



IIMK/WPS/03/ECO/2006/01

**Inclusion and Exclusion with Economic
Integration: The Case of EU, NAFTA
and ASEAN**

¹

**Parameswar Nandakumar
& Bala Batavia²**

¹ Professor, Indian Institute of Management Kozhikode, Calicut- 673 570
(email: nanda@iimk.ac.in)

² Professor, DePaul University, 1, E. Jackson Blvd (DPC 6200), Chicago, Ill. 60 604 USA
(email: bbatavia@depaul.edu)

Inclusion and Exclusion with Economic Integration: The Case of EU, NAFTA and ASEAN

The positive effects on trade volumes of the economic integration process have been most forcefully derived for the case of monetary unions, more specifically for the case of the European monetary Union (EMU). This vein of work is available, naturally, only from the beginning of the current decade. Literature from earlier periods, dealing with the impact on trade volumes of regional trade blocs, has come up with any significant effects only in the case of the European union, EU, when factors other than bloc formation were included in the analysis. The effect on trade volumes of countries outside the trade blocs have not also been subjected to any intensive scrutiny, except for isolated attempts to look into the matter in the case of certain countries like Mexico and India.

I. Introduction

The positive effects on trade volumes of the economic integration process have been most forcefully derived for the case of monetary unions, more specifically for the case of the European monetary Union (EMU). This vein of work is available, naturally, only from the beginning of the current decade. Literature from earlier periods, dealing with the impact on trade volumes of regional trade blocs, has come up with any significant effects only in the case of the European union, EU, when factors other than bloc formation were included in the analysis. The effect on trade volumes of countries outside the trade blocs have not also been subjected to any intensive scrutiny, except for isolated attempts to look into the matter in the case of certain countries like Mexico and India.

In the present study, we cast the net a bit wide, including NAFTA, EU as well as ASEAN, in an analysis of the impact of regional bloc formation on members as well as on non-member countries. A well-known model, the Gravity Model, which has been the workhorse to derive bilateral trade effects of EMU membership, is used for the purpose. Unlike the case of the studies dealing with the impact of EMU on trade volumes, the import-creating and the export diversion effects of the union are specifically derived and discussed using a sample that includes non-members ("outsiders") from across the globe. A similar exercise is conducted for NAFTA, and the bilateral trade effects of block membership – or lack of it – is also analyzed for the case of ASEAN.

Since cross-section studies can ‘hide’ widely diverging individual country effects, these large sample studies are complemented by individual time series studies to capture the ‘insider’ and ‘outsider’ effects of economic integration.

II. Related earlier work

Earlier work on the trade effects of regional bloc formation, including monetary unions, have typically used the Gravity Model. The core gravity Model relates bilateral trade to the product of the GDPs of trading partners, and to the distance between them, and predicts that trade should increase with country GDPs and decrease with increasing distance between the trading nations. Criticism about the theoretical moorings of the model were met comprehensively by Leamer and Stern (1970), Anderson (1979), Helpman and Krugman (1985), Bergstrand (1989), Deardorff(1998) and Anderson and van Wincoop (2001). However, most authors have used additional variables to capture bilateral trade effects more fully, and this practice is also followed in the current study – which also uses the Gravity model as a launching pad.

The core Gravity model is usually extended by a set of dummy variables. A joint bloc membership dummy indicates trade creation within the bloc, i.e., the extent to which membership has increased bilateral trade above the amount predicted by country GDPs and distance between trading partners. A trade diversion dummy stands for membership of either of the trading partners in a bloc, and a negative coefficient for this dummy indicates that trade from within the bloc to a non-member would be less than for a random pair of countries, establishing trade diversion. Other dummies are used to capture the effects on trade of common language or cultural ties, of a common land border etc.

Thus, Rose (2000) and Frenkel and Rose (2002) have found evidence of trade creation by monetary union in Europe. And while Montenegro and Soloaga (2004) do not find any significant effects of NAFTA on bilateral trade, earlier studies (Frankel, 1997; Frankel and Wei, 1995, 1996) find trade creation within EU, EFTA and NAFTA.

However, as hinted at already, the high level of aggregation implicit in the specification of the Gravity Model does pose a problem. General results about trade creation and trade diversion may not carry over to individual sectors or individual countries. For instance, Montenegro and Soloaga (2004) find no evidence of trade diversion from third countries by the formation of NAFTA using a Gravity Model approach, but find evidence to the contrary in individual country studies.

It may be also fruitful to work with import shares of commodity groups, as Kreuger (1999) suggests. The theorem developed by Kemp and Wan (1976), which states that if item by item trade of a trading bloc with the rest of the world is unchanged, it signifies an increase in within-the-bloc trade, is relevant in this context. In particular, if bloc members experience an increase in trade in sectors where non-members possess considerable competitive edge, that is a sure sign of trade diversion from outsiders. Romalis (2001) finds such evidence in an analysis of the effect on Mexico and Canada of NAFTA membership.

The approach used in this paper is to complement the aggregate approach of the Gravity Model with more disaggregated work, including time series analyses of the determinants of export shares as well as export volumes of member and non-member countries of regional blocs.

III Specification of Data and Models

The augmented gravity Model used in this study can be represented as follows:

$$1) \quad V_{ij} = \alpha_0 + \alpha_1 * Y_i * Y_j + \alpha_2 * M_{ij} + \alpha_3 * D_c + \alpha_4 * D_i + \alpha_5 * D_x + \alpha_6 * D_i * D_x + \epsilon_{ij}$$

In 1), V_{ij} represents the value of bilateral imports. Y_i and Y_j represent GDP in billion dollars of trading partners i and j , M_{ij} is the distance between them in km, and D_c is a dummy with value of one if there are strong cultural linkages between the trading nations. The dummy D_i takes a value of one when the importing country is a member of the trading bloc, thus capturing the effects of import liberalization by the bloc, while the dummy D_x similarly captures the effect of export liberalization or promotion in the bloc,

with the dummy taking a value of one only when the exporting country is a member of the bloc. These two dummies also thus capture the effects of trade diversion from non-members. The term $D_i \cdot D_x$ would then just capture the effect of joint bloc membership, with both the importer and the exporter being part of the privileged group, the regional trade bloc.

Definitions of variables represented in equation 1) are provided in table A.1 in the appendix. Data for bilateral trade volumes were taken from ‘Direction of Trade Statistics’, published by the International Monetary fund. The data used is an average of the yearly figures for the period 1998-2000. GDP figures were also available from IMF sources, International Financial Statistics, while figures on distances were obtained from various World Atlases.

The list of countries used in the European and NAFTA estimations is provided in Table 1 below. The bilateral trade data is cross-sectional in nature, consisting of bilateral trade (import) volumes for 2002 to each European and North American country from all others in the sample.

Table 1. List of Countries for European and NAFTA Estimations

EU Countries	Non-EU countries (as of 2002)	Non-European OECD countries	Non-OECD countries
Austria	Norway	Australia	Algeria
Belgium	Poland	New Zealand	Egypt
Denmark	Switzerland	Canada	Libya
Finland	Turkey	United States	Morocco
France	Czech Republic	Japan	India
Germany	Hungary	Korea	Azerbaijan
Greece	Malta	Mexico	Kazakhstan
Ireland	Slovak Republic		Kyrgyzstan
Italy	Slovenia		Tajikistan
Netherlands	Estonia		Turkmenistan

Portugal	Lithuania		Uzbekistan
Spain	Latvia		Brazil
Sweden	Russia		Georgia
United Kingdom	Belarus		
Luxembourg	Ukraine		
	Albania		
	Bulgaria		
	Romania		
	Cyprus		

The sample for the ASEAN estimation is different, was chosen to capture the effects of regional bloc formation in Asia on countries in the region, and on other emerging markets as well as representative industrial nations in other regional blocs. This sample consists of 31 countries, listed in Table A.2 in the appendix. The data is cross-sectional in nature, the average values for the three year period 1999-2001.

The estimation for ASEAN was done for total bilateral trade, i.e, the sum of bilateral imports and exports, which have been also traditionally done using the aggregate Gravity Model (see Rose, 2000).

Individual country studies

Form the pooled analysis, using the Gravity Model approach, we move on to individual time series studies of selected insider and outsider countries. The effects of regional integration in Europe and North America on the exports of these countries and their export share of total imports by these regions are tracked by appropriate additions to usual export equations as follows;

$$2) V_{ij} = \beta_0 + \beta_1 * EUGDP + \beta_2 * REFF + \beta_3 * D_s + \beta_4 * D_m + \epsilon_{ij}$$

$$3) S_{ij} = \mu_0 + \mu_1 * REFF + \mu_2 * D_s + \mu_3 * D_m + \tau_{ij}$$

$$4) V_{ij} = \delta_0 + \delta_1 * NGDP + \delta_2 * REFF + \delta_3 * D_n + \epsilon_{ij}$$

$$5) S_{ij} = \gamma_0 + \gamma_1 * REFF + \gamma_2 * D_n + \tau_{ij}$$

$$6) R_i = \chi_0 + \chi_1 * D_s + \chi_2 * REFF + \tau_j$$

Definitions of all variables used in the aggregate and the time series regressions are provided in Table A.1 in the appendix. Equation 2) specifies export from country j to i, the importer being the European Union, as dependent on European Union GDP (EUGDP), the real effective exchange rate of the exporting country (REFF), a dummy D_s which takes the value of one for the years from 1992, the year of formation of the Single Market, and a dummy D_m , which has a value for the years after the formation of the European Monetary Union EMU. Similarly, equation 4) estimates exports from country j to importing area i, which is NAFTA, as dependent on NAFTA GDP (NGDP), the real effective exchange rate of the exporter (REFF), and a dummy D_n which has a value of one from 1994, when NAFTA was formed. Equations 3) and 5) estimate the percentage shares of the exporter in the total exports of EU and NAFTA, as dependent on the real effective exchange rate and the area year dummies.

Finally, equation 6) specifies the ratio R_i of the total exports of an individual exporter (or for non-oil exporting, non-OECD countries as a whole) to that of the OECD bloc to the real effective exchange rate of the exporter and to year dummies for the EU or the NAFTA. Such a formulation has given negative outsider effects – for India – for trade with the EU in Mukhopadhyay and Pant (2003).

Since a full time series for European Union GDP was not readily available, we constructed a weighted GDP volume index time series for only the largest European nations, Germany, France, United Kingdom and Italy. A similar GDP index was constructed involving the United States and Canada only, to represent NAFTA GDP. The coefficients of the GDP terms are expected to be positive, and increases in the real effective exchange rate is also expected to have a positive effect on exports. The regional bloc and the monetary union dummies should give differing signs for insider and outsider countries.

Equations 2) and 4) are export share equations. 2) specifies the export share of country j in total imports of the European Union (represented here by the four largest countries) as dependent on the real effective exchange rate of the exporter and the EU and EMU year dummies. Equation 4) gives a similar representation for the export shares of insider and outsider countries in total imports of NAFTA, with the NAFTA year dummy replacing the EU dummy variable.

These – individual country - time series regressions are run for Mexico, Ireland, Thailand, Malaysia, Korea, India, Turkey, Algeria, Morocco, and for the non-oil exporting non-OECD countries as a group, for the period 1973-2002.

IV Empirical results

The aggregate equation 1) for the Gravity Model was run with the latest cross-section data available, for year 2002, for bilateral trade (import) values for all the countries. The sample for the first regression, , as listed in Table 2, consists of European countries, including non-EU members, and other countries from across the globe. Table 3 presents the results of estimations for this sample.

Table 3. Gravity Model Estimation for Equation 1. Europe and North America

	Constant	GDP term	Distance	Importer Member Dummy	Exporter Member Dummy	Joint member Dummy	Culture Dummy	R - Squared
EU	-8.92 (9.92**)	1.168 (10.9**)	-0.414 (5.48*)	2.979 (5.26*)	1.35 (1.50)	0.249 (0.26)	2.301 (3.533*)	0.39
Europe, even non-EU	-9.298 (12.05**)	1.103 (10.7**)	-0.512 (9.15**)	3.044 (5.46*)	3.381 (8.61**)	-2.037 (2.89*)	2.374 (3.83*)	0.37
NAFTA	-7.218 (3.26*)	0.481 (2.131*)	-0.389 (2.687*)	7.378 (2.02*)	5.079 (7.88**)	-3.08 (0.94)	2.307 (1.77)	0.40

The regressions were run in log-terms, except for the dummies. 't' statistics are indicated within brackets, with one and two stars indicating significance at 95 and 99 percent levels respectively.

The equation for the EU involves bilateral imports from each of the 54 countries in the sample to the EU nations. The GDP and the distance variables come out with the expected signs, so that it is the additional variables of the augmented Gravity Model, which are of particular interest. . Of these exporters only 14 are within the bloc, and the results should indicate the benefits on trade from membership. These effects are caught by the terms with the importer, exporter and co-membership dummies.

The coefficient of the co-membership dummy in the regression for EU imports alone is not significant, but the dummy is seen to be significant in the run for Europe inclusive of imports of non-EU members. However, it turns up with the wrong sign. The dummies for the importing country being a bloc member as well as that for the exporter being a bloc member are significant in all the regressions. (except the exporter dummy in the EU estimation). Thus, it seems clear that expanding trade need not arise from common membership of the trading partners; rather, it could be just an outcome of the process of trade liberalization and economic reforms in general, against all countries. These effects lead to bilateral trade being greater than what is predicted by the simple Gravity Model. The dummy representing cultural linkages between partners also comes out significant in the EU and the larger European sample regressions.

The lack of significance of the joint EU membership dummy may be due to the fact that many non-EU European countries, standing at the threshold of the union, may have started receiving greater trade flows in anticipation of their membership. The effect could be indirect also, with greater investment flows in anticipation of membership leading to greater trade, an effect which has been noted in the literature.³ This development will

³ See Barot, Nandakumar and Wague (2005).

naturally mean that dummies capturing current membership may not show a strong effect.

In the NAFTA equation, as in the earlier study of Montenegro and Soloaga (2004) the joint membership dummy is not significant. But the effects of trade liberalization, caught by the importer and exporter dummies, are very strong, indicating that trade liberalization in NAFTA could have benefited other exporter nations as well. But a stronger conclusion on an individual country basis will have to await the results of the -individual country - time series studies. It may also be noted that unlike in the EU regression, the culture dummy is insignificant. This may be because cultural links are represented here only in terms of a common language, a formulation that may not pick up the special links between the US and her Latin American neighbors.

The results of the estimation for bilateral trade in the *ASEAN* region are provided in table 4, a separate presentation being warranted as the sample is different for this study.

Table 4. Estimation Results; Augmented Gravity Model, ASEAN Bilateral Trade

Equation Number	GDP	Distance	ASEAN Dummy	Cultural Dummy	Constant	R Sq
1a)	.01601 (14.77**)		796.55 (3.122*)			0.414
1b)	.01642 (14.88**)	-0.08292 (-2.105*)	201.28 (0.498)			0.424
1c)	0.01642 (14.84**)	-0.0833 (-2.09**)	194.81 (0.465)	-28.516 (0.0101)	721.86 (1.88)	0.428

The results in table 4 are of the estimation of equation 1 for ASEAN, but omitting the importer and the exporter membership dummies, as the data is for total trade, i.e., the sum of exports and imports. 1a) had been run with only the GDP product and an ASEAN

dummy for joint membership. It is seen that both the independent variables come out significant. However, in subsequent runs 1b) and 1c), when the distance variable is added, the joint ASEAN membership dummy turns insignificant. The cultural dummy representing cultural ties between trading countries is also not significant, which amounts to saying that bilateral trade of ASEAN nations is well-captured by the simple (non-augmented) Gravity Model of trade flows.

These results are perhaps not all that surprising. Regional integration in Southeast Asia has not really proceeded at the same pace as in Europe, and trade liberalization has probably expanded trade of the ASEAN nations more with the developed countries of the west than with each other. Also, the inclusion of the new ASEAN members in the study would have diluted the effect of larger trade flows between the original five.

Effects on individual countries

The aggregate approach to estimation of bilateral trade flows applied to Europe, North America and Southeast Asia suggests that lack of bloc membership may not have affected countries adversely. The general process of trade liberalization and expansion, and cultural ties can explain the increase in trade above that implied by a simple model involving country outputs and distances.

However, as already emphasized earlier, this larger, uniform, picture hides many variations. Equations 2) – 5) therefore estimated to throw some additional light on the effects on members and non-members of regional integration. Tables 5 and 6 provides the results of these estimations.

Table 5. European Union and trade with members and outsiders, 1973-2002*.

Regression No. & Exporter.	Depend. Variable	EU GDP	EU Dummy	EMU Dummy	REFF	Constant	Trade / GDP	Trend	R Squared
1)	Vij	152.68	12387.7		16.28				0.634

Ireland*	EU import	(4.49*)	(3.376*)		(0.327)				
2) Non-OECD*	Ri		-0.344 (2.019*)					0.190 (30.5**)	0.891
3) India	Vij	2.036 (13.42**)	0.0341 (0.283)	-0.264 (2.48*)		-9.793 (9.59**)			0.96
4.) India*	Vij	305.15 (3.79*)	3997.8 (1.81)		347.09 (3.89*)	18439.6 (3.88*)			0.965
5) India	Sij EU share		0.2578 (6.39**)	-0.1191 (2.02*)			0.522 (4.95**)		0.83
6) India	Ri		-0.011 (2.65*)					0.004 (29.6**)	0.877
7) Korea	Vij	2.3395 (13.06**)	-0.17 (1.18)	-0.206 (1.62)		-11.52 (9.38**)			0.95
8) Korea	Sij		0.187 (1.89*)	-0.0139 (0.12)		-7.273 (12.7**)	0.8135 (3.869*)		0.70
9) Turkey	Vij	2.902 (19.88**)	-0.14 (1.217)	-0.2455 (2.37*)		-15.54 (15.52**)			0.98
10) Turkey*	Vij	121.51 (4.78**)	-266.028 (0.53)		- 0.0012 (0.149)				0.907
11) Turkey	Sij		0.794 (5.14**)	0.028 (0.13)			-5.214 (32.49**)		0.59
12) Morocco	Sij		-0.1148 (2.33*)	-0.2695 (2.94*)			-6.478 (-5.723**)		0.62
13) Algeria	Sij		-0.545 (2.335*)	-0.231 (0.883)			-0.123 (3.906*)		0.74
14) Malaysia	Ri		0.036 (4.14**)					0.007 (23.1**)	0.942

* The estimations were done in logged terms, except for the regressions marked with stars.

The results in table 5 indicate that some of the outsider countries may have managed to make inroads into EU markets, despite being left out of the union. In the first two regressions, 3 and 4, for India, with exports to EU, V_{ij} , as the dependent variable, the EU dummy is not significant. The coefficient of the real exchange rate is positive as expected, and significant. Interestingly enough, the EMU dummy is significant, with a negative sign. In regression 6 for R_i , which is the ratio of total Indian exports to that of the industrialized OECD bloc, the EU dummy is significant, while it is not significant in the regression for S_{ij} , the share of Indian exports in total EU imports. One explanation for this could be that while India has gained in comparison of other non-OECD countries in terms of market access in the EU after the formation of the Single Market, it has not gained as much as the countries in the OECD bloc.

Korea and Turkey, also considered emerging market nations, seem to have fared like India, in that the EU dummy is not significantly negative. But the EMU dummy is negative and significant for Turkey also. For the other developing countries for which regressions were run, Morocco, Algeria, the EU dummies are significantly negative, exhibiting the detrimental effect on outsiders of bloc formation. Also, for the group of non-OECD, non-oil exporting countries as a whole, R_i , their ratio of total exports to that of the industrialized world, has a significant negative relation with the ASEAN dummy. In contrast, Malaysia's ratio R_i is seen to be positively affected by the EU bloc formation, indicating increased market access for that country after 1992. This may be partly reflecting the dynamic developments of trade liberalization and trade expansion in the ASEAN region.

Table 6 supplies the results of the regressions for trade with the NAFTA bloc.

Table 6. NAFTA: Trade With Outsider and Insider Nations 1973-2002*

Regression No. and Exporter	Dependent Variable	Constant	NAFTA DUMMY	NAFTA GDP	REFF	TREND	R-Squared
1) Malaysia*	Vij	-16530.3 (2.29*)	8462.01 (6.609**)	294.871 (5.22**)			0.969
2) Malaysia*	Ri		0.041 (2.48*)		0.02 (1.3050)	0.006 (7.6788)	0.939
3) India*	Vij	-2844.3 (3.42*)	-558.41 (1.171)	62.0674 (3.867*0)	186.174 (7.71**)		0.986
4) India	Sij	-10.73 (15.13**)	-0.22801 (1.873)			1.1915 (4.77*)	0.74
5) India*	Ri		-0.011 (2.83*)			0.0004 (29.6**)	0.877
6) Non-OECD*	Vij	-2.0249 (8.15**)	43673.9 (2.635*)	5322.91 (12.83**)			0.965
7) Non-OECD*	Ri		-0.724 (3,213*)			0.205 (25.77**)	0.891
8) Turkey**	Sij		-0.0003 (2.438*)			0.001 (25.63**)	0.73
9) Turkey*	Vij	-4769.05 (11.22**)	-39.0145 (0.288)	80.762 (13.92**)	-5.24 (0.04)		0.979
10) Brazil	Vij	-4.163 (5.959*)	-0.275 (2.743*)	1.248 (14.25**)			0.94
11) Brazil	Sij	-4.178 (24.6**)	-0.404 (5.45**)			0.046 (1.103)	0.61
12) Mexico	Vij	-7.167 (11.05**)	0.336 (3.667*)	1.741 (22.01**)			0.98
13) Mexico	Sij	-3.61 (15.24**)	0.3552 (5.33**)			0.299 (7.973**)	0.90

- Regressions marked with stars have been run with variable values in levels.

Let us first consider the effect on Mexico, which is a member of NAFTA. In regressions 12 and 13 for Mexico, the NAFTA dummy is significant, highly so, at the 1 percent level, for the regression involving S_{ij} , the share of Mexico's exports in total NAFTA imports. Thus, the absolute value of Mexico's exports to the region as well as her share in total NAFTA imports have been positively influenced by her entry into the free trade area in North America.

But have any outsiders benefited by the process of regional integration in North America? Malaysia's example shows that this cannot be ruled out. In regression no 1 in table 6, Malaysian exports to NAFTA are seen to be highly influenced by the NAFTA dummy, which has a positive coefficient, and is significant at the one percent level. The ratio of Malaysian exports to OECD exports is also seen to be positively influenced by the dummy (regression 2).

In the case of India, the formation of NAFTA does not seem to have had a significant effect on the level of exports or the Indian share of total imports of NAFTA. The NAFTA dummy is insignificant in regressions 3 and 4. But, the results of regression 5 indicates that she has lost export market access after the formation of the bloc, to members of the OECD group. This is similar to the results obtained in Mukhopadhyay and Pant (2003).

As for Turkey, another key emerging market country, regressions 8 and 9 indicate that while her export levels are not significantly affected by the formation of NAFTA, the share of her exports in total imports of the region has been negatively affected. The impact of Brazil is even more negative, with both her export levels and export share of the market being significantly eroded due to the formation of the NAFTA free trade area.

V. Concluding remarks

This paper has analyzed the issue of the impacts of regional integration on non-member, outsider nations using two, different approaches. First, the aggregate Gravity Model of trade was used to illuminate the effects on bilateral trade of members and non-members, applying the model to economic integration in Europe, North America and southeast Asia, using large cross-section samples. . Subsequently, individual country, time series studies were made of certain important emerging market nations and selected developing countries from different regions, given the near-certainty that there would be substantial variations between country experiences in the wake of far-reaching regional integration thrusts.

The aggregate, Gravity Model approach did not produce any support for the presumption that regional integration in Europe, North America or North America has benefited bloc members and hurt outsiders. This chimes broadly well with earlier results in the literature. In fact, for NAFTA and ASEAN, the simple, non-augmented Gravity Model does as well as the augmented model with explanatory factors pertaining to regional integration and cultural affinities between trading partners. For the European sample, cultural ties are seen to be important as a determinant of bilateral trade.

Actually, what transpires from the analysis at the aggregate level is that increased trade between trading partners may well be the result of trade liberalization per se by a reforming region. The positive contributions of dummies representing membership of then exporting country and that of the importing country separately testify to this. In the case of ASEAN, it has been generally perceived that the region has gone furthest in liberalizing and expanding trade with the industrial nations of the OECD bloc, so that the lack of significance of ASEAN membership for bilateral trade may not come as a surprise. Also, the newer ASEAN members may not have yet got into their stride in terms of reaping the benefits of union membership.

The individual country results throw up a wide spectrum of results, as had been anticipated. Clearly, the aggregate approach was insufficient to bring out these importance differences between country impacts of regional integration. European economic integration does not seem to have affected the export market access to the

region of fairly dynamic countries like India, Korea, Turkey and Malaysia, with even gains being derived (in the case of Malaysia) as a result of the union in Europe. Interestingly enough, monetary unification in Europe seems to have affected this sample of outsider, emerging market nations adversely, while results are not significant for the effects of trade integration. For less developed countries like Morocco and Algeria, trade integration in Europe is seen to have clearly negative effects on their export market access to the area. So it seems that only the more dynamic of developing and emerging market nations have been able to find their own place in the sun in the integrated European Single Market, protecting their exports and export shares.

However, even for countries like India, which have not had their export shares eaten into as a result of unification in Europe, their performance has been lack-lustre compared to that of industrialized nations; the ratio of their total exports relative to that of the industrialized bloc is seen to be negatively affected by trade integration in Europe. This indicates that the enhanced export share of these countries in the EU market would have come at the expense of other developing countries. Indeed, for non-OECD, non-oil exporting nations as a whole, integration in Europe is observed to have a negative effect on their exports to the area.

The picture is fairly similar for the case of the effects of the NAFTA bloc. Exports to the area of countries like Malaysia and India have benefited or, at least, not been hurt by bloc formation in North America. But outsider countries like Brazil and Turkey exhibit a negative effect from the year dummy representing the union. But, interestingly enough, the effect of the union is positive on the exports of non-OECD, non-oil exporting countries as a whole, even though they have not done as well as the group of industrialized nations.

Countries belonging to regional blocs are seen to have clearly gained from membership, something which is not thrown up by the aggregate analysis. Thus, Ireland in the European union, and Mexico in NAFTA, have seen their exports to their adopted regional trading arrangements rise significantly during the years of membership.

Finally, it seems worth reiterating that countries seem to have gained export market access from unilateral trade liberalization in free trade areas, even when they are not members. This is a result from the aggregate approach. But it may be only the more dynamic of the developing countries which may have benefited, so that internal reforms may have also had an important role to play in their successful adjustment to the new realities of the international trade regime.

APPENDIX

Table A.1. Definitions of Variables

Symbol	Definition
V _{ij}	Value of exports, country j to country i. Millions of dollars. Annual data
Y _i	GDP, country i, billion dollars
M _{ij}	Distance in Km between trading partners i and j.
S _{ij}	Percentage share of exports of country i in total imports of region j.
R _i	Ratio of exports of country i to total exports of developed countries
EUGDP	Weighted GDP volume index for EU (proxy: Germany + UK+ France + Italy)
NGDP	Weighted GDP volume index for NAFTA (US+ Canada only)
REFF	Real exchange rate of exporting country
D _c	Dummy representing cultural linkages between trading partners
D _i	Dummy with a value of one if importer is a member of the trade bloc
D _x	Dummy with a value of one if exporter is a member of the trade bloc
D _s	European Union dummy; value of one for years after formation of EU
D _m	EMU dummy, value of one after formation of EMU
D _n	NAFTA dummy; value of one after formation of NAFTA

Table A.2 List of Countries, ASEAN Study Sample

Asia	ASEAN	NAFTA	EU	Other
Japan	ALL	ALL	France	Brazil
India	ASEAN countries	NAFTA countries	Germany	South Africa
Korea			UK	Australia
China			Netherlands	New Zealand
Hong Kong			Italy	
Bangladesh			Spain	
Pakistan				
Sri Lanka				

REFERENCES

- Aitken, N.D., (1973), "The Effects of the EEC and EFTA on European Trade: A Temporal Cross- Section Analysis", *American Economic Review* 63 (5), pp. 881-892
- Anderson, J.E. (1979), "A Theoretical Foundation for the Gravity Equation", *American Economic Review* vol. 69, No.1, pp. 106-116
- Andersen, J.E., and E. van Wincoop, "Gravity with Gravitas: A Solution to the Border Puzzle" NBER Working Paper No. 8079, Cambridge, Mass.
- Barot, B, Nandakumar, P and C. Wague, (2005), "EMU, Trade and Investment Flows", forthcoming in *International Journal of Applied Economics and Econometrics*
- Bergstrand, J.H., (1985), "The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence", *The Review of Economics and Statistics* 67, pp.47-481
- Deardorff, A., (1984), "Testing trade Theories and Predicting Trade Flows", in Jones, R.W and P.B. Kenen (eds), **Handbook of International Economics**, Vol.1, North-Holland.
- „ „ (1998), "Determinants of Bilateral trade: Does Gravity work in a Neoclassical World?", in Frankel, J.A. (ed), **The Regionalization of The World Economy**, University of Chicago Press, pp. 7-31
- Frankel, J.A., and S.J. Wei (1995), "Open regionalism in a World of Continental Trading Blocs", NBER Working Paper No. 5272, Cambridge, Mass.
- „ „ (1996) "ASEAN in a Regional Perspective", Pacific Basin Working Paper No. PB96-02
- Frankel, J.A., and A. Rose (2002), "An estimate of The Effects of common Currencies On Trade and Income", *The Quarterly Journal of Economics* 117(2).
- Helpman, E., and P. Krugman (1985), "Market Structure and foreign Trade", **MIT Press**, Cambridge, Mass.
- Kemp, M.C., and H. Wan (1976), "An Elementary Proposition Concerning the Formation of Customs Unions", *Journal of International Economics*, Vol. 6, No.1, pp. 95-97
- Kreuger, A., (1999), "Trade Creation and Trade Diversion Under NAFTA", NBER

Working Paper No. 7429, pp. 761-75

Leamer, E.E., and R. Stern (1970), **Quantitative International Economics**, Aldine, Chicago

Montenegro, C.E., and I. Soloaga (2004), “NAFTA’s Impact on Third Countries: Recent Evidence with a Gravity Model Approach”, Universidad de Las Americas: Pubela, IPD Working Paper 04-01.

Mukhopadhyay, S, and M. Pant (2003), “Regional Trading Arrangements and Third Country : A case Study”, Paper presented at 37th Annual Meeting of the CEA, June.

Romalis, J., (2001), “NAFTA’s and CUSFTA’s Impact on North American Trade”, mimeo, University of Chicago GSB, July.

Rose, A., (2000), “One Money, One Market: Estimating the Effect of Common Currencies on Trade”, *Economic Policy* 30, pp. 7-16.