country forms or joins a regional integration, Kowalczyk (1996) argued that the small country enjoys gains through its access to the trading bloc, but the large partner might demand some transfer payments from the small member to establish free trade. Schiff (1997) found that a small country joining a large regional agreement could increase its welfare by reducing tariffs on imports from member countries that is sufficiently large enough to satisfy a small country's entire import demands at little or no increase above the prevailing international terms of trade. In a more recent paper, Schiff (1999) went further and argued that the 'small' home country is likely to gain more on its exports to the 'large' partner. Since the 'large' partner is likely to continue to import from the world market after the formation of economic integration, the partner charges a tariff on

imports from the world market, then, the home country is more likely to obtain an improvement in its terms of trade by selling to the partner at higher tariff-inclusive price.

Krugman (1991a) took an alternative approach by focusing on countries, which are left out of this process. He argued that a country that is excluded from a regional integration arrangement might suffer significant welfare losses. It has also been claimed that it is better for a small country to form or join a regional integration arrangement with a large country, rather than with a smaller one. Rutherford, Rutstrom and Tarr (1993) found that Morocco, for instance, would be better of by forming a regional integration arrangement with the EU rather than with Algeria or Tunisia. The same results were found in the case of Chile, stating that becoming a member of NAFTA would be better than becoming a member of MERCUSOR (Schiff, 1996, Harrison, Rutherford and Tarr, 1997). Bhagwati and Panagariya (1996) and Panagariya (1997), however, offered a systematic critique of some of these fundamental propositions, by stating that the trade diversion involves heavier losses than the Vinerian framework predicts. On the other hand, Michaely (1998) argues that their assumption holds only when the home country is 'ultra-small'.

Regarding the issue of 'natural trading partners, it has been noted that one of the common characteristics of recent trade agreements is that they are regional, as they have been established by neighbouring countries (Ethier, 1996). Therefore, it has been suggested that a trade agreement among the countries in a natural trading region could potentially result in significant welfare gains. The natural trading bloc argument is explained either by the volume of trade between potential partners or by the distance and transport costs between them. The argument explaining the natural trading partner by the volume of trade originally started with Lipsey (1960), who argued that the welfare gains in a customs union will be higher, the higher the proportion of trade with the country's union partner and the lower the proportion with the outside world. More recently Summers (1991) argued that the countries forming a regional integration would likely to gain larger welfare if they are large and trade disproportionately with each other and geographically proximate as the risk of trade diversion will be minimal.
The argument that the distance and transport costs are crucial in explaining natural trading partner, evolved from the work of Wonnacott and Lutz (1989). They argued that, ceteris paribus, since proximity between regional integration arrangement members increases trade between them (due to lower transport costs), it reduces the extent of trade diversion and increases the benefits of regional integration.

In a similar vein, Krugman (1991a) offered an extreme example. In his analysis, the world was divided into continents; assuming that the transport costs are zero in intra-continent while they are non-zero in inter-continents. He argued that by precluding inter-continental trade, an intra-continental integration agreement would produce larger welfare gains in the continent as a whole. Krugman inferred the continent in this example of a 'natural trading bloc' for which low trade costs made regionalism a natural and beneficial policy. Following on from Krugman (1991a), by allowing transport costs non-zero, Frankel (1996) and Frankel, Stein and Wei (1997) argued that since inter-continental transportation and business costs increase relative to intra-continental ones, regionalism among proximate countries becomes a better policy in welfare terms. By extending Krugman's model, Bond and Syropoulos (1996) and Kose and Reizman (1997) reached the same conclusion.

The argument that the natural trading partner can be defined in terms of volume of trade has met criticism elsewhere.[12] Panagariya (1997) argued that trade diversion is a marginal concept and, therefore, has nothing to do with the initial level of trade between partner countries. He also opposed Summers' (1991) definition that Mexico and the USA are natural trading partners since even Mexico's main trade takes place with the USA, yet for the USA, Mexico's share in her trade is very small. Therefore, he concluded that the term 'natural trading partner' couldn't be associated with the initial volume of trade. Finally, even though it is difficult to defend natural trading partner with the volume of trade argument, Schiff (1999) argued that in the case of the distance and transport costs, natural trading partner argument gains strong economic grounds.

2.4.2 Non-traditional Gains

As mentioned earlier, the last decade has witnessed a dramatic increase in regional integration arrangements. Remarkably the initiatives for either forming or joining to a regional integration came mainly from relatively small countries. Fernandez (1997) argued that increase in recent regional integration arrangements could be not only because of 'traditional gains', such as trade creation, economies of scale or growth effects etc, but also because of generally not mentioned, as he called 'non-traditional gains'. These possible non-traditional gains can be categorised as follows[13]:

[12] See for instance Bhagawati and Panagariya (1996), Panagariya (1997) and Schiff (1996, 1999).

(a) Time-inconsistency

This suggests that regional integration with a large, rich and effective partner can be an effective instrument of imparting credibility to reforms. Moreover, with such an agreement it is guaranteed to 'lock' the reforms, which will make it difficult for protection-minded future governments to reverse the actions of their predecessors.

(b) Insurance

This suggests that a regional integration arrangement can contribute to the welfare of its members if it seen as providing at least one of them with insurance against possible future events. Perroni and Whalley (1994) argued that the main motive of small countries is to provide themselves with 'safe havens' by securing their access to larger country markets. This agreement ensures the small country if the rich partner adopts a more protectionist stance in the future, its access to the latter's market will be preserved

(c) Bargaining Power

This suggests that becoming a member of a regional trading block subsequently increases the bargaining power of the small country in multilateral trade negotiations. Fernandez (1997) argued that this explanation is more appropriate for a customs union, which has a common external tariff, since these countries should have a greater bargaining power combined than had they negotiated separately. To illustrate the importance of regional integration in terms of bargaining power, one has to look at recent multilateral negotiations in the WTO, which was dominated almost entirely by the 'Quad' group (the EU, USA, Canada and Japan).

It is argued that these non-traditional gains from regional integration are of particular importance in relation to investment which provided a basis for Mexico joining NAFTA, and for Europe Agreements between CEEC countries and the EU. As noted by Fernandez (1997), the incentive to invest, for both domestic and foreign investors, depends crucially not only on current trade policies, but on future trade policies, the level of uncertainty, and the macroeconomic and political environment, which could be affected by economic integration.

3 QUANTITATIVE EVALUATIONS OF ECONOMIC INTEGRATION

3.1 Introduction

Before evaluating the methodologies developed to measure the effects of economic integration, it is useful to have a framework that categorises the possible sources of welfare

[13] For a detailed analysis for 'non-traditional' gains see Fernandez (1997).

change in a liberalised country. Baldwin and Venables (1995) categorised the possible changes**,** which may take place in a well-defined framework.

It is assumed that the welfare of the consumer can be represented by an indirect utility function of $v\ (p+t,\ n,\ E\ );$ Where p is a vector of border prices, t is a vector of trade costs, n is a vector depicting the number of products available in each industry and E is a vector which represents total spending on consumption. Total expenditure equals the sum of factor income, profit, and rent from trade barriers, minus investment. That is,

$$E= wL + rK + X[(p+t) - a\ (w,r,x)] + \alpha tm - I \qquad [3.1]$$

In [3.1], L and K are the country's supply of labour and capital, and w and r are corresponding factor prices. The first two terms, $wL+rk$ **,** give total income. The profit components are given as the third term, where the economy's production *sector X* is changed by domestic prices and any derived tariff level, $(p+t),$ minus average costs $a(w,r,x).$ The fourth term, $\alpha fm,$ represents trade rents received by domestic agent, where m is the net import vector and α is a diagonal matrix that measures the proportion of the wedge t that creates income for domestic agents when domestic agents receive full amount of trade rents $x=I,$ and $d=o$ for a barrier where no trade rent is captured domestically (non DCR). Finally, the fifth term, $I,$ represents investment. In order to derive welfare effects of a regional integration agreement, Baldwin and Venables (1995) totally differentiate the indirect utility function v and divide through by the marginal utility function of expenditure[14], that is

$$\begin{aligned} dV/V_E = {} & \alpha\, t\, dm - m\, d[t- \alpha\, t] - m\, dp \\ & + [p+t\ -a]\ dX\ -Xa_x\ dx + (\ V_n / V_E\ )\ dn \\ & +(r / p\ -\ 1)dI. \end{aligned} \qquad [3.2]$$

As pointed out by Baldwin and Venables (1995), the first row of the equation represents welfare effects that are captured in models with perfect competition. The first term associated with perfect competition models is called the 'trade volume effect'. This occurs when it changes the volumes of trade dependent on the wedge created by DCR trade barriers, αt. The second term in the first row is the 'trade cost' effect, which measures the change in costs caused by change in the non-DCR elements of trade barriers. Finally, the third term in the first equation is the 'terms of trade' effect.

The three terms in the second row represents welfare effects captured by models with economies of scale and imperfect competition. The first term in the second row accounts for

[14] For a formal detailed analysis, see Baldwin and Venables (1995).

the change in output when price differs from average costs (called the 'output effect'). The second term in the second row measures changes in average costs brought about by changes in firm scale ('scale effect'). The third term in the second row is called the 'variety effect' and depends on the changes in the number of differentiated products.

The third row is relevant to models that capture the growth effects of regional integration through accumulation of factors. We shall refer these possible sources of welfare changes in the liberalised economy when analysing the quantitative results of economic integration. Attempts to measure economic integration, whether via a customs union or free trade area, are generally categorised into empirical (econometric) or analytical. Empirical studies are counterfactual, attempting to estimate what could have happened to trade in the absence of integration. Analytical models, on the other hand, basically establish an economy-wide theoretical structure. Studies using this approach are mainly based on ex-ante analysis and rely heavily on the estimation of parameters borrowed from econometric studies which are not directly related to free trade area or customs union. Since the late 1980s, analytical analysis using computable general equilibrium (CGE) models has been dominant.

3.2 The Empirical Literature

Studies from the late 1950s to early 1980s were mainly empirical, with a heavy emphasis on simple algebraic methodology to identify any difference in trade flows between the pre and post-integration periods. Most of the empirical studies measured trade creation and trade diversion in the context of the EC. The earliest studies adopting ex-post approach were mainly using residual imputation method.

In these models, the integration is calculated as the difference between the actual level of trade flows that integration had resulted in and the hypothetical level had integration not taken place. In an early study, Williamson and Bottrill (1973) used such a methodology to estimate that trade among the member countries of the EC was 50 percent higher in 1969 than would have been the case without integration. In a similar vein, another study found that both imports and exports in EFTA increased by 25 percent due to the free trade agreement in the 1959-1965 period (EFTA Secretariat, 1969).

Kreinin (1969) offered a simple way of measuring trade creation and trade diversion. His empirical results suggested that for 1969/70, trade creation accounted for 14.8 percent of the EC's imports, while trade diversion amounted to 7.3 percent of total EC external imports. Among the other most notable studies using the ex-post approach were Balassa (1967,1975), who used income elasticities of demand for imports and the inspired assumption that higher

(lower) income elasticity values imply trade creation (trade diversion); Truman (1969), who used trade share measures; and Aitken (1973), who investigated bilateral trade flows using gravity modelling.

Earlier studies reveal a fair degree of agreement that trade creation outweighs trade diversion in the case of EC integration. Disagreement arises only with respect to magnitude of this difference. However, the net trade creation effect among these studies is relatively small.[15] Winters (1987), for instance, estimated that the UK membership to the EC led to a welfare gain from trade volume effect equal to 0.11 percent of UK GDP.

Apart from measuring trade creation and trade diversion, some empirical studies also attempted to quantify the possible impact of economic integration on other variables, including the distribution of gains among the member countries. Finally, recent empirical studies in regional integration have attempted to measure the growth effects of economic integration. Using time-series analysis, Coe and Moghadam (1993) estimated the long-run output growth in France that could be attributed to increased trade integration with the EC. In order to calculate this, an aggregated production function was estimated using co-integration techniques. Their results suggested that 0.3 percent points of the French annual growth rate for 1984-1991 period were attributable to EC integration. Similar results were obtained by Italianer (1994). In contrast, Montenegro, De Melo and Panagariya (1992) used cross sectional country data and concluded that regional integration has no growth effect. Similarly, Henrekson et al (1997) found no significant differences between the effect of EC and EFTA membership on economic growth. Baldwin and Seghezza (1996) found that cross-country data reveal a rough correlation between the national total factor productivity growth rates and the degree (and duration) of European integration. However, their explanatory regressions proved inconclusive, finding almost no empirical support for trade-induced technology led growth associated with European integration. However, it should be noted no firm conclusions could be drawn regarding such studies on this literature as it is far from mature and also new conclusions may emerge.

3.3 CGE Evaluations of Regional Integration

As regional integration arrangements spread, enlarged and deepened over the last decade, they have posed challenges to economists with regard to estimating a wide range of possible impacts of these trade agreements. It has been argued that the analysis of trade creation and

[15] For an earlier review of studies relating to EC integration see Winters (1987).

trade diversion is not well-suited to the study and quantifications of recent regional integration arrangements as it neglects the importance of some major issues, including welfare effects, the initial tariff level, market structure and growth effect (Kose and Reizman, 1998). Recent analytical studies have started to employ computable general equilibrium (CGE) models to allow for explicit analysis of the complex interaction of comprehensive policy changes that would follow economic integration.

CGE models take account of the whole economy, including upstream and downstream links between different sectors. There are a number of CGE approaches reflecting the number of countries, sectors, and institutional detail. It is helpful to identify three generations of models,[16] described above, consistent with the three rows into which we classified welfare effects in equation [3.2].

The main characteristic of first generation models is a perfectly competitive environment under which each industry produces homogenous goods under constant returns to scale. In contrast with the basic Vinerian approach, most of the first generation CGE models adopt the Armington assumption, which assumes that consumers differentiate similar products by country of origin (rather than assuming all goods are homogenous). Second generation models, originating from the work of Harris (1984), allow for imperfect competition and the possibility that production is subject to economies of scale. These types of models capture output effect, scale effect and variety effect. Finally, third generation models allow for a growth effect.

In the following sections, the CGE studies of regional integration will be reviewed for major regional blocs, namely for the EU, NAFTA as well as for other developing countries, by taking these three generation models in to account.

3.3.1 Evaluations of the EU

The EC's own assessment of the impact of the internal market is encompassed within the Cecchini Report (1988). It was important in a sense that it combines the results of several different models of analysis in an original and innovative method. This project estimated the impact of the removal of all trade barriers on internal trade, economies of scale, freedom to provide services, public procurement etc. The official estimate of the Cecchini Report suggested that the welfare gains would be between 4.3 percent and 6.4 percent of 1988 GDP, creating up to five million new jobs in the medium term.

[16] The classification of CGE models in regional integration studies is taken from Baldwin and Venables (1995).

Central to the Cecchini Report was an influential partial equilibrium study by Smith and Venables (1988). Many crucial general equilibrium models are based on this study. Their model was calibrated with reference to ten particular industries in a world economy consisting of six countries. The main characteristics of the model were to allow for imperfect competition and economies of scale. Their results suggested that completing the internal market was pro-competitive, leading to substantial increases in firm scale and bringing large welfare gains from lower prices. These studies proved to be the catalyst for a number of general equilibrium model analyses. Representative second-generation models can be found in the work of Gasiorek, Smith and Venables (1992) and Haaland and Norman (1992). The former study sought to analyse the welfare consequences of a reduction in trade barriers and on the changes in production and trade flows with the rest of the world. Similar to the Smith and Venables (1988) model, two types of policy experiment were considered; first a 2.5 percent reduction in intra-trade cost together with this policy experiment, and secondly, a switch from market segmentation to market integration, which suggests firms no longer have the option to price discriminate. The results suggested that a reduction in trade barriers would have a positive effect on welfare. Yet, these gains are relatively modest. When the second policy experiment was considered, the gains from completion of the internal market were substantial. Intra-EC trade liberalisation had a pro-competitive effect and large gains arose due to imperfect competition (see Table A.1).

Similar to the Gasiorek, Smith and Venables model, Haaland and Norman (1992) employed a multi-country CGE model that focused primarily on the welfare implications of the EC-1992 programme on the EFTA countries. Haaland and Norman found that EC-1992 posed no threat to the United States and Japan, whereas the losses for the EFTA countries, however, were significant. Staying out of the EC would lead a 0.1 percent loss for EFTA. In line with the Gasiorek, Smith and Venables model, Mercenier (1995) and Mercenier and Schmitt (1996) focused on the importance of labour market conditions, and on the competitive situation in goods market for the effects of integration for EC countries. These studies generally found that EC-1992 has a pro-competitive effect. All these general equilibrium studies are static in a sense that they assumed that firms adopt the same behaviour before and after integration.

In an extensive analytical study, Willenbockel (1994) employed a single-country CGE model in order to analyse the welfare implications of the EC-1992 programme on the UK economy. His model differs from previously discussed CGE models in a number of ways. First, unlike the studies based on Smith and Venables (1988) model, his single country model

was largely built upon Harris-type model with additional considerations of recent developments in applied general equilibrium modelling. Even though main attention of the study was the analysis of imperfect competition and economies of scale, his study also considered an economic environment where the production technology is assumed to exhibit perfect competition and constant returns to scale. Therefore, Willenbockel's (1994) study captures properties of both first and second-generation models. His results demonstrated that EC-1992 programme would lead to welfare gains for the UK economy. However, when compared to previous studies, the gains are relatively small. In a similar framework, however, Karakaya (2001) found relatively larger gains for Turkey in the case of Customs Union Agreement between Turkey and the EU (see Table A.1).

In another study, Harrison, Rutherford and Tarr (1994, 1996) developed a multi-regional CGE model that does not impose uniform pricing by firms across the EU markets. Their study incorporated first, second and third generation models and found that with the first generation model, welfare gains are relatively small. Incorporating increased competition within a second-generation mode doubled welfare gains and with a third generation model, welfare gains are increased further (see Table A.1).

A number of studies have been developed in order to analyse steady state and/or growth effects of European integration within a CGE framework. By extending the model of Haaland and Norman (1992), Baldwin, Forslid and Haaland (1995) employed a multi-country CGE model to investigate the investment creation and diversion effect of the EC-1992 programme. Using a third generation specification, they suggested that predicted income should be further increased through an output multiplier. They estimated that, in terms of real income, the difference between the included and excluded cases from EC-1992 programme is quite large for EFTA countries, which is about 5.5 percent of GDP. Finally, Keuschnigg and Kohler (1996) developed a dynamic general equilibrium model in order to analyse the welfare effects of Austria's membership of the EU. Apart from traditional reallocation effects, they also measured expected capital accumulation, saving and income redistribution effects across generations. Their results suggested that the welfare gains for Austria from joining the EU would be equal to 1.24 percent of GDP (see Table A.1).

3.3.2 Evaluations of NAFTA

The prospect of a North American Free Trade Agreement (NAFTA) prompted the emergence a number of CGE models in order to analyse the effects of trade liberalisation between

Canada, Mexico and the United States.[17] Bachrach and Mizrahi (1992) used a CGE model with first generation and third generation components. Assuming perfect competition and constant returns to scale, they employed a 44-sector model to investigate the impact of a free trade area between Mexico and the USA. In the first generation model, it was assumed that the capital is perfectly mobile across the Mexican sectors, yet immobile internationally. They found that the US aggregate real income rises by 0.32 percent and two-way trade increases by about 4.5 percent. In the second experiment, it was assumed that capital is mobile internationally and, furthermore, Mexico receives $25 billion additional investment from abroad. With this additional investment (and using a third generation model) they estimated US aggregate real income would increase by 0.4 percent and Mexican aggregate real income to increase by 4.64 percent.

Most of the CGE models used in the NAFTA case are of the second-generation type, beginning with the pioneering work by Harris (1984). By introducing imperfect competition, Harris' study suggested that gains for Canada, from liberalising the economy with the USA, would be substantial. Extending Harris model, Cox and Harris (1992) employed a CGE model of Canada to investigate the effects of a NAFTA on trade flows, real income, and benefits to consumers, labour adjustment and aggregate welfare. The results suggested that even though there are positive gains for Canada from NAFTA, the gains are small relative to the Canada and the US Free Trade Agreement (CAFTA) case.

Roland-Holst et al (1994) also developed a second-generation multi-country CGE model for Canada, Mexico, the USA, and the rest of the world jointly determined at the 26-sector level of aggregation. The model is calibrated to a detailed three-country Social Accounting Matrix (SAM) estimated for the year 1988 for NAFTA members. Under different simulations, their results showed North American trade liberalisation to be beneficial to the regional economies. Under tariffs-only liberalisation welfare gains are small; when both tariffs and NTBs are removed, the welfare gains are substantially higher.

Brown, Deardoff and Stern (1992) developed a four-region, 29-industry CGE model, with both second and third generation characteristics. Their model structure was capable of evaluating the comparative static effects of changes in trade policy on factor prices, economic welfare, inter-sectoral allocation of resources and the international allocation of production. They found that forming free trade between the three North American countries would increase welfare. With their second-generation model, they estimated that Mexican welfare

[17] For an extensive literature surveys on NAFTA see De Rosa (1998) and Froncois and Shiells (1994).

increases by 1.6 percent of GDP. Whereas, the third-generation model (which included capital flows into the model) the increase in welfare for Mexico reaches 5 percent of GDP. The welfare gains for Canada and the USA are considerably smaller.

These studies for NAFTA demonstrate that despite the different approaches taken in the studies, the results suggest unanimously that there are welfare gains for NAFTA countries, albeit unevenly distributed. The greatest gains will be enjoyed by the Mexican economy, while welfare gains for Canada and the United States were estimated to be very modest (See Table A.2).

3.3.3. Evaluations of Regional Integration Between Developing Countries

Although most regional integration arrangements have reflected initiatives among developed countries, less-developed countries have also taken part in the recent wave of regional integration arrangements, either by new or revitalised formation, with the most notable examples in Southeast Asia and South American countries. These developments have prompted a number of quantitative studies analysing the economic impacts of regional integration among developing countries. It should be noted that CGE based analytical studies for developing countries generally are typically of the first generation type, assuming perfect competition among firms and production is subject to constant returns to scale.[18]

DeRosa (1995) investigated welfare implications of forming AFTA by assuming elimination of pre-Uruguay Round levels of tariff and non-tariff barriers among the potential member countries. The results suggested that AFTA is trade creating on a net basis, and larger gains are provided with the removal of NTBs (See Table 4.3). In recent studies, evaluations of MERCOSUL have also gained considerable attention.[19] Flores (1997) investigated welfare implication of the completion of the MERCOSUL, using a seven–region nine-sector equilibrium model that operates under imperfect competition assumption. The paper examined three scenarios ranging from increased world regionalism to an optimistic multilateral situation. The results suggested that MERCOSUL lead to welfare improvement for the members, providing larger gains for Uruguay. However, Flores' results revealed smaller gains for MERCOSUL countries compared to other studies, for instance Hinojosa-Odeja et al (1997). Harrison, Rutherford and Tarr (1997) evaluated some alternative policy options for Chile in a multi country multi sector first generation CGE model. Chilean

[18] DeRosa (1998) extensively surveyed quantitative studies for developing countries. Interested readers should refer to this study.

[19] Apart from Flores, see also Hinosjosa-Ojeda et.al. (1997).

accession to MERCOSUL or NAFTA is represented by reductions in tariff and non-tariff barriers to intra-bloc trade. The results suggested that while forming a regional integration arrangement, either as free trade area or customs union, with MERCOSUL, there will be welfare losses for Chile, however, joining NAFTA would improve Chile's welfare due to improved access to the larger markets.

Table A.1: Quantitative Studies of regional integration arrangements: European Union.

Study Investigators	Study Description, Base Year	Sectors	Countries	Change in Economic Welfare
Gasiorek, Smith, and Venables (1992)	II. generation model. Ex ante study using a computable general equilibrium (CGE) model of imperfect competition with differentiated products, increasing returns to scale, and inter-industry flows.1985.	13 manufacturing goods sectors, plus 2 non-manufacturing sectors. Capital is mobile between countries, but labour by 4 skill types is assumed immobile.	EC France Germany Italy U.K. EC North Greece, Ireland Iberia Rest of the world	1.35 1.50 0.90 1.80 1.90 0.80 2.90 2.90 n.a.
Haaland and Norman (1992)	II. generation model. Ex ante study using a CGE model similar to the GSV (1992) model of imperfect competition with differentiated products, increasing returns to scale, and inter-industry flows.1985.	12 manufacturing sectors plus 1 non-traded goods sector. Capital is internationally mobile, but labour by 2 skill types is not.	EC EFTA USA Japan	0.48 -0.10 -0.01 -0.01
Harrison, Rutherford, and Tarr – (1994)	II. and III. generation model. Ex ante study using a CGE model of imperfect competition with differentiated products, increasing returns to scale, and inter-industry flows. 1985.	26 sectors, 12 of which are manufacturing sectors. Primary production factors, including capital and different types of labour, are mobile across sectors domestically but internationally immobile.	EC Belgium Germany Denmark Spain France Italy Netherlands Portugal U.K. Rest of the World	1.18 3.37 1.10 1.82 0.80 1.13 1.05 2.48 1.04 0.80 -0.00
Willenbockel (1994)	I and II generation models Ex ante study using a CGE model of imperfect competition with differentiated products, increasing returns to scale, and inter-industry flows. 1985.	29 sectors, 18 of which are manufacturing sectors. Primary production factors, including capital and labour, are mobile across sectors domestically but internationally labour is immobile while capital is mobile.	UK Rest of Europe Rest of the world	0.30 n.a. n.a.
Keuschnigg and Kohler (1996)	III generation model, Ex ante study using a dynamic CGE model of imperfect competition with differentiated products increasing returns to scale, and inter-industry flows. Capital accumulation is assumed, 1992.	10 sectors. Primary production factors, including capital and labour, are mobile across sectors domestically and internationally.	Austria	1.24

Source: DeRosa (1998) and own contributions

Table A.2: Quantitative Studies of regional integration arrangements: NAFTA

Study Investigators	Study Description, Base Year	Sectors	Countries	Change in Economic Welfare
Bachrach and Mizrahi (1992)	Ex ante study using CGE models of perfect competition for Mexico and USA with differentiated products, constant returns to scale, and inter-industry flows. 1988.	36 traded sectors plus 8 services sectors. Primary factors of production include capital, labour, and energy resources	Nafta Canada Mexico United States Rest of the World	n.a. n.a. 0.32 0.02 n.a
Brown, Deardorff, and Stern (1992)	Ex ante study using a computable general equilibrium (CGE) model of imperfect competition with differentiated products, increasing returns to scale, and inter-industry flows.1989	23 traded goods sectors and 6 nontraded goods sectors. Capital and labour are perfectly mobile between sectors but internationally immobile.	Nafta Canada Mexico United States Rest of the World	n.a. 0.70 1.60 0.10 -0.00
Roland-Holst, Reinert, and Shiells (1992, 1994)	Ex ante study using a CGE model of imperfect competition with differentiated products, increasing returns to scale, and inter-industry flows. 1988.	26-sector aggregation, with 20 tradable goods sectors. Capital and labour are domestically mobile between sectors but internationally immobile.	Nafta Canada Mexico United States Rest of the World	n.a. 10.57 3.38 2.07 n.a.

Source: De Rosa (1998) and own contributions

Table A.3: Quantitative Studies of regional integration arrangements: Developing Countries

Study Investigators	Study Description, Base Year	Sectors	Countries	Change in economic welfare
DeRosa (1995)	Ex ante study using a CGE model of perfect competition with differentiated products, constant returns to scale, and inter-industry flows. 1988.	27 sectors including a nontraded sector. Capital is specific to individual sectors, while labour is mobile between sectors. All primary factors are internationally immobile.	Asean Indonesia Malaysia Philippines Singapore Thailand Rest of the World	n.a. 0.23 1.30 0.41 3.86 0.56 n.a.
Flores (1997)	Ex ante study using a COMPUTABLE GENERAL EQUILIBRIUM MODEL model of imperfect competition with differentiated products, increasing returns to scale, and inter-industry flows patterned after GSV (1992). 1990.	9 sector with 5 sectors identified as imperfectly competing. Capital (and labour) are mobile domestically and within Mercosur	Mercosur Argentina Brazil Uruguay Rest of the World	n.a. 1.80 1.10 2.30 n.a.
Harrison, Rutherford, and Tarr (1997)	Ex ante study using a CGE model of perfect competition with differentiated products, constant returns to scale, and inter-industry flows. 1994.	24-sector aggregation, including 3 nontraded goods sectors. Primary factors (capital, labour, and land) are domestically mobile across sectors, but are internationally immobile.	Mercosur Accsn. Chile – Mercosur Argentina - Mercosur Brazil - Mercosur U.S. - Nafta Rest of World Nafta Accession Chile – Nafta Argentina – Mercosur Brazil - Mercosur U.S. - Nafta Rest of World UTR Chile - to 8% Chile - to 0%	 -0.62 n.a n.a n.a n.a 0.82 n.a n.a n.a n.a 0.02 -0.26

Source: De Rosa (1998) and own contributions.

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