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European Integration and the Regionalization of World Trade and Currencies: The Economics and the Politics

Jeffrey A. Frankel and Shang-Jin Wei

University of California, Berkeley and Harvard University

June 1995

Department of Economics

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This is a revised version of a paper written for the project on the Political Economy of European Integration at the University of California, organized by Barry Eichengreen and Jeffry Frieden, forthcoming in *Monetary and Fiscal Policy in an Integrated Europe*, edited by Eichengreen, Frieden, and Jurgen von Hagen, from Springer-Verlag Press, New York and Heidelberg, 1995. The authors would like to thank Frieden for valuable suggestions. The paper was completed while Frankel was a Senior Fellow at the Institute for International Economics, Washington, DC.

Abstract

Using the gravity model, we find evidence that the EC affects trade flows. A pair of EC members trade with each other 48 percent more than two otherwise similarly-placed countries. We also find that bilateral exchange rate variability fell by half within Europe during the 1980s, and that this stability worked to increase intra-continental trade by an estimated 5.9 percent. If account is taken of the endogeneity of the currency regime, the estimated effect of bilateral exchange rate variability on trade is much smaller. The political economy part of the paper catalogues ways in which regional arrangements undermine political support for multilateral liberalization, and ways in which they can have the opposite effect.

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Revised, February 28, 1995

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Contents

European Integration and the Regionalization of World Trade and Currencies: The Economics and the Politics

In the 1990s the possible breakup of the world economy into economic blocs has become a special focus of interest -- largely in response to such projects as the European Monetary System, Europe 1992, the enlargement of the European Union, the North American Free Trade Agreement that went into effect in 1994, and suspicions of a Japanese sphere of influence in Asia.

The possible regionalization of the world economy raises important issues for policy. Given that worldwide free trade is difficult to attain politically, should it be pursued within regional Free Trade Areas (FTAs) first? Or Preferential Trading Arrangements (PTAs)? What gets higher priority: expanding the number of countries participating in regional PTAs, reducing intra-regional barriers to zero, or reducing the average level of trade barriers worldwide? Within given geographic groupings, what should be the sequencing among steps such as financial integration, currency integration, trade integration, labor market integration, etc.? The list of important research topics is quite long.

These questions are perhaps more salient in Europe than anywhere else. Regional arrangements have over the post-War period seen a steady expansion in scope. The succession of labels tells the story of extension in purview, from production and trade matters in a few economic sectors, to a contemplation of all-encompassing economic and political integration: The European Coal and Steel Community, the Common Market, the European Economic Community, the European Community (EC), and finally the European

Union (EU). At the same time, the regional grouping has expanded along the geographic dimension as well: from the original Six, to the Nine, to the Twelve, and now the 15. The accession to the EU of the first members of the European Free Trade Association (EFTA) whose populations voted for it, takes place effective in 1995 (Austria, Finland, and Sweden). The tradeoff between expansion in scope and expansion in membership has been a very live issue for Europeans.

1. Introduction

The first half of this paper considers the statistical record on the extent of European integration along two dimensions, trade links and currency links, and the interaction between the two. That these two dimensions of integration may be closely intertwined is evident in that a major motivation behind attempts to strengthen currency links within Europe is to reduce the extent to which exchange rate risk discourages imports and exports, and thereby to promote stronger trade links. Other important aspects, such as financial links within regions or the extent to which countries within a region share common economic disturbances, are not considered here.[1]

Specifically, the first half of the paper looks econometrically at three questions: (1) Is trade biased toward intra-regional partners, within each of the three potential major blocs? (2) Are exchange rates more stable within each of the three potential blocs than across them? (3) To the extent exchange rates are stabilized within a bloc, does that contribute to intra-bloc trade?

A central motivating question is the extent to which stabilization of exchange rates within Europe has been a contributing factor to the increase in intra-regional trade there. Despite still-official plans for European Monetary Union by 1999, the set-back that the Exchange Rate Mechanism has suffered, in the crises of September 1992 and August 1993, means that a return to the higher levels of exchange rate variability that held in the past is a real possibility. To what extent would that reduce intra-European trade?

Using the gravity model to examine bilateral trade patterns throughout the world, we find clear evidence of trading blocs in Europe, the Western Hemisphere, and East Asia and the Pacific. In Europe, it is the EC that operates as a bloc, not including EFTA. Two EC members are estimated to trade an extra 48 per cent more with each other, beyond what can be explained by proximity, size, and GNP/capita. Even though the blocs fall along natural geographic lines, they may actually be "super-natural," by which we mean intra-regional trade bias in excess of what can be justified by natural geography. On the other hand, we find grounds for encouragement in an apparent tendency for the formation of customs unions to build political momentum to liberalize trade with respect to non-members at the same time. The best example is the EC, where a term to capture the openness of members to global trade is positive and statistically significant. Ever since the formation of the European Economic Community there have been fears among non-members of a "Fortress Europe." These fears were exacerbated in the late 1980s when Jacques Delors launched the EC 1992 initiative. But there is no evidence in our results that the EC has diverted trade away from non-members. The only grouping that shows clear evidence of a negative coefficient, indicating trade-diversion, is EFTA.

Turning to the possibility of currency blocs, we find a degree of intra-regional stabilization of exchange rates, especially in Europe. Not surprisingly, the European currencies link to the DM, and Western Hemisphere countries peg to the dollar. East Asian countries, however, link to the dollar, not the yen. We also find some tentative cross-section evidence that bilateral exchange rate stability may have an effect on trade. A sample calculation suggests that if real exchange rate variability within Europe were to double, as it would if it returned from the 1990 level to the 1980 level, the volume of intra-regional trade might fall by an estimated 6 per cent. This estimate, however ignores that the observed correlation may be due to causation from trade shares to currency policy rather than the other direction. Taking into account the simultaneity produces a far weaker effect of exchange rate volatility on trade.

The second half of the paper discusses the political economy of regional integration. Does economic regionalism undermine progress toward a liberal multilateral trading system, or do regional initiatives help build political support for global liberalization? There is a growing literature on this question, and the paper reviews the arguments on both sides. Arguments as to how the adoption of a regional trading area might undermine movement toward unilateral or multilateral liberalization for political reasons fall under the headings "incentive to protect," scarce negotiator resources, median-voter dead-end, and manipulation of the process by special interests. Other arguments go the other way. They offer the hope that the adoption of a regional trading area might undermine protectionism and reinforce movement toward liberalization more generally. The arguments concern "locking in" unilateral liberalization, the efficiency of negotiating with larger units, mobilization of

regional solidarity, building export constituencies to create domestic political momentum, and competitive liberalization.

2. Is Europe a trade bloc?

There is more talk of regionalization, of whether the world is breaking up into three great trading blocs or currency blocs (Europe, Western Hemisphere, and East Asia; or mark, dollar, and yen blocs), than there are attempts at hard quantitative analysis. Often studies simply report measures of the relative size of the blocs, such as shares of world trade.

Many observers base their belief that world trade is becoming more regionalized on a simple statistic: the share of trade that is intra-regional. This share has always been higher for Europe than for other continents: .36 in the EC 12 (or .50 in Western Europe as a whole) in 1965, as opposed to .20 in East Asia and .31 in the Western Hemisphere. It also has increased over time: to .42 in 1980 and .47 in 1990 among the EC 12 (or .54 and .60, respectively, in Western Europe as a whole). That the share of intra-regional trade is high, or increasing, within a given grouping, however, does not necessarily mean that the members of this grouping are undertaking explicit discriminatory trade policy measures to bring this about. A high level of intra-regional trade, or a rapid increase in the share, could be the result of natural factors, i.e., proximity or rapid economic growth, as we shall see.

A natural way to adjust for the determinants of bilateral trade is by means of the gravity model. The gravity model says that trade between two countries is proportionate to the product of their GNPs and inversely related to the distance between them, by analogy to

the formula for gravitational attraction between two masses. It has a fairly long history and fits the data remarkably well empirically.[2]

In addition to the variables for size and distance, we also add the product of their per capita GNPs, and an "Adjacent" dummy variable to indicate when two countries share a common land border. A dummy variable can then be added to represent when both countries in a given pair belong to the same regional grouping. The goal is to see how much of the high level of trade within each region can be explained by simple economic factors common to bilateral trade throughout the world, and how much is left over to be attributed to a special regional effect. The great advantage of the Ordinary Least Squares (OLS) regression technique is that it can separate out the effects of the various different factors (provided the linear equation is correctly specified). In this way we can avoid attributing what is really the effect of, say, proximity or a common border, to the apparent effect of common membership in a preferential trading arrangement.

Table 1 reports results of the gravity model estimation, for the years 1980, 1985 and 1990. The variable we seek to explain is trade (exports plus imports), in log form, between pairs of countries. We have 63 countries in our data set, so that there are 1,953 data points (=63x62/2) for a given year. The results differ from those reported in earlier papers, in particular, by the presence of three terms to capture bilateral differences in factor endowments across countries. The inclusion of differences in capital/labor ratios, education levels, and land/labor ratios is meant to capture classic Heckscher-Ohlin type influences on trade, which one expects to play a role alongside more modern considerations of product differentiation and increasing returns to scale. These variables are sometimes significantly

greater than zero, though the pattern is not consistent enough to make one question the modern models. In any case there is little effect on the questions of interest here.

We find all four standard gravity variables to be highly significant statistically (> 99% level), though some of the coefficient estimates fluctuate a bit. The estimated coefficient for the log of the product of the two countries' GNPs is about .7, indicating that, though trade increases with size, it increases less-than-proportionately (by .7 per cent, for every 1 per cent increase in size, holding GNP per capita constant). This reflects the familiar pattern that small economies tend to be more dependent on international trade than larger, more diversified, economies. The estimated coefficient on the product of per capita GNPs is about .3, indicating that richer countries trade more. The coefficient on the log of distance is about -.5. This means that when the distance between two non-adjacent countries is higher by 1 per cent, the trade between them falls by about 1/2 per cent. The coefficient on the dummy variable representing Adjacency is about .7, indicating that two countries which share a common border trade roughly twice as much [exp(.7)=2.0] as would two otherwise-similar countries.

If there were nothing to the notion of trading blocs, then these four or five basic variables might soak up most of the explanatory power. There would be little left to attribute to a dummy variable representing whether two trading partners are both located in the same regional grouping. (These dummy variables are the ones in the table represented by a "2" suffix.) In this case the level and trend in intra-regional trade would be due solely to the proximity of the countries, and to their rates of overall economic growth.

To a surprising extent, this is in fact the case. The gravity model results suggest that

up through 1980, the high level and increase in intra-European trade can be partly explained by the size, GNP/capita, proximity and common borders of European countries. A bit of the intra-regional trade remains to be attributed to the EC. The point estimate of the effect on trade among EC members is 36 per cent [exp(.31)=1.36]). But the estimated coefficient on the EC is only of borderline significance. (Furthermore, the 1980 estimate diminishes, as we shall see, when a dummy variable is added to capture the overall openness of European countries. This dummy variable is defined to equal one when either one of the two countries in a given pair is located in Europe, as opposed to both.)

By 1985 the EC dummy had become statistically significant. The coefficient implies that two EC members trade an extra 60 per cent with each other [exp(.47) = 1.60]. It is clear that it is the European Community in particular that is having an influence, as terms for EFTA or for Europe overall are not significant statistically.[3]

The EC coefficient in 1990 is again significant, though no higher than 1985. The effect is 48 per cent [exp(.39)=1.477]. The EFTA [and Europe] effects are again insignificant.

Why did the EC strengthen in the early 1980s? One possibility is the accession of Spain, Portugal and Greece (which are included in the definition of EC countries throughout the sample). Another possible contributing factor, considered below in Section 3, is the stabilization of exchange rates under the European Monetary System.

In Table 2 we extend the results in two directions. We report the results of a test for trade-diversion. At the same time, we include terms to capture when two countries share a common language or past colonial links. Table 3 does the same in a test for trade in

manufactured goods alone, excluding agriculture and other raw materials.

In both sets of results, English and Chinese are the two languages that show statistically significant effects; Spanish, Arabic and French show less clear effects. A pair of English-speaking countries in 1990 trades 82 per cent more than two otherwise-similar countries [exp(.6)=1.82]. When all languages are constrained to have the same coefficient (including German, Japanese, Dutch, and Portuguese as well as the five major languages reported individually here), the effect is a highly significant 36 per cent [exp(.3)=1.36; not reported here].

The variables that appear in the table with a "1" suffix are dummy variables that capture when *one country or the other* out of the pair in question is a member of the particular grouping. If a regional trading arrangement works to divert trade away from non-members, then the coefficient of this dummy variable should be negative.

The results show no evidence of trade-diversion by the EC. Indeed the coefficient on EC1 is positive. A positive coefficient like this indicates that EC countries are more open to trade worldwide, not just to trade with each other, compared to typical countries in the sample. One might wonder how the formation of a common market could lead to "less than zero" trade-diversion. In theory, the reduction of trade barriers within the region should not encourage trade with other countries; if anything, it should discourage it, because the outsiders' goods are now more expensive than those of fellow members of the club. The answer is that countries in a given region may somewhat reduce barriers with respect to non-members, at the same time that they reduce or eliminate barriers internally. Indeed, the two policy changes may be related in a political economy sense. Some have argued that the

constellation of political forces that allows liberalization with respect to trade with regional neighbors may be similar to what is required to allow liberalization more generally. We consider these issues in the last section of the paper.

3. Currency blocs

The attempt to link together the currencies of the EC member countries has been a centerpiece of plans for European integration. The hope is that stable bilateral exchange rates will promote trade, and that trade links and currency links will in turn help promote other kinds of integration.

3.1 Stabilization of exchange rates within the blocs

It is instructive to look at statistics on the variability of exchange rates among various groupings of countries. Worldwide, monthly real exchange rate variability rose in the 1980s, from a standard deviation of 3.22 per cent in 1980 to 6.98 per cent in 1990. The latter figure suggests that for a typical pair of countries, approximately 95 per cent of monthly exchange rate changes are smaller than 14 per cent (two standard deviations, under the simplifying assumption of a log-normal distribution).

There is a tendency for nominal exchange rate variability to be lower within most of the groups than across groups, supporting the idea of currency blocs. (These statistics are not reported here.) The lowest variability occurs within Europe. The 1980 statistic is a monthly standard deviation of 2 per cent, and it falls by half during the course of the decade.

Even though the members of the EC correspond roughly to the members of the European Monetary System,[4] non-EC members in Europe show as much stability in exchange rates (both vis-a-vis themselves and vis-a-vis other European countries) as EC members. These results no doubt in part reflect that the United Kingdom and the Mediterranean countries have not been consistent members of the Exchange Rate Mechanism, especially not with the narrow margins that the others observed until 1993. But we shall see that it also reflects that such EFTA countries as Austria are loyal members of the currency club de facto, even though they are not at all in that club de jure.

3.2 The links from the smaller European currencies to the DM, vs. other major currencies

Next we examine the influences that the most important international currencies have on the determination of the values of currencies of smaller countries. One way that countries in a given area could achieve the observed lower levels of intra-regional bilateral exchange rate variability observed is to link their currencies to the single most important currency in the region. In a simple version of the currency-bloc hypothesis, one would expect that the dollar has dominant influence in the Western Hemisphere, the yen in East Asia, and the mark (or ECU) in Europe.

The equation to be estimated is

(2) Δ *(value of currency i)* =

$\alpha + \beta_1 \Delta$ *(value of \$)* $+ \beta_2 \Delta$ *(value of yen)* $+ \beta_3 \Delta$ *(value of DM)* $+ \epsilon$.

where the change in the value of each currency is computed logarithmically. The goal is to see whether countries try to stabilize their currencies in terms of a particular major currency. Such an equation is exceptionally well-specified under a particular null hypothesis, namely that the value of the local currency is determined as a basket peg (perhaps a crawling peg, since we allow for a constant term). By "exceptionally well-specified", we mean that the coefficients should be highly significant and the R^2 should be close to 1.

In 1988, for example, there were 31 countries that were officially classified by the IMF as following a basket peg of their own design (plus another eight pegged to the SDR). They included Austria, Finland, Norway, Sweden, and Iceland. Most basket-peggers keep the weights in the basket secret, so that one can only infer the weight statistically from observed exchange rate movements. Previous tests have suggested that countries that are officially classified as basket-peggers in practice often exhibit a sufficiently wide range of variation around the basket index, or else alter the parity or weights sufficiently often, that they are difficult to distinguish from countries classified as managed floaters.

In applying equation (2) to a wide variety of countries, we realize that most do not follow a basket peg. If policy-makers monitor an index which is a weighted average of their trading partners, even though they allow deviations from the index depending on current macroeconomic considerations or speculative sentiments, we can meaningfully estimate the coefficients in the equation under the (restrictive) assumption that these local deviations -- the error term -- are uncorrelated with the values of the major currencies.

There is a methodological question of what numeraire should be used to measure the value of the currencies. Here we use the SDR as numeraire. The earlier tests on Asian

currencies tried other numeraires. Under the basket-peg null hypothesis, the choice of numeraire makes no difference in the estimation of the weights (though more generally it does make some difference).

Table 4 reports estimates of the implicit basket weights for nine EC currencies. The sample period is 1974-92, broken into four sub-samples. We do not here impose the constraint that the coefficients on the mark, dollar and yen sum to one, though we would expect this to emerge from the estimates. If a country follows a relatively tight peg, whether to a single currency or a basket, we would expect a high R^2, and highly significant coefficients. If the peg is to a single major currency, we would expect the weight on that currency to be close to one.

The EC countries, as expected, give heavy weight to the DM. The DM weight is highly significant and in the range .8 to .9 throughout 1974-92 for the Belgian franc, Danish krone, Dutch guilder. It is also quite high during the EMS period 1979-1992 for the French franc, Italian lira, Irish punt, and fairly high for the Spanish peseta, Portuguese escudo and Greek drachma. There are rarely significant positive weights on the dollar or yen.

We have also allowed for the possibility of some effect of a fourth major currency, pound sterling, in memory of the role it once played as the world's international currency. We impose the constraint that the weights on the four currencies sum to 1 (by subtracting the change in the value of the pound from each of the other variables). The results are similar to those reported here, but sharper as a result of the constraint. There is little role for the pound.[5] For such currencies as the Belgian franc, krona and guilder, the weight on the DM is insignificantly less than 1.0. For the lira, escudo and drachma, however, there is also a

significant weight on the dollar, averaging about 0.1.

The DM also has the dominate influence on the six EFTA countries, shown in Table 5. Austria exhibits an extremely tight peg to the DM, as expected. Switzerland also gives heavy weight to the DM. The Swiss franc gives significant weight to the yen as well at times. Finland, Norway and Sweden give most of their weight to the DM, though the dollar is also significant statistically when the coefficients are constrained to sum to 1.

In the Western Hemisphere, most of the countries tested give dominant weight to the dollar. The pattern of linking to the major currency of the region is broken in East Asia, however. The weight on the dollar is very high in most East Asian countries, with no special role for the yen. The Japanese currency is statistically significant in Singapore, and occasionally in some of the other countries in the region, but the coefficient is low. The same is true of the DM and pound (they are significant, for example, in Singapore). Each of the Asian countries is more properly classed in a dollar bloc than in a yen bloc.

3.3. An attempt to estimate the effect of exchange rate variability on trade

One rationale for a country to assign weight to a particular currency in determining its exchange rate is the assumption that a more stable bilateral exchange rate will help promote bilateral trade with the partner in question. This is a major motivation for exchange rate stabilization in Europe. There have been quite a few time-series studies of the effect of exchange rate uncertainty on trade overall,[6] but fewer cross-section studies of bilateral trade.

Three exceptions are Thursby and Thursby (1988), De Grauwe (1988), which look only at a group of industrialized countries, and Brada and Mendez (1988). We will re-

examine the question here using a data set that is broader, covering 63 countries. We return to the gravity model of bilateral trade represented by equation (1), but add an additional variable to capture the effect of exchange rate variability alongside the other variables. A problem of simultaneous causality should be noted at the outset: if exchange rate variability shows up with an apparent negative effect on the volume of bilateral trade, the correlation could be due to the government's deliberate efforts to stabilize the currency vis-a-vis a valued trading partner, as easily as to the effects of stabilization on trade.

Volatility is defined to be the standard deviation of the first difference of the logarithmic exchange rate. We start with the volatility of nominal exchange rates and embed this term in our gravity equation. The results are reported in Table 6 (where nominal variability is labelled *NV*). Table 7 does the same for the volatility of real exchange rates (labelled *RV*). Most coefficients are similar to those reported in the earlier results without exchange rate variability (Tables 1-3): the Western Hemisphere, East Asia, APEC and the EC all show statistically significant bloc effects.

The OLS results show a negative effect of exchange rate volatility (whether nominal or real) on bilateral trade that is highly significant in 1965, 1970, and 1975, as well as 1980. Only in 1985 and 1990 does the negative effect disappear (indeed, turn positive). ** Henceforth we concentrate our discussions on the regressions involving real exchange rate variability.

By way of illustration, these point estimates can be used for some sample calculations. They suggest that if the level of EC real exchange rate variability that prevailed in 1980, a standard deviation of 2 per cent, had been eliminated altogether, the volume of

intra-EC trade would have increased by 14.18 per cent (=6.97 x 2.04). This OLS estimate should be regarded very much as an upper bound. For one thing, the 1980 point estimate of the effect of exchange rate volatility is the largest of all the years. In the earlier observations, the magnitude of the estimated effect is 1/5 to 1/2 the size.

Worldwide, the average level of exchange rate variability in 1980 was 3.22 per cent. The OLS-estimated effect on trade of adopting fixed exchange rates worldwide was thus 22.44 per cent (=6.97x3.22).

The exchange rate disruptions of September 1992 and August 1993 may herald a return to the level of variability among the EMS countries that prevailed in 1980. Table 5 shows that this would represent an approximate doubling of the standard deviation of exchange rates, relative to the stability that had been achieved by 1990. What would be the predicted effects on trade? The OLS estimate in Table 7 suggests that trade would fall by 5.85 per cent (=6.97x(2.04-1.20)). **

Interpretations of the estimates in Tables 6 and 7 are complicated by the likelihood of simultaneity bias in the above regressions. Governments may choose deliberately to stabilize bilateral exchange rates with their major trading partners. This has certainly been the case in Europe. Hence, there could be a strong observed correlation between trade patterns and currency linkages even if exchange rate volatility does not depress trade.

To address this problem, we use the method of instrumental variable estimation, with the standard deviation of relative money supply as our instrument for the volatility of exchange rates. The argument in favor of this choice of instrument is that relative money supplies and bilateral exchange rates are highly correlated in theory (they are directly linked

under the monetary theory of exchange rate determination), and in our data as well, but monetary policies are less likely than exchange rate policies to be set in response to bilateral trade patterns. The Instrumental Variables results show the same sign pattern across the years as the OLS estimates, but the negative effect is statistically significant only in 1965. [The point estimate for 1980 is (a completely insignificant) 0.28, which would imply that the elimination of exchange rate variability worldwide would increase trade by 0.9 per cent (=0.28x3.22).]

These results, while less robust than most of the other gravity equation findings, are generally consistent with the hypothesis that real exchange rate volatility has depressed bilateral trade a bit in the past. More specifically, these results would appear to be a piece of evidence that the stabilization of exchange rates within Europe helped a bit to promote intra-European trade from 1965 to 1980. But the evidence for a negative trade effect, which starts out relatively strong in 1965, diminishes steadily in the 1970s and 1980s, especially if one takes due account of the simultaneity. The proliferation of currency options, forward contracts, and other hedging instruments over this period may explain why the effect that appears once to have been there, has more recently disappeared.

4. Summary of conclusions regarding Europe economic integration

Trade within Europe was at a high level even before the 1980s, and increased rapidly during that decade. Much of the tendency to trade intra-regionally can be explained by natural economic factors: the size of the GNPs, the levels of GNP/capita, the proximity of

the countries, the sharing of common borders and common languages, and the openness of the economies. Some of the increase in intra-regional trade in the 1970s and 1980s can be explained by an increase in GNP per capita (though to a lesser extent than in Pacific Asia).

There was also a highly significant increase in the degree of intra-regional trade bias in the course of the 1980s, most readily explained by deliberate policy initiatives of the European Community. Our estimates in Table 1 suggest that a country joining the EC would have experienced an increase in trade with other members of about 50 per cent by 1990. No such effect is observed for EFTA.

We have considered the possibility that the stabilization of exchange rates was a significant contributor to the increase in intra-regional trade. The standard deviation of exchange rates fell among EFTA countries by about half in the 1980s, and among EC countries by slightly more. Among both groups, the currencies in effect linked themselves to the mark, much as Western Hemisphere (and East Asia) currencies in effect link themselves to the dollar.

We have found some possible cross-section evidence that real exchange rate variability has had an effect on trade volume. There is much more evidence that this factor is statistically significant in the period 1965-1980 than in 1985 or 1990. A possible explanation is the spread of hedging instruments. The evidence is much weaker once we correct for simultaneity. In any case, even when the estimated effect is at is peak, it explains a relatively small fraction of the intra-regional trade bias. It does not appear that the stabilization of European exchange rates in the 1980s played a large role in the increase in intra-regional trade.

5. Political implications of economic regionalism

Many observers fear a repeat of the malign form of regionalism practiced in the 1930s. We have seen in econometric tests that there is indeed evidence of a trend toward regionalization of trade and financial relationships over the last 25 years. What are the implications for economic welfare and for politics? In this part of the paper we review many arguments commonly made regarding economic regionalization, either to the effect that it is good or that it is bad. Although some of the arguments on both sides are fully valid, others merit skepticism. At the end, we shall attempt a rough overall verdict on regionalization.

Economists and political scientists both try to take hard-headed views of how countries behave, and even of how their own country should behave. For economists, the usual presumption is that the national goal is to maximize national economic welfare (most conveniently measured by GNP or GDP, but more properly adjusted for such non-market factors as pollution). For some political scientists, particularly those called realists, the usual presumption is that the goal is to maximize the *relative* standing of the country vis-a-vis competitors. GNP is important as one of the determinants of power (along with other determinants such as the size of one's military, the possession of colonies or a sphere of influence, the state of one's technology, etc.) But it is relative GDP that is usually thought to matter, not absolute GNP.

Even within the economists' perspective, there is still a lot of room for interesting political-economic interactions. We divide our review of the issues in three parts. First we consider the implications of regionalization from the standpoint of economic welfare, taking

the level of worldwide liberalization as politically given. Second, we consider at some length how regional initiatives might interact with trade policy more generally; thus we introduce political economy considerations, but continue to assume that the objective should be to maximize economic welfare. Finally, we consider briefly broader political objectives, including the possibility that relative GNP is important for reasons of power and rivalry.

5.1 Implications of free trade for economic welfare

The formation of blocs in the 1930s was associated with a sharp fall in worldwide trade and with the Great Depression. The postwar multilateral trading system founded on the GATT was associated with a dramatic increase in the volume of world trade and with worldwide economic growth. It is thus natural to worry that the re-emergence of regional blocs might lead to a resumption of less satisfactory growth performance like that of the 1930s and be harmful for economic welfare.

A point to note right away is that economists continue to believe that worldwide free trade is the first-best strategy. New arguments, whether (1) political, or (2) economic, ultimately do little to change the bottom line. (1) New political arguments are made that, with the end of the Cold War, the United States can no longer afford economic sacrifices for the sake of the liberal international system. But these arguments become irrelevant if it is recognized that *each* country's economic welfare is in general maximized under worldwide free trade. No national sacrifice is required. (2) New economic arguments are made that in the presence of imperfect competition, increasing returns to scale, and endogenous technology, an individual country can theoretically raise economic welfare by imposing just

the right tariffs or subsidies. But the introduction of imperfect competition does at least as much to strengthen the arguments for free trade as to weaken them. In most of these models, intervention works only if the foreign country fails to retaliate. In reality countries do retaliate, and emulate. An equilibrium in which all countries are effectively prevented from intervening, e.g., by means of the GATT or the World Trade Organization, is better for all than the non-cooperative equilibrium in which everyone intervenes.

Although the multilateral system has made large strides toward freer trade, most recently in the form of the successful conclusion of the Uruguay Round negotiations in December 1993, political constraints inevitably prevent the immediate attainment of the economist's nirvana. Since influential producer interest groups in each country typically stand to lose from free trade, unilateral liberalization rarely occurs, and the world must instead await the outcome of step-by-step multilateral negotiations, in which countries trade concessions with each other in such a way that at each step the percentage of the population that stands to gain is sufficiently high to overcome the political opposition.

In this light, the case in favor of regional trading arrangements is a second-best argument that takes as given the impossibility of further most-favored nation (MFN) liberalization. The uninitiated might assume that free-trade economists would under these circumstances necessarily support Free Trade Areas (FTAs). But from the standpoint of static economic welfare, trade economists are in fact ambivalent about the desirability of FTAs. So long as tariffs and other barriers against third countries remain in place, the elimination of barriers between two FTA members can as easily intensify distortions as eliminate them. The classical distinction is between the harmful trade-diverting effects of

FTAs and their beneficial trade-creating effects. Although modern theories of trade have gone beyond the diversion/creation distinction, it is still a useful intuitive guide to likely welfare effects.[7] Grossman and Helpman (1993), for example, find in a median-voter model that a free trade area is most likely to be adopted when trade diversion outweighs trade-creation, which unfortunately is also when it is most likely to reduce aggregate welfare.

5.2 Negative Political Implications for Multilateral Trade Liberalization

There are a variety of arguments as to how the adoption of a regional trading area might undermine movement toward unilateral or multilateral liberalization for political reasons: these fall under the headings "incentive to protect," scarce negotiator resources, median-voter dead-end, and manipulation of the process by special interests. We consider these anti-regionalization arguments first, before considering some arguments that go the other way.

Blocs' incentive to protect

The standard experiment presumes that the level of trade barriers against outsiders remains unchanged when a customs union is established. However, Krugman (1991) shows how, in a world consisting of a few large blocs, each unit will have more monopoly power and thus will be more tempted to seek to shift the terms of trade in its favor by raising tariffs against the other blocs. This is the "incentive to protect." This temptation will be minimized in a world of many small trading blocs (or in a world of MFN, i.e., each country its own bloc). A world of a few large blocs is thus one in which the noncooperative equilibrium features a higher level of interbloc tariffs and a lower level of economic welfare.

In Krugman's simulation, three turns out to be the worst number of blocs to have.[8] Haveman (1992) gets essentially the same result, with expected world welfare minimized in a world of only two customs unions, using a model where trade arises from comparative advantage rather than from product differentiation (following the Deardorff-Stern critique of Krugman).

The Krugman model assumes that members of a trade bloc set their external tariffs together, that is, that the arrangement is a customs union. The "incentive to protect" story would be different for a standard Free Trade Area, in which each country is able to set its tariffs with respect to non-members independently. Sinclair and Vines (1994) argue that in the FTA case, there is actually an incentive for each country to *reduce* its external tariffs, just the opposite of the customs union case. Panagariya and Findlay (1994) assume that protection is the endogenous outcome of lobbying, and derive the opposite results regarding the FTA/customs union comparison from Sinclair and Vines: the lobby chooses a lower external tariff under a customs union than under an FTA. The customs union is more effective at diluting the power of interest groups.

Bagwell and Staiger (1993a) introduce a temporal dimension. They examine the condition under which multilateral tariff liberalization is self-enforcing (through anticipation of future retaliation by other blocs). They find that this condition holds only during the early stages of customs union formation, but not when the customs union is complete and able to exercise its full monopoly power. The sequence is reversed in Bagwell and Staiger (1993b), where free trade areas are considered: members do not set external tariffs jointly and thus cannot exercise collective monopoly power as in a customs union.

In reality, governments in one sense are less capable of national economic optimization than the Krugman or Bagwell-Staiger models presuppose, and in another sense they are more capable. In both respects, large trading blocs are less vulnerable to the incentive to raise tariffs against each other than under Krugman's assumptions. Governments are less capable of optimization, in that maximum exploitation of the terms of trade (through imposition of the "optimum tariff") is in practice one of the *less* prevalent determinants of trade policy. More commonly seen are arguments regarding infant industries, protecting the scarce factor of production, increasing employment, and adjustment costs. Governments are *more* capable of optimization in that they have already instituted the cooperative international regime of the GATT, as Bergsten (1991) pointed out in his comment on Krugman (1991a). Article XXIV of the GATT explicitly rules out Krugman's concern. This provision allows deviations from the MFN principle only for FTAs or customs unions that do not raise the average level of their tariffs against nonmembers.

There are several reasons to worry that blocs' "incentive to protect" survives despite the existence of Article XXIV. First, and most obviously, Article XXIV is often disregarded, as Bhagwati (1992) reminds us. Second, as Bagwell and Staiger (1993a, fn 25) point out, exacerbation of the incentive to protect in customs unions can take the form of "grey-area" measures when explicit tariff increases are ruled out. Third, one hopes that the multilateral process is on a path whereby worldwide tariff rates are gradually reduced through negotiation, and that this path is the relevant benchmark. Bond and Syropoulos (1994) show that arriving at the cooperative equilibrium of an agreement for inter-bloc liberalization in a repeated game, which it is seen as GATT's role to facilitate, becomes

more difficult as the size of the blocs, and therefore their monopoly power, rises.

Manipulation by special interests

The special-interests argument points out that the process of instituting a regional trading arrangement features abundant opportunities for trade-sensitive industries, particularly those that might be adversely affected, to manipulate the process. Examples abound. First, Wonnacott and Lutz (1989, p. 65-66) emphasize that negotiators frequently seek to exclude from regional FTAs precisely those of their sectors that would be most threatened by welfare-enhancing trade creation. Grossman and Helpman (1993, p. 34-43) have used their median-voter model to understand how the possibility of such industry exclusions increases the chances of FTAs being adopted. This was the primary reason for another restriction that the GATT Article XXIV places on FTAs, that "substantially all" barriers within the region be removed. In practice, FTAs have tended to comply less than completely with this provision. Examples include the European Economic Community's exclusion of agriculture and, in practice, steel and many other goods.[9]

Second, Anne Krueger (1993, 1995) emphasizes the exploitation of rules of origin. An FTA, unlike a customs union, does not involve the setting of common external tariffs. Rules of origin are a mechanism with which a country can prevent imports coming in from nonmembers, transshipped via the FTA partner, in those sectors where the partner has lower tariffs. Krueger (1993) and Krishna and Krueger (1993) show how individual industries in the FTA negotiation can enhance the extent of protection they receive when their governments use rules of origin to enable them to capture their FTA-partner's market in addition to their own, thus diverting trade from foreign suppliers. Krueger (1995) argues

that customs unions are pareto-superior to FTAs, because they have no rules of origin that can be exploited in this way. Nagaoka (1994) develops a model in which the government is committed to preserve a given "strategic" monopolistic industry, e.g., by manipulating rules of origin. He finds some effects whereby regional integration can reduce the incentive for protection for that industry, and thereby accelerate liberalization vis-a-vis the rest of the world, but also finds that the formation of a customs union can exacerbate the incentive to protect.

Bhagwati (1993, 30-31; 1995, 22) and Panagariya (1995, 16-21) point out that large countries like the United States may use their overwhelming bargaining power within regional groupings to obtain from small countries distorting concessions that they might not obtain in more balanced multilateral negotiations. Perroni and Whalley (1994) point out that small countries have been the enthusiasts in recent regional agreements, and show why large countries have all the bargaining power on their side.

Scarce negotiator resources

The scarce-negotiator-resources argument points out that negotiations are not costless. If they were, then the world would have achieved free trade by now. If the U.S. Special Trade Representative is spending all his or her time -- and spending all the White House's political capital with Congress -- on a regional agreement (e.g., the North American Free Trade Agreement, NAFTA), there is presumably less time or capital left over to spend on multilateral negotiations (e.g., the Uruguay Round). As with the incentive-to-protect argument, regional trading arrangements may set back the process of negotiating worldwide trade liberalization under the GATT.

Some -- e.g., Summers (1991) and Krugman (1993) -- have argued that the costs to negotiation go up with the number of countries involved, so that it is easier to negotiate customs unions first, and then proceed to multilateral liberalization among the smaller number of larger units. Others question the practicality of the small numbers claim -- Bhagwati (1993), Winters (1993) and Panagariya (1994, 830-31).

** **Firms' support for FTAs may be a political dead end**

Regional initiatives might prevent multilateral initiatives when the sequence of decisions matters. The forces in favor of liberalization might win out over protectionists if the only choice is between the status quo and multilateral liberalization, but when offered the option of a regional free trade area, the political process might then take the regional route to the exclusion of the multilateral route. Bhagwati (1993 [p.28-29]) worries that businessmen and bureaucrats, after having achieved regional integration, might then find the effort involved in multilateral negotiation too difficult. "Lobbying support and political energies can readily be diverted to preferential trading arrangements such as FTAs...That deprives the multilateral system of the support it needs to survive, let alone be conducive to further trade liberalization" (Bhagwati, 1993b, p.162).

Krueger (1995, pp.22-24) shares these concerns, and argues that the diversion of political energies is likely to be worse in the case of FTAs than in the case of customs unions. She reasons from two propositions: (1) once trade diversion has taken place as the result of any preferential arrangement, the newly-established firms producing for the partner country's market will oppose moves away from the new status quo toward global free trade; and (2) trade-diversion is more likely to occur under an FTA than a customs union, due to

the arguments explained above regarding rules of origin. It then follows that it will be harder to muster the political support to move from an FTA to multilateral free trade than in would be for a customs union. **

A few authors have sought to model issues of sequence. Krishna (1995) assumes that a country will accept proposed changes in trade policy if its firms see a net increase in their profits (in all markets) from the change. She then derives two conclusions: (1) Preferential arrangements that are more trade diverting are more likely to be supported by member countries, because the gains by firms is at the expense of non-members, and (2) preferential arrangements that divert trade will reduce the incentives to seek multilateral liberalization. The end result is that multilateral agreements that otherwise are attainable might be precluded, once countries start down the FTA path. The FTA can be dead end. [The argument is similar to Krueger's except that it does not rely of rules of origin.] **

Levy (1993) offers what might be called a median-voter dead-end model, in which a bilateral free trade agreement can undermine political support for multilateral liberalization because it is a dead end. As in Grossman and Helpman (1993), it is assumed that trade policy is determined by the median voter. Trade itself is determined in some sectors by differences in factor endowments [which the extra terms in our Table 1 attempt to capture], and in others by considerations of imperfect substitutes [which are the rationale behind the gravity model's basic proportionality between trade and country size]. As others have argued, the intra-industry sort of trade that is generated in imperfect substitutes is easier to accept politically than the other kind of trade. The reason is that adjustment to import competition requires workers only to move from the assembly line for one product variety to

the assembly line for another variety of the same product. Trade based on differences in factor endowments is much more difficult to accept politically, because it requires workers in previously-protected industries to move to different industries (and at lower wages, in the case of capital-intensive industrialized countries).

Levy argues that policy toward trade is thus always a tradeoff between the gains afforded by increased varieties and the losses inflicted by a fall in the relative price of the product that is intensive in the scarce factor (labor, in the case of industrialized countries). If liberalization is not attainable, it is because the losses from factor-endowment trade dominate. If a vote is held first on whether to join a bilateral free-trade area, it is more likely to pass when the potential partner has similar factor endowments. (It is easier politically to achieve a European Union than a NAFTA.) The reason is that the gains from increased trade in imperfect substitutes will be large, while the losses from a fall in the relative price of labor-intensive products will be small. But if a vote is then held on multilateral liberalization, it will fail: those key sectors that stand to profit from trade in imperfect substitutes will already have reaped those gains, and there will be no political force to countervail the sectors that lose from the additional factor-endowment trade. In this way regional free trade agreements undermine political support for multilateral liberalization in this model. Thus FTAs again turn out be a dead end.

5.3 Positive Political Implications for Multilateral Trade Liberalization

Other arguments go the other way. They offer the hope that the adoption of a regional trading area might undermine protectionism and reinforce movement toward

liberalization more generally. The arguments concern locking in unilateral liberalization, the efficiency of negotiating with larger units, mobilizing regional solidarity, building export constituencies to create domestic political momentum, and competitive liberalization.

Lock-in and mobilizing regional solidarity

In the late 1980s, Mexican President Salinas reversed a half-century of Mexican protectionism and imposed sweeping unilateral liberalization measures. Future presidents of Mexico might seek to reverse this liberalization. Thus, a good argument for NAFTA from the American and Canadian viewpoint was that it locked in the Salinas reforms in a manner that would be difficult to reverse in the future.[10] Elsewhere [such as in Andean Pact countries], leaders have used popular support for regional solidarity to achieve liberalization that would be politically impossible if pursued unilaterally. De Melo, Panagariya and Rodrik (1993, Section 3) model the process whereby governments can adopt rules or institutions in a regional grouping to insulate themselves from pressure by private-sector lobbies for intervention on their behalf. Panagariya (1995) argues that NAFTA is a less-effective device for locking in Mexican reforms than are GATT tariff bindings.

Efficiency of negotiating with larger units

Within the context of multilateral negotiations [or, for that matter, bilateral negotiations on the part of the United States], it is awkward to negotiate separately with over 100 small countries. It has been argued that if small countries form themselves into larger groupings, which presumably have to be customs unions with a common external trade policies, then they can negotiate as a group.[11] This is thought to increase the efficiency of the negotiations, and to make a satisfactory worldwide agreement more likely. The

European Union is certainly the most important example of this. Other groupings, such as ASEAN and the Central American countries, have also been urged to integrate regionally, so as to be able to talk with the larger powers.

Building export constituencies to create domestic political momentum

Wei and Frankel (1994) have made a primitive start at modeling an argument regarding political constituencies. We consider the problem of building export constituencies in a system, like Grossman-Helpman, where a country chooses its trade policies by majority vote. Our hypothesis is that, under certain conditions, leaders might not be able to obtain a majority vote in favor of multilateral liberalization, much less unilateral liberalization, and yet might be able to obtain a majority vote in favor of regional liberalization, which, when completed, then shifts the economic incentives so as to produce a majority in favor of wider liberalization.

This model is inspired by Fernandez and Rodrik (1991), who consider a (non-regional) situation where the majority in a country would vote against unilateral liberalization, even though a majority would *ex post* gain from it economically. Essentially they divide the population into three groups: those who that know they would gain from liberalization because they are confident of their ability to compete on world markets, those who will eventually gain from liberalization because they will turn out to be competitive on world markets but do not know this ex ante, and those who lose from liberalization because of new import competition but do not know this ex ante. If all those who are uncertain have as little as a 49% chance of gaining, all those who are uncertain--and thus a majority of the

entire population--will oppose liberalization ex ante, even though a majority of the population gains ex post (say .49 x 2/3 plus the 1/3 who are sure gainers). The interesting aspect of the model is that if the leaders are somehow able to push liberalization through anyway and a new vote is taken after the uncertainty is resolved, a majority will then vote in favor of maintaining the new liberalized status quo. In essence, the act of liberalization itself builds a constituency for liberalization, as those who are good at exporting discover their previously unknown talents. Similar conclusions could be reached in a model where capital and labor moved from previously protected sectors to new trade-oriented sectors, though the status-quo bias in this case would hold for reforms that did not benefit a majority in addition to those that did.

In the Wei-Frankel (1994) version, political leaders may be able to obtain a majority vote in favor of regional liberalization because fewer sectors are adversely affected. More firms then discover their export potential, making it possible to obtain a majority support for previously unattainable MFN liberalization. The story is thus a counter-example to the (perhaps overly strong) claim of Levy (1993) that "bilateral free trade agreements can never increase political support for multilateral free trade."

Competitive liberalization

In an important analysis of the political economy of regional blocs, Oye (1992) argues that the expected costs of exclusion from groupings change the political dynamics, by strengthening the anti-protectionist constituencies domestically, so as to draw countries into multilateral negotiations. Whereas many authors might read the recent experiencing as one in which regionalism helps build support for multilateral liberalization, Oye finds that this

was also true of the 1930s experience.

"Competitive liberalization" refers to building political momentum for liberalization among countries, rather than domestically (Bergsten, 1995). An illustration is President Clinton's "Triple Play" of late 1993. By upgrading the Seattle meeting of APEC ministers that had been scheduled for November 1993 into a high-profile Leaders' Meeting, he signaled to the Europeans that if they continued to allow French farmers to hold up the Uruguay Round, other countries might proceed without them. This message carried credibility because of its fortunate timing, coming as it did on the heels of the hard-fought approval of NAFTA in the U.S. Congress. Thus, the NAFTA outcome demonstrated the political will necessary for meaningful agreements, while the APEC meeting demonstrated the possibility that agreements would cover a fraction of the world economy that was sufficiently large and dynamic to give the Europeans cause for worry at the prospect of being left out. German policymakers have reportedly confirmed that this was part of their motive for concluding the Uruguay Round in December. In this episode at least, it appears that regional initiatives helped bring about multilateral agreement.

Of course, the game need not always come out so well. The trouble with making credible threats is that sometimes they must be carried out. The process that is traditionally feared is *competitive regionalization*, where the formation of one regional grouping puts pressure on other countries to form a bloc of their own, rather than to liberalize unilaterally or multilaterally. The worst situation for a country is to be one of the few that do not belong to any bloc, because the terms of trade then turn against it. For this reason, there is a danger that the world will become stuck in an Nash noncooperative equilibrium of several

continental FTAs: each continent forms an FTA because, given that the next continent is doing so, it will be hurt if it does not respond in kind. In the resulting equilibrium, all are worse off than they were under the status quo of MFN. (Hence the argument for discouraging FTAs in the GATT in the first place, as under Article XXIV.) Furthermore, if continents are allowed to choose the level of intra-bloc preference to maximize their individual welfares, rather than being constrained to go all the way to FTAs, in equilibrium they will still choose a level of preference that is so high as to leave everyone worse off. This is the "incentive to protect" argument we have already seen. These points are shown in a model with inter-continental transport costs by Stein (1994, p.83-93).[12]

On the other hand, since the ultimate goal is worldwide free trade, it is not clear that the ultimate political economy dynamic is bad. Worldwide economic welfare is so reduced by a non-cooperative equilibrium of four continental FTAs, that it may then become politically possible for them to agree multilaterally to remove the barriers that remain between them and go to worldwide free trade. This would seem to follow if the obstacle to a move from MFN to worldwide free trade is a moderate fixed resource cost to negotiations (say 1 per cent of GDP, to buy off producers that stand to lose). The leap to free trade would follow all the more if the resource cost to negotiation increases with the number of distinct entities involved.

What happens if the first bloc allows other countries to join? (This is one possible interpretation of the phrase "open regionalism.") A number of authors have shown that non-member countries will, one-by-one, find it in their interest to join a given FTA.[13] As the bloc expands, its members gain progressively, as the terms of trade are shifted further and

further in their favor, and those that continue to be left out lose progressively. In the model of Deardorff and Stern (1992), the bloc continues to grow until it encompasses the whole world, the happy outcome of global free trade. Their model, however, assumes that the bloc at each stage places prohibitive tariffs on outsiders, a rather extreme assumption.

Saxonhouse (1993) and Stein (1994) consider the same problem, while allowing trade with non-members. They find that when the bloc reaches a certain size (20 out of 30 members in Saxonhouse, and 16 out of 30 in Stein), it will choose not to accept any new members, because its own welfare starts to decline after that. What makes this story especially alarming from the viewpoint of ultimate multilateral liberalization is that the single bloc is truly a dead-end: welfare of the bloc members is higher than it would be under world-wide free trade, so that they have an incentive to reject multilateral liberalization that they did not have when the alternative was MFN. (At this unhappy dead-end point, worldwide welfare is close to its minimum, the very low welfare of the non-members outweighing the high welfare of the members.)

At some point, the non-members will presumably wise up and form a bloc of their own. But given two competing blocs, the incentive for individual countries will be to join the larger of the two to share in its monopoly power. A world of two equal-sized blocs is unstable (Bond and Syropoulos, 1994). A simulation in Stein (1994, p.99-102) shows that the stable equilibrium has 26 out of 30 countries in one large bloc, and 4 in the other. Again, the large bloc has no incentive to take mercy on those excluded.

Stein (1994, 103-105) has a proposed solution to this difficulty: that Article XIV be amended to state that preferences within a bloc cannot go beyond a specified low level (22

per cent is the magic limit, in his simulation). We have already seen [in Frankel, Stein and Wei, 1994] that such a restriction -- the opposite of the current Article XXIV requirement for 100 per cent preferences -- would be welfare-improving in a world of equal-sized continental blocs. The same is true when there are no inter-continental transport costs and there is a temptation for countries to join the larger of two blocs. The equilibrium still features one large bloc (24 countries) and one small (6 countries). But with the limit on the margin of preferences in place, the large bloc has nothing to lose by moving to worldwide free trade, so that the happy outcome is still ultimately attainable. Of course the members of the large bloc would vote against such a rule in the GATT. However, if the issue is decided before any single incipient grouping is large enough to know that it will be the dominant bloc, then everything will work out for free trade.

5.4 Which Effects are Likely to Dominate?

In short, there are a variety of possible channels of political causation running from regionalism to multilateralism, some positive and some negative. How can one get an idea as to which effects dominate in practice?

The gravity equation results of Tables 2 and 3 can shed some light on the net effect of political interactions like the ones we have described, as they have actually played themselves out over the last 25 years. If tariffs on imports from nonmembers remain unchanged when a given regional grouping is formed, then the coefficient on the variable with a "1" suffix (the dummy variable indicating when at least one country of the pair is a member of the grouping in question) should be negative, indicating trade diversion. Trade creation is indicated by a

positive coefficient on the variable with a "2" suffix (the dummy variable indicating when both countries in the pair are members of the grouping in question). If trade diversion is large enough relative to trade creation, then the FTA may reduce economic welfare. If trade diversion is small, the FTA is likely to improve welfare. A third possibility is that adoption of a regional FTA is associated with political momentum in favor of more widespread liberalization (for any of the reasons enumerated in the preceding sub-section). In this case, the best outcome from the standpoint of economic welfare, the coefficient on the variable with a "1" suffix would be positive.

The results in Tables 2 and 3 suggest that the third possibility is the relevant one in the cases of East Asia, the WH (Western Hemisphere), and the EC. These countries have tended to open up with respect to all trading partners at the same time that they have opened up with respect to other members of their own grouping. (Only for the EFTA grouping, which is not a significant bloc, is there evidence of trade diversion.) This conclusion matches that of a recent report from the WTO Secretariat (1995), to the effect that the recent regional arrangements among its members have not been fortresses, but to the contrary have sometimes helped to promote freer trade worldwide.

Thus, the tentative verdict seems to be that the net political effect of the removal of regional barriers has tended to support liberalization with respect to nonmembers as well and that the effect of further liberalization has been more than enough to offset any trade diversion resulting directly from the original regional arrangements themselves. From the economists' viewpoint, this verdict is an encouraging one.

5.5 Implications for International Political Relations

There remains the question of power relationships and non-economic goals. Smaller countries often fear that close economic integration with a large neighbor will bring political domination. Albert Hirschman (1945) argued that a small country that comes to depend on trade with a large neighbor for a high share of its GNP is unlikely to side against that neighbor in times of political or military conflict.

Of course, what may be politically disadvantageous from the standpoint of the small country is by construction politically advantageous for its large neighbor. In the grand tradition of realist international relations, a major power that sits at the center of a large and cohesive trading bloc and whose currency is widely used will be at a political advantage vis-à-vis rival powers.

We incline toward a more benign interpretation of the political causes and effects of economic regionalism in the postwar period (as opposed to the 1930s). Promoting democracy, peace, and stability can be a political goal of regional economic arrangements. This describes the EC's motive in the late 1970s for admitting the previous right-wing dictatorships of Greece, Portugal, and Spain. The original (and still-paramount) motive underlying the European Community and its predecessors was to bind together France and Germany and thereby ensure that there would not be a repeat of the three wars the two neighbors had fought over the preceding century. To the extent that the European Union sees fit to continue to extend its membership eastward in the 1990s, a primary motive will be to promote democracy, peace, and stability among former members of the Warsaw Pact. Thus the verdict is again benign.

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Notes

1. Among recent studies on the regional patterns of economic disturbances are Bayoumi and Eichengreen (1992). Chinn and Frankel (1994) study whether interest rates in small countries are more responsive to the region's major financial center than to the world's other major financial centers. (The finding is generally no for Asia, even though it is yes for Europe.) Stabilization of exchange rates within regions can help promote financial integration, as measured by interest rate differentials, in addition to helping promote trade as examined in this article.

2. Antecedents include Linneman (1966) and stretch back at least as far as the 1940s and ultimately to Sir Isaac Newton. Two recent applications to Europe are Hamilton and Winters (1992) and Havrylyshyn and Pritchett (1991). Eichengreen and Irwin (forthcoming) adopt the gravity model approach to the trading bloc question, and apply it to the inter-war period. Further recent references are given in Frankel, Stein, and Wei (forthcoming).

3. This is the same result found by Hamilton and Winters (1992), a significant coefficient of .7 on the EC and zero on EFTA. But it is the opposite of the conclusion one might draw from simple statistics on the magnitudes of intraregional trade in the EC and in Western Europe as a whole, if one did not hold constant for proximity (Grant, Papadakis, and Richardson, 1993).

4. Of the EC, only Greece had not joined the Exchange Rate Mechanism by early 1992 (though Italy and England dropped out soon thereafter).

5. For Ireland, the implicit coefficient on the pound ranges between .1 and .2.

6. See, for example, Akhtar and Hilton (1984). The literature is reviewed in Edison and Melvin (1990).

7. Stein and Frankel (1994) show in a model of imperfect competition that a simulation comparison of the magnitudes of trade creation and trade diversion provides the right answer to the question whether FTAs raise the welfare of the representative consumer under many plausible parameter values, though not all.

8. We have already noted that, even when inter-bloc tariff rates are held constant, the distortions created by free trade areas can reduce world welfare, as in the classic distinction between trade diversion and trade creation. But preferential trading

areas drawn along continental boundaries can raise welfare, if the degree of preferences does not exceed a specific natural level justified by inter-continental transport costs (Krugman, 1991b; Frankel, Stein and Wei, 1994; and Stein, 1994, p. 84-93). If the margin of preference is so great as to reduce welfare, we call this a "super-natural" trade bloc. Full-fledged FTAs are likely to be supernatural.

9. Such "new issue areas" as trade in services and government procurement have been widely excluded from regional FTAs in the past. Only recently has the European Union begun to address these issues seriously, although these regional groupings have progressed more rapidly in services and procurement than proved possible multilaterally in the Uruguay Round.

10. E.g., Lawrence (1991) .

11. E.g., Deardorff and Stern (1992), Krugman (1993), and Summers (1991). Kahler (1994; 1995, pp. 125-127) suggests that negotiations among a small number of regional neighbors may allow more efficient treatment of new individual issue areas than do global negotiations.

12. In a simulation, the status quo of MFN features worldwide welfare that falls short of free trade by only about 0.5 per cent of GNP [which may not be enough to overcome negotiating costs]. Each continent in sequence has an incentive to form an FTA, raising its welfare but lowering that of all the other continents, until all four have done so. In that non-cooperative equilibrium, the loss relative to global free trade is about 2.5 per cent.

13. Bond and Syropoulos (1994), Deardorff and Stern (1992), Saxonhouse (1993) and Stein (1994), each with somewhat different specifications of the model.

Table 1: Factor Endowments in a Gravity Model of Bilateral Trade

Year	GNP	GNP/ capita	Dist	Adjac	WH2	EAsia2	APEC2	EC2	EFTA2	K/L	Edu	Land/L	Adj.R^2 /SEE	n
1980	.71***	.38***	-.49***	.54**	1.07***	.95***	1.70***	.30*	.03	.08**			.78/.98	656
	.02	.02	.06	.21	.27	.26	.19	.17	.34	.03				
	.65***	.44***	-.48***	.51**	1.00***	.95***	1.67***	.28*	.06		.10***		.79/.98	656
	.03	.03	.06	.21	.27	.26	.19	.17	.19		.03			
	.72***	.41***	-.45***	.55***	1.06***	.80***	1.79***	.29*	-.01			-.08**	.78/.99	656
	.02	.03	.06	.21	.28	.27	.19	.17	.34			.03		
	.65***	.42***	-.46***	.56***	1.06***	.86***	1.72***	.31*	.10	.08**	.10***	-.06**	.79/.98	656
	.03	.03	.06	.21	.27	.27	.19	.17	.33	.03	.03	.03		
1985	.73***	.40***	-.60***	.52**	.79***	.73***	1.34***	.46***	-.27	.03			.80/.95	652
	.02	.03	.05	.21	.28	.25	.18	.16	.33	.03				
	.74***	.40***	-.60***	.51**	.78***	.72**	1.34***	.46***	-.29		-.004		.80/.96	652
	.02	.03	.05	.21	.28	.25	.18	.16	.33		.03			

	.74***	.41***	-.57***	.53***	.79***	.62**	1.40***	.47***	-.29			-.06*	.81/.95	652
	.02	.03	.05	.21	.28	.25	.18	.16	.32			.03		
	.74***	.40***	-.58***	.54**	.81***	.63***	1.40***	.47***	-.27	.03	-.01	-.06	.81/.95	652
	.02	.03	.05	.21	.28	.26	.18	.16	.32	.03	.03	.03		
1990	.65***	.15***	-.48***	.75***	1.36***	.51**	1.34***	.40***	-.31	.01			.82/.87	655
	.02	.02	.05	.21	.24	.23	.17	.15	.30	.03				
	.62***	.17***	-.48***	.74***	1.33***	.52***	1.33***	.40***	-.29		.04		.82/.87	655
	.03	.03	.05	.19	.24	.23	.17	.15	.30		.03			
	.64***	.15***	-.50***	.72***	1.33***	.63***	1.28***	.39***	-.32			.06**	.82/.87	655
	.02	.02	.05	.19	.24	.24	.17	.15	.30			.03		
	.62***	.17***	-.51***	.72***	1.32***	.67***	1.26***	.39***	-.28	.02	.04	.07**	.82/.87	655
	.02	.02	.05	.19	.24	.24	.17	.15	.30	.03	.03	.03		

Notes: All regressions have an intercept, which is not reported here. All variables except the dummies are in logs. The endowment variables are for 1980 only, but used in regressions for 1985 and 1990 as well. Standard errors of coefficients are reported in parentheses.
EAEC = East Asian Economic Caucus.
***, **, and * denote significant at the .01, .05, and .10 levels, respectively.

Table 2: Linguistic Links in a Gravity Model of Bilateral Trade: All Merchandise

Variable	1965	1970	1975	1980	1985	1990
GNP	0.64**	0.63**	0.70**	0.72**	0.50**	0.74**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
GNP/ capita	0.39**	0.46**	0.37**	0.35**	0.07**	0.17*
	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)
Distance	-0.40**	-0.51**	-0.66**	-0.58**	-0.43**	-0.64**
	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.05)
Adjacency	0.58**	0.69**	0.54**	0.64**	0.75**	0.66**
	(0.17)	(0.17)	(0.18)	(0.17)	(0.19)	(0.16)
English	0.77**	0.44**	0.53**	0.90**	0.46**	0.60**
	(0.11)	(0.11)	(0.12)	(0.11)	(0.12)	(0.10)
Spanish	-0.22	0.15	0.06	-0.17	0.03	-0.13
	(0.20)	(0.20)	(0.21)	(0.20)	(0.25)	(0.18)
Chinese	1.05*	2.15**	0.79	0.98	1.08	1.32
	(0.54)	(0.77)	(0.83)	(0.55)	(0.57)	(0.48)
Arabic	0.09	-0.42*	-0.28	-0.19	-0.19	-0.16
	(0.27)	(0.29)	(0.26)	(0.26)	(0.37)	(0.25)
French	0.19	0.12	0.07	0.23	0.09	0.45*
	(0.22)	(0.22)	(0.23)	(0.23)	(0.26)	(0.21)
WH2	0.32*	0.08	0.49*	1.07**	0.21	1.21**
	(0.19)	(0.19)	(0.20)	(0.19)	(0.22)	(0.17)
EAEC2	1.77**	1.78**	1.00**	0.93**	-0.27	0.69**
	(0.29)	(0.30)	(0.31)	(0.27)	(0.29)	(0.24)
APEC2	-0.02	0.42	0.58*	0.96**	1.66**	0.74**
	(0.22)	(0.22)	(0.23)	(0.19)	(0.21)	(0.17)
EEC2	-0.09	-0.23	-0.41*	-0.006	1.15**	0.21
	(0.17)	(0.17)	(0.19)	(0.18)	(0.19)	(0.16)
EFTA2	0.23	0.20	0.16	0.34	0.67*	0.14
	(0.29)	(0.29)	(0.31)	(0.31)	(0.34)	(0.28)
WH1	-0.29**	-0.21*	-0.25*	-0.04	0.31**	0.20**
	(0.10)	(0.10)	(0.09)	(0.08)	(0.10)	(0.08)
EAEC1	0.78**	0.55**	0.60**	0.85**	-0.51**	1.05**
	(0.14)	(0.14)	(0.14)	(0.12)	(0.13)	(0.10)
APEC1	-0.55**	0.38**	-0.35*	-0.37	0.26	0.62**
	(0.13)	(0.13)	(0.14)	(0.12)	(0.14)	(0.11)
EEC1	0.12	0.10	0.12	0.38**	0.44**	0.13*
	(0.09)	(0.09)	(0.09)	(0.08)	(0.09)	(0.08)
EFTA1	-0.48**	0.48**	0.55**	-0.19*	-0.59**	0.43**
	(0.10)	(0.10)	(0.10)	(0.09)	(0.11)	(0.09)
n	1,194	1,274	1,453	1,708	1,343	1,573
SEE	1.01	1.05	1.14	1.14	1.20	1.01
Adj. R^2	0.71	0.73	0.73	0.74	0.57	0.79

Note: ***, **, and * denote significant at the .01, .05, and .10 levels, respectively. (Standard errors of coefficients are reported in parentheses)

Table 3: Linguistic Links in a Gravity Model of Bilateral Trade: Manufactures

Variable	1965	1970	1975	1980	1985
GNP	0.65**	0.68**	0.77**	0.76**	0.74**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
GNP/capita	0.39**	0.34**	0.33**	0.33**	0.30**
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)
Distance	-0.40**	-0.52**	-0.60**	-0.52**	-0.68**
	(0.06)	(0.07)	(0.17)	(0.06)	(0.06)
Adjacency	0.58**	0.81**	0.60**	0.54**	0.76**
	(0.17)	(0.18)	(0.17)	(0.17)	(0.18)
English	0.77**	0.52**	0.82**	1.13**	0.45**
	(0.11)	(0.13)	(0.11)	(0.11)	(0.10)
Spanish	-0.22	-0.02	-0.07	-0.26	0.20
	(0.20)	(0.21)	(0.20)	(0.20)	(0.21)
Chinese	1.05*	3.04**	1.51*	1.44**	1.07*
	(0.54)	(0.77)	(0.76)	(0.53)	(0.54)
Arabic	0.09	0.48	0.19	-0.21	-0.02
	(0.27)	(0.37)	(0.28)	(0.28)	(0.27)
French	0.19	-0.16	0.12	0.38*	0.30
	(0.22)	(0.23)	(0.22)	(0.23)	(0.23)
WH2	0.32*	0.11	0.83**	1.48**	0.61**
	(0.19)	(0.20)	(0.19)	(0.19)	(0.19)
EAEC2	1.77**	1.24**	1.01**	0.98**	0.61*
	(0.29)	(0.30)	(0.29)	(0.26)	(0.26)
APEC2	-0.02	0.25	0.32*	0.83**	0.98**
	(0.22)	(0.22)	(0.21)	(0.18)	(0.19)
EEC2	-0.09	0.15	0.03	0.43*	0.16
	(0.17)	(0.18)	(0.17)	(0.17)	(0.18)
EFTA2	0.23	0.72*	0.72*	0.80*	0.35
	(0.29)	(0.29)	(0.29)	(0.31)	(0.31)
WH1	-0.29**	-0.08	-0.06	-0.04	-0.01
	(0.10)	(0.11)	(0.09)	(0.08)	(0.08)
EAEC1	0.78**	0.64**	1.00**	1.21**	0.67**
	(0.14)	(0.16)	(0.14)	(0.21)	(0.11)
APEC1	-0.55**	-0.30*	-0.52**	-0.53**	-0.38**
	(0.13)	(0.14)	(0.13)	(0.12)	(0.12)
EEC1	0.12	0.22*	0.36**	0.53**	0.45**
	(0.09)	(0.10)	(0.08)	(0.08)	(0.08)
EFTA1	-0.48**	-0.15	-0.03	0.25**	-0.36**
	(0.10)	(0.11)	(0.10)	(0.09)	(0.09)
n	1,194	1,118	1,287	1,614	1,647
SEE	1.01	1.05	1.04	1.12	1.12
Adj. R^2	0.71	0.72	0.77	0.75	0.76

Note. ** and * denote significant at the .01 and .05 levels. (Standard errors of coefficients are reported in parentheses.

Table 4: Weights Assigned to Foreign Currencies in Determining Changes in Value of EC Currencies

Time Period	Const	USD (b1)	Yen (b2)	DM (b3)	Adj.R^2 /DW	Chow/ White	S.E.R T-test b1+b2+b3=1
France							
1974-	-.001	-.273	.148	.370***	.31/	2.29/	.018
1978	.002	.357	.103	.127	1.79	7.86	-2.12
1979-	-.005***	-.170	.078**	.812***	.70/	1.02/	.013
1983	.002	.119	.039	.071	2.25	3.59	-1.39
1984-	-.001	-.046	-.031	.841***	.86/	1.83/	.009
1987	.001	.137	.074	.077	2.08	11.54	-1.05
1988-	.000	-.185***	-.024	.806***	.94/	.94/	.005
1992	.001	.069	.032	.052	2.21	4.68	-2.64
Italy							
1974-	-.005**	-.246	.076	.054	-.01/	.40/	.023
1978	.003	.451	.092	.169	1.85	9.57	-2.42
1979-	-.006***	.023	.052	.742***	.74/	1.01/	.010
1983	.001	.088	.037	.053	2.17	5.46	-1.16
1984-	-.003***	.426***	-.082**	.933***	.89/	2.54/	.007
1987	.001	.136	.037	.052	2.11	20.30	2.32
1988-	-.003	-.174*	-.063**	.713***	.93/	.22/	.005
1992	.001	.089	.029	.062	1.78	9.35	-3.51
Belgium							
1974-	.000	-.169**	-.056	.933***	.92/	3.33/	.007
1978	.001	.083	.035	.045	1.93	6.44	-2.19
1979-	-.004***	-.154	.044	.859***	.77/	1.02/	.012
1983	.001	.119	.030	.041	1.76	2.37	-1.42
1984-	-.000	-.090	-.029	.938***	.98/	.31/	.004
1987	.001	.070	.018	.040	2.38	12.83	-1.95
1988-	.000	-.133***	-.042**	.909***	.97/	.45/	.004
1992	.000	.048	.021	.034	2.72	3.71	-2.40
Britain							
1974-	.001	-1.74***	-.036	-.428**	.97/	4.52**/	.003
1978	.000	.05	.020	.020	1.92	21.94	-59.04
1979-	-.000	-1.71***	-.002	-.461**	.97/	23.52***/	.003
1983	.000	.052	.010	.023	1.94	19.71	-65.78
1984-	-.001	-2.50***	-.062*	-.513**	.96/	16.83***/	.005
1987	.001	.161	.031	.047	1.60	37.1***	-30.97
1988-	-.000	-1.98***	.011	-.63**	.99/	9.67***/	.002
1992	.000	.032	.013	.020	2.46	20.99	-57.38
Denmark							
1974-	-.002	-.031	-.010	.849***	.77/	1.82/	.011
1978	.002	.121	.048	.065	1.98	5.36	-.87
1979-	-.005***	.073	.116**	.884***	.86/	.32/	.009
1983	.001	.129	.051	.041	2.10	33.80	.56

Time Period	Const	USD (b1)	Yen (b2)	DM (b3)	Adj.R^2/ DW	Chow/ White	SER	T-test (b1+b2+b3=1)
1984-	-.002	-.515***	.307***	.653***	.88/	.78/	.010	-2.15
1987	.001	.155	.077	.101	1.67	20.31		
1988-	-.002	-.255	.038	.727***	.69/	.50/	.013	-1.21
1992	.002	.208	.093	.144	1.90	12.21		
Iceland								
1974-	-.022***	1.23***	-.034	.088	.03/	2.28/	.047	.30
1978	.006	.462	.168	.237	2.17	3.90		
1979-	-.035***	.829**	-.048	.404	.02/	2.38/	.042	.29
1983	.005	.401	.105	.265	2.11	6.30		
1984-	.010**	.142	-.064	.367*	.02/	1.45/	.026	-.84
1987	.004	.184	.088	.192	2.00	2.32		
1988-	-.008***	-.390*	.027	.277	.25/	4.21/5	.019	-1.81
1992	.003	.232	.083	.202	1.93	.56		

Note: Standard errors are reported below coefficients. ***, **, and * denote significant at the .01, .05, and .10 levels, respectively.deliberate efforts to stabilize the currency vis-à-vis a valued trading partner, as easily as to the effects of stabilization on trade.

Table 5: Weights Assigned to Foreign Currencies in Determining Changes in Value of EFTA Currencies

Time Period	Const	USD	Yen	DM	Adj.R^2/ DW	Chow/ White	SER	T-test
		(b1)	(b2)	(b3)			(b1+b2+b3=1)	
Austria								
1974-	.001	.017	.009	.910***	.93/	.76/	.006	-.54
1978	.001	.041	.025	.040	2.03	2.81		
1979-	-.001	-.003	-.011	1.035***	.98/	3.27/	.024	.48
1983	.000	.026	.014	.028	1.79	20.41		
1984-	-.000	.022	-.020	1.001***	.99/	.76/	.003	.04
1987	.000	.039	.019	.021	2.02	8.07		
1988-	.000	.039	.025	1.003***	.96/	1.20/	.004	.48
1992	.001	.077	.024	.055	2.71	1.64		
Finland								
1974-	-.003*	-.029	.022	.446***	.31/	1.78/	.015	-1.82
1978	.002	.134	.050	.097	2.00	3.95		
1979-	-.002	.018	.115**	.401***	.28/	.87/	.016	-1.88
1983	.002	.068	.050	.052	1.80	1.06		
1984-	-.001	-.370***	.047	.487***	.90/	1.86/	.006	-5.81
1987	.001	.080	.029	.048	2.13	9.17		
1988-	-.001	1.199**	.016	.285**	.44/	1.07/	.015	-2.56
1992	.002	.132	.050	.127	2.00	1.79		
Norway								
1974-	-.003	.114	-.048	.811***	.65/	1.23/	.013	-.47
1978	.002	.147	.052	.113	1.80	6.04		
1979-	-.003**	.025	.100**	.397***	.43/	2.13/	.012	-2.71
1983	.001	.134	.050	.066	1.53	4.23		
1984-	.005***	-.281	.045	.563***	.64/	.91/	.014	-1.83
1987	.002	.201	.075	.140	1.94	10.05		
1988-	-.000	-.396***	-.017	.398***	.75/	3.23/	.008	-4.00
1992	.001	.151	.046	.092	1.88	6.82		
Sweden								
1974-	-.004	.272*	-.015	.816***	.51/	1.69/	.017	.22
1978	.003	.151	.062	.110	1.91	3.06		
1979-	-.006**	.149	.147*	.246	.09/	2.55/	.024	-2.09
1983	.003	.123	.078	.153	1.81	2.19		
1984-	-.001**	-.129*	.061**	.447***	.90/	1.19/	.005	-5.42
1987	.001	.071	.025	.040	1.76	7.66		
1988-	.001	-.310**	-.030	.371***	.71/	1.78/	.008	-3.96
1992	.001	.127	.046	.082	1.90	17.29		
Switzerland								
1974-	-.005	-.143	.103	.843***	.47/	.64/	.023	-.43
1978	.003	.348	.143	.149	1.89	25.58		
1979-	-.002	-.103	.136**	.960***	.66/	.92/	.017	-.03
1983	.002	.192	.059	.110	1.78	6.15		

Time Period	Const	USD (b1)	Yen (b2)	DM (b3)	Adj.R^2 /DW	Chow/ White	S.E.R. T-est b1+b2+b3=1
1979-	-.010***	-.128	-.076	.204**	.06/	1.01/	.016
1983	.002	.161	.088	.092	2.04	13.83	-3.99
1984-	-.001	.009	-.821	.708***	.73/	1.14/	.011
1987	.002	.148	.087	.107	1.92	17.70	-1.04
1988-	-.001	-.576***	.020	.418***	.73/	1.83/	.011
1992	.001	.176	.066	.121	2.14	8.13	-3.45

Time Period	Const	USD (b1)	Yen (b2)	DM (b3)	Adj.R^2 /DW	Chow/ White	S.E.R.	T-test b1+b2+b3=1
1984-	-.001	-.145**	-.011	.877***	-.94/	1.43/	.006	
1987	.001	.112	.038	.078	2.46	7.93		-1.79
1988-	-.000	-.007	-.035	.902***	.92/	.52/	.006	
1992	.001	.011	.041	.073	2.02	8.21		-.77
Netherlands								
1974-	-.001	-.177*	-.047	.875***	.82/	1.52/	.010	
1978	.001	.098	.043	.065	2.53	3.09		-1.71
1979-	-.001	-.163**	-.002	.853***	-.93/	1.15/	.006	
1983	.001	.066	.022	.035	1.77	5.69		-3.52
1984-	-.000	-.122**-	.002	.942***	.97/	1.56/	.004	
1987	.001	.064	.023	.036	2.81	4.16		-1.71
1988-	-.000	-.118*	-.019	.934***	.94/	.37/	.005	
1992	.001	.066	.039	.041	2.82	3.52		-1.21
Greece								
1974-	-.005***	.203*	-.043	.294**	.17/	2.48/	.011	
1978	.002	.111	.076	.142	1.52	48.31		-2.47
1979-	-.013***	-.061	.055	.309***	.04/	.89/	.027	
1983	.003	.311	.077	.119	2.10	2.58		-1.70
1984-	-.014***	.481	.065	.835***	.27/	1.55/	.027	
1987	.004	.375	.092	.186	1.88	3.01		.55
1988-	-.008***	-.249***	.541	.599***	.88/	1.11/	.006	
1992	.001	.090	.053	.060	1.63	10.37		-3.49
Ireland								
1974-	.001**	-1.74***	-.036*	-.428***	.97/	4.51**/	.003	
1978	.000	.051	.020	.020	1.92	21.93		-58.99
1979-	-.004***	-.13	.028	.765***	.80/	.78/	.009	
1983	.001	.089	.029	.054	2.13	1.90		-2.41
1984-	-.002	.53***	.066	.592***	.79/	.73/	.011	
1987	.002	.197	.090	.151	2.05	6.54		-2.97
1988-	.000	-.18***	-.022	.808***	.97/	1.42/	.003	
1992	.000	.04	.024	.036	2.49	9.65		-3.69
Portugal								
1974-	-.012***	-.016	-.135	.499***	.10/	.88/	.028	
1978	.003	.208	.106	.107	2.04	2.71		-1.15
1979-	-.01[illegible]	-.41	.051	.315***	.12/	3.13/	.025	
1983	.003	.282	.064	.114	1.89	3.53		-2.75
1984-	-.009***	-.24***	.068***	.535**	.96/	4.29/	.004	
1987	.001	.06	.024	.038	1.16	9.02		-6.81
1988-	-.001	-.38***	.075	.461***	.77/	1.93/	.009	
1992	.001	.133	.048	.091	1.98	6.40		-3.16
Spain								
1974-	.005	.30*	.142	.162*	-.03/	.37/	.033	
1978	.084	.171	.089	.091	1.94	1.37		-.60

Table 6: Nominal Exchange-Rate Volatility in a Gravity Model of Bilateral Trade

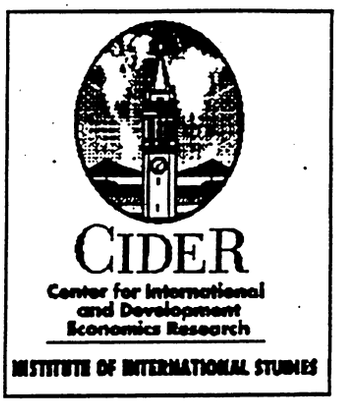
Variable	1965	1970	1975	1980	1985	1990
GNP	0.63***	0.64***	0.72***	0.76***	0.76***	0.76***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
GNP per	0.27***	0.36***	0.27***	0.27***	0.25***	0.12***
capita	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Distance	-0.40***	-0.51***	-0.68***	-0.62***	-0.71***	-0.60***
	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)
Adjacency	0.78***	0.69***	0.53***	0.64***	0.73***	0.68***
	(0.17)	(0.17)	(0.18)	(0.18)	(0.18)	(0.16)
Nominal	-3.81***	-2.47***	-1.49**	-7.65***	0.13	2.24***
Variability	(0.60)	(0.09)	(0.74)	(0.08)	(0.34)	(0.27)
WH2	0.05	0.01	0.26*	0.44***	0.34**	0.71***
	(0.16)	(0.14)	(0.15)	(0.15)	(0.16)	(0.14)
EAEC2	1.59***	1.60***	0.87***	0.81***	0.60**	0.67***
	(0.31)	(0.29)	(0.33)	(0.26)	(0.28)	(0.25)
APEC2	0.60***	0.70***	0.87***	1.35***	1.21***	1.39***
	(0.22)	(0.17)	(0.23)	(0.18)	(0.19)	(0.17)
EC2	0.20	0.08	-0.10	0.01	0.45**	0.51***
	(0.16)	(0.21)	(0.18)	(0.18)	(0.18)	(0.16)
n	1,115	1,231	1,401	1,653	1,589	1,519
Adj. R^2	0.70	0.72	0.72	0.72	0.74	0.78
SEE	1.04	1.06	1.18	1.18	1.17	1.05

Notes: Standard errors are in parentheses. All variables except the dummies are in logarithms.
*** denotes significant at .01 level (t=>2.576); ** denotes significant at .05 level (t=>1.96);
* denotes significant at .10 level (t=>1.645)

Table 7: Real Exchange-Rate Volatility in a Gravity Model of Bilateral Trade

Variable	1965	1970	1975	1980	1985	1990
GNP	0.72***	0.65***	0.72***	0.74***	0.76***	0.76***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
GNP per capita	0.24***	0.36***	0.27***	0.26***	0.25***	0.12***
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Distance	-0.53***	-0.50***	-0.67***	-0.62***	-0.71***	-0.57***
	(0.05)	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)
Adjacency	0.59***	0.77***	0.58***	0.73***	0.73***	0.80***
	(0.18)	(0.16)	(0.18)	(0.18)	(0.18)	(0.16)
WH2	0.02	0.02	0.27*	0.42***	0.30*	0.74***
	(0.15)	(0.13)	(0.15)	(0.15)	(0.15)	(0.14)
EAEC2	0.99**	1.80***	0.85***	0.76***	0.60**	0.71***
	(0.50)	(0.32)	(0.32)	(0.26)	(0.27)	(0.25)
APEC2	0.44*	0.67***	0.90***	1.35***	1.16***	1.38***
	(0.26)	(0.21)	(0.22)	(0.18)	(0.18)	(0.17)
EC2	0.04	0.08	-0.06	0.02	0.40**	0.57***
	(0.17)	(0.16)	(0.18)	(0.18)	(0.17)	(0.16)
Real exchange-	-3.02***	-2.72***	-1.57**	-6.97***	0.12	3.19***
rate volatility	(0.67)	(0.83)	(0.82)	(0.08)	(0.37)	(0.27)
n	773	1,053	1,316	1,503	1,500	1,494
Adj. R^2	0.76	0.76	0.74	0.75	0.75	0.78
SEE	0.94	0.99	2.21	1.13	1.14	1.04

Notes: Standard errors are in parentheses. All variables except the dummies are in logarithms.
***, **, and * denote significant at .01, .05, and .10 levels, respectively.



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