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5   Open versus Closed Trade Blocs

Shang-Jin Wei and Jeffrey A. Frankel

5.1   Introduction

Against the general background of increasing regionalization of trade, there is renewed debate about the welfare implications of trade blocs. Recent theoretical studies (e.g., Krugman 1991a; Frankel, Stein, and Wei 1995) have provided intellectual support for the worry that the current pattern of trade regionalization is likely to be welfare reducing relative to the preregionalization pattern because trade diversion is likely to outweigh trade creation.

One possible condition on regionalism that may substantially reduce its cost and thus enhance the probability of a welfare improvement is what is called "open regionalism." The meaning of the term is not entirely standardized. In this paper, we define an "open regional bloc" as one where, upon its formation, member countries choose to lower trade barriers to countries outside the bloc even if the degree of extrabloc liberalization may not be as thorough as with respect to fellow member countries.

We have several objectives in this paper. First, we would like to clarify the meaning of the phrase "open regionalism." Second, using a large, updated data set, we seek to examine degrees of openness as well as intragroup biases in various trade blocs. Third, we investigate the effect of foreign direct investment (FDI) on trade and identify the degree to which previous results that did not take direct investment into account may need modification.

The organization of the paper is in line with the research plan outlined in the last paragraph. Section 5.2 provides an overview of the general issues. Section 5.3 explains the basic empirical framework and discusses degrees of inward bias and openness in various trade blocs around the world. In section 5.4, we turn our attention to implicit continental trade blocs. In section 5.5, we explore the connection between FDI and trade. And, finally, we offer some concluding thoughts in section 5.6.

5.2   An Overview of the Issues

There are several stages in the intellectual discussion of the desirability of regional trade blocs. The classical dichotomy between trade creation and diversion as advanced by Viner (1950) and Meade (1955) and its modifications have dominated people's thinking for many decades. It is clearly recognized that regional trade blocs have the potential to be welfare reducing. The actual welfare implications of a particular pattern of regionalization, it was thought, have to be determined on a case-by-case basis.

At the beginning of the 1990s, parallel to a renewed interest in regional blocs in the policy world, a sudden and loud warning about the possibility of welfare deterioration was emitted in a simple and elegant paper by Krugman (1991a). Using a model of trade blocs based on preference for variety and increasing returns to scale, the author demonstrated through simulation that three blocs may be the worst scenario in a world with symmetric countries and no transport cost. Given the suspicion that the world is indeed moving toward a three-bloc pattern, this theoretical result seems particularly alarming.

To counterbalance the fear, Krugman (1991b) soon supplied an equally ingenious if somewhat extreme example in which three *continental* regional blocs may be welfare improving if intercontinental transport cost is very high. The intuition is simple: if transport cost is prohibitively high between continents, then world trade will take place primarily between countries on the same continent even under global free trade. Therefore, a world network of continental free trade blocs must be welfare improving since this is basically the best one can achieve in any case. For this reason, continental trade blocs are referred to as "natural trade blocs" by Krugman, as opposed to "unnatural trade blocs"—that is, free trade agreements between countries that are far apart.

Of course, the real world is somewhere between zero transport cost (the first Krugman case) and infinite transport cost (the second Krugman case). Do the welfare implications of continental blocs depend monotonically on intercontinental transport cost? If so, is the transport cost in the real world above or below the threshold?

Frankel, Stein, and Wei (1995) have shown that the answer to the first question is yes: there is a threshold value of intercontinental transport cost, above which continental blocs are likely to be welfare improving and below which the reverse is true. Furthermore, the best estimate of the actual intercontinental

transport cost (about 15 percent of trade) is below the threshold. Hence, the current pattern of regionalization is likely to be excessive and welfare reducing. Frankel et al. call this type of continental bloc, which is nevertheless welfare subtracting, a "supernatural bloc."

It has been noted that if one allows neighboring countries to have complementary resource endowment that is nearly complete for the countries as a group, then a system of regional blocs among neighbors can also be welfare improving (Deardorff and Stern 1994). This is a point well understood by now. On the other hand, it is a strong assumption to make that the resource endowment of neighboring countries is so nearly complete that they do not need to trade with outside countries.[1] In any case, factor-endowment-based models do not seem to fit the bilateral trade data as well as a gravity model that ignores endowment.

We should note that the above discussion centers on static efficiency gains or losses. Dynamic gains (or losses) are often more important (Baldwin 1992).

Finally, one can also evaluate the welfare implications of regional blocs from the political economy angle. There is a debate about whether regional blocs have acted as stepping stones or stumbling blocks to global free trade (Bhagwati 1993; Lawrence 1996; Levy 1994; Wei and Frankel 1996). The issue is not resolved yet.

The concept of open regionalism was formally introduced during Asian Pacific Economic Cooperation (APEC) discussions. It is thought to entail a structure that minimizes trade diversion. The term at first sight is an oxymoron. Regionalism is a departure from the most-favored-nation (MFN) principle because it discriminates in favor of members at the expense of nonmembers. How can it be open at the same time?

To clarify, let us entertain four possible definitions of open regionalism.

1. *Open membership.* Entry rules are transparent so that any country currently outside the bloc can choose to join the bloc as long as it satisfies the entry criteria. The extremist version of open membership does not permit current members to veto the entry of any eligible newcomer. Of course, almost no existing regional bloc has this degree of open membership. A weaker version of open membership requires agreement among existing members (using unanimity, majority vote, or some such voting rule) whenever a new member is to be admitted.

2. *Selective liberalization and open benefits.* Member countries can focus on liberalizing, on an MFN basis, those sectors in which they dominate world trade so that they do not need to have preferential treatment versus nonmember countries. In the context of APEC, an influential observer noted that APEC "could avoid preferential treatment altogether on some issues, perhaps includ-

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1. Haveman (1992) derived a model that marries endowment consideration with differentiated product consideration. He found in his simulation that the negative effects of regional trade blocs are likely to dominate.

ing competition policy and new industrial standards. It could do so when liberalizing in sectors where the APEC countries dominate world trade, such as computers" (Bergsten 1994, 24).

3. *Nonprohibition clause.* A regional trade agreement can automatically allow any member country to liberalize unilaterally, in particular, to extend the benefits of a regional agreement to nonmember countries. For example, Mexico has unilaterally extended some of its investment obligations under NAFTA to nonmember countries.

4. *Reduction in external barriers.* Members of a regional trade bloc should collectively lower their external barriers on goods from nonmember countries.[2] The degree of liberalization with respect to nonmembers need not be as high as that among members.

In our view, the first three characteristics, while desirable, do not have enough firepower in the sense that they are likely to apply to most blocs anyway. Open membership is certainly better than "closed membership"—a regional bloc with a predetermined size. It is a necessary condition if regional blocs are not to be stumbling blocks to global free trade. Furthermore, it is possible to cook up theoretical models in which regional blocs choose to decline any new member after reaching a certain size (20 out of 30 in Saxonhouse 1993; 16 out of 30 in Stein 1994). But almost all regional blocs, past, present, or currently in negotiation, have some degree of open membership. That does not seem to reduce trade diversion in any significant way.

Open benefits (to nonmembers) in selected industries are also desirable. If open benefits only apply to industries in which the members of a bloc dominate the world, as the definition suggests, then tautologically, they would not incur opposition from interest groups in the member countries. Such freebies would naturally be part of any regional bloc. For example, many computer-related industries, from memory chip production, to hard disk manufacture, to computer assembly, have been identified as being dominated by APEC members in world trade. It requires no great imagination to think that APEC, when it chooses to establish free trade in those products among its member countries, most likely will not maintain high barriers against products from outside the region. The problem is that APEC is almost unique relative to other regional blocs in terms of the vast number of countries it covers and the large number of sectors in which its member countries have comparative advantage. Many smaller blocs may have greater difficulty in identifying industries in which they clearly dominate world trade. Moreover, as the pattern of comparative advantage shifts over time, there is no guarantee that the currently dominating industries will not be the subjects of future protectionist movements by lobbying groups. In conclusion, selective liberalization in dominating industries

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2. We do not distinguish between customs unions and free trade areas. Krueger (1995) has argued that customs unions are (almost) always welfare superior to free trade areas. Moreover, in terms of political economy, customs unions are less likely to be stumbling blocks to further global trade liberalization than free trade areas.

certainly works in the direction of reducing trade diversion. But for most regional blocs, the number of nondiscriminating sectors would be too small to have a major impact on the overall trade diversion of the blocs.

The nonprohibition clause is also a highly desirable feature of any regional trade bloc. But we know of no bloc that does not in fact, if only implicitly, have such a clause. If a member country of a bloc wants to liberalize unilaterally, other member countries may not like it, but it is rare to see those countries try to block the trade liberalization of their neighbors. So the problem of most regional blocs is not that members are prohibited from extending the benefits to nonmembers, but that they do not choose to liberalize often enough. After extolling an implicit nonprohibition clause in the APEC discussion, Bergsten (1994) immediately added that "in general, however, the strategy would open APEC arrangements only to nonmember countries that undertake corresponding obligations." Again, unilateral liberalization *as a result of a regional agreement* is rare enough to counter the trade diversion effect of regional blocs.

This brings us naturally to the last definition of open regionalism, which calls for reducing external barriers at the same time as member countries lower barriers among themselves. Kemp and Wan (1976) proved that if members of a trade bloc maintain the same level of trade with nonmembers after the formation of the bloc, then world welfare always increases. In fact, the required degree of extrabloc liberalization may be lower than the Kemp-Wan rule in many instances. Wei and Frankel (1995) have shown that even a relatively small partial liberalization by regional blocs with respect to countries outside, which may still result in a lower amount of trade between members and nonmembers, can usually ensure a welfare increase for the world. So this is desirable from an efficiency point of view. But how likely is it that regional blocs would do this? There are reasons to think that the odds are against even such limited liberalization. Import-competing industries certainly would not volunteer to liberalize. Exporting industries may not push very hard for liberalization either if there is no corresponding liberalization in countries outside the bloc. Furthermore, Article 24 of the GATT, which sets out rules on the formation of regional blocs, does not require a simultaneous reduction of external barriers, only an absence of an increase in their average level.

So far, we have said that the first three possible characterizations of open regionalism are desirable but likely to happen in any case. If the last characterization is desirable but unlikely to happen no matter what, then open regionalism is basically an empty concept. We are more optimistic than that, however. Using a simple but abstract example, we have demonstrated the following possibility (Wei and Frankel 1996): there are cases in which an outright across-the-board trade liberalization may offend too many powerful groups; a regional trade bloc may be used to break the opposition groups so that further liberalization on goods from nonmember countries becomes politically feasible. In Wei and Frankel (1995), we showed that in a world of continental blocs, a small degree of external liberalization—the fourth definition of open regionalism—

is usually sufficient to improve world welfare. How relevant are these theoretical possibilities for the real world? A major part of this paper (in particular, section 5.4) looks for evidence that some regional blocs may indeed work to enhance the overall openness of their member countries.

5.3   Open Regionalism and Existing Trade Blocs

5.3.1   Empirical Norm of Trade Volume

The key to detecting and quantifying possible intraregional trade bias is to establish a "norm" of trade volume based on economic, geographic, and cultural factors. A useful framework for this purpose is the gravity model.[3] A dummy variable can be added to represent the case in which both countries in a given pair belong to the same regional grouping. One can then check how the level of trade and time trend in, for example, East Asia compares with that in other groupings.

The dependent variable in our gravity estimation is the bilateral volume of total trade (exports plus imports), in logarithmic form.

One would expect the two most important factors in explaining bilateral trade flows to be the geographical distance between the two countries and their economic sizes. These factors are the essence of the gravity model (and indeed are the presumed source of its name, by analogy with the formula for gravitational attraction between two masses).

A large part of the apparent bias toward intraregional trade is certainly due to simple geographical proximity. Indeed, Krugman (1991b) suggested that *most* of it may be due to proximity, so that the three trading blocs may be welfare improving because they are "natural" groupings (as distinct from "unnatural" trading arrangements between distant trading partners, such as the United Kingdom and a Commonwealth member). Despite the obvious importance of distance and transportation costs in determining the volume of trade, empirical studies surprisingly often neglect to measure these factors. Our measure is the log of the distance between the two major cities (usually the capitals) of the respective countries. We also add a dummy "Adjacency" variable to indicate when two countries have a common land border.

Entering GNPs in product form is empirically well established in bilateral trade regressions. It can easily be justified by the modern theory of trade under imperfect competition. There are reasons to believe that GNP per capita also has a positive effect, for a given size: as countries become more developed, they tend to specialize more and to trade more; further, more developed countries have better ports and communication systems, which facilitate goods trade.

3. For a discussion of its theoretical foundation, see Anderson (1979), Helpman and Krugman (1985), Helpman (1987), Bergstrand (1989), and Deardorff (1984, 1995).

A common language can facilitate trade partly because it directly reduces transaction (translation) costs and partly because it enhances exporters' and importers' understanding of each other's culture and legal system, which indirectly promotes trade. To capture this effect, we also include a dummy that takes the value 1 if the two countries in question have a common language or have a previous colonial connection. We consider nine languages: English, French, German, Spanish, Portuguese, Dutch, Arabic, Chinese, and Japanese.

A representative specification is

$$
\begin{aligned}
\log T_{ij} = {} & \alpha_1 + \beta \log (GNP_i GNP_j) + \beta_2 \log[(GNP/pop_i)(GNP/pop_j)] \\
& + \beta_3 \log(\text{Distance}) + \beta_4 (\text{Adjacency}) + \beta_5 (\text{Language}) \\
& + \gamma_1 (EC_{ij}) + \gamma_2 (\text{Andean}_{ij}) + \gamma_3 (\text{ASEAN}_{ij}) + u_{ij}.
\end{aligned}
\tag{1}
$$

The last five explanatory factors are dummy variables. EC (European Community), Andean in the Western Hemisphere, and ASEAN in East Asia are examples of the dummy variables we use when testing for the effects of membership in a regional grouping.

Our data set covers 63 countries (or 1,953 country pairs) for the 1970–92 period (1970, 1980, 1990, and 1992). The sources are the United Nations trade matrix for 1970 and 1980 and the International Monetary Fund's *Direction of Trade Statistics* for 1990 and 1992.

We employ the panel regression technique that allows for year-specific intercepts. Unlike usual panel regressions, we do not include country pair dummies since that would undermine our effort to detect possible intraregional biases (and the effects of some of the gravity variables that do not change over time).

5.3.2   Open Regionalism and Existing Trade Blocs

In this subsection, we look for suggestive evidence that open regionalism may be practiced by existing trade blocs. We emphasize that our findings are illustrative. We do not explicitly investigate the mechanism through which openness (or lack of it) is achieved in a trade bloc. Presumably, the balance of political economy forces determines the orientation of a trade bloc. For a summary of political economy forces within a trade bloc in terms of its openness to nonmember countries, see Frankel and Wei (1995).

An open bloc lowers trade barriers against countries outside the bloc at the same time that it reduces barriers among members. On the other hand, a closed bloc would maintain or even raise barriers against outsiders as it liberalizes internally. In an open regional bloc, trade creation is more likely to dominate trade diversion. So the bloc is more likely to be welfare improving.

In this section, we turn to an empirical examination of the issue. Using data covering 1970–92, we look at the following seven trade blocs: the European Community (EC, now called European Union), the European Free Trade Area (EFTA), the North American Free Trade Area (NAFTA), MERCOSUR and the Andean Group, both in South America, the Association of Southeast Asian

Table 5.1   **Open versus Closed Blocs (total trade, 1970–92)**

Variable	(1)	(2)
GNP	0.785**	0.755**
	(0.009)	(0.010)
GNP/pop	0.187**	0.250**
	(0.011)	(0.013)
Distance	−0.612**	−0.784**
	(0.020)	(0.024)
Adjacency	0.573**	0.468**
	(0.086)	(0.088)
Language	0.568**	0.570**
	(0.046)	(0.046)
Region2 variables[a]		
EC2	0.151**	−0.145*
	(0.053)	(0.059)
EFTA2	0.030	0.222*
	(0.104)	(0.105)
NAFTA2	0.005	0.359**
	(0.182)	(0.203)
MERCOSUR2	0.930**	0.707**
	(0.215)	(0.240)
Andean2	0.200	0.259
	(0.188)	(0.196)
ASEAN2	1.965**	1.318**
	(0.178)	(0.166)
East Asia minus		
ASEAN2	1.322**	0.638**
	(0.191)	(0.196)
ANZ2	1.632**	1.554**
	(0.131)	(0.143)
Region1 variables[b]		
EC1		0.180**
		(0.045)
EFTA1		−0.382**
		(0.050)
NAFTA1		−0.195**
		(0.061)
MERCOSUR1		0.259**
		(0.056)
Andean1		0.065
		(0.053)
ASEAN1		0.767**
		(0.050)
East Asia minus		
ASEAN1		0.741**
		(0.052)
ANZ1		0.021
		(0.075)

Table 5.1   (continued)

Variable	(1)	(2)
N	6,102	6,102
Adjusted R^2	0.762	0.787
Standard error of regression	1.179	1.114

Notes: Dependent variable is total trade (T_{ij}). Data cover 1970, 1980, 1990, and 1992. All variables except dummy variables are in logs. All regressions have an intercept and year dummies not reported here.

[a]Region2 variables take the value 1 if both countries (*i* and *j*) in the pair are in the region.

[b]Region1 variables take the value 1 if the pair includes a country in the region.

[#]Significant at the 90 percent level.

[*]Significant at the 95 percent level.

[**]Significant at the 99 percent level.

Nations (ASEAN), and the Australia–New Zealand Closer Economic Relations agreement (ANZ). We note that the seven groupings have very different degrees of intended integration, from nascent free trade areas to customs unions or common markets. We will examine their trade orientations separately.

As a benchmark for comparison, we first examine the degree of trade integration in these groupings. The results are reported in column (1) of table 5.1. We first note that the gravity variables are all statistically significant and with expected signs. The coefficient on GNP is 0.8: as economic size increases, so does trade. Distance has a negative coefficient: a 1 percent increase in distance is associated with 0.6 percent less trade. On the other hand, two countries with a common land border tend to trade 50 percent more than an otherwise identical pair of countries. Countries with a common language or colonial connection also tend to trade 50 percent more than otherwise.

We now turn to evidence of intraregional trade bias. The coefficients for all the regional dummies are positive. In addition, EC, MERCOSUR, ASEAN, and ANZ are statistically different from zero at the 1 percent level. For example, two EC countries tend to trade 15 percent more than a random country pair outside the region. More astonishingly, ASEAN countries tend to trade several times more than the prediction of the gravity model.[4]

We should emphasize that the coefficients on the bloc dummies in column (1) of table 5.1 measure the amount of trade among member countries of a group in excess of that among countries that do not belong to any bloc. We note that if all countries in a particular group are more open than an average country, then the trade among these countries would be higher than the model

4. This partly reflects the high degree of openness of all East Asian countries, as suggested by the large and significant coefficient for the dummy for the non-ASEAN countries in the region. See also Frankel and Wei (1993) and section 5.4 of this paper.

prediction even if none of the countries has any discriminatory policies or institutions. In other words, the results in column (1) do not distinguish between general openness and discriminatory institutions or policies.

We address this issue in column (2). Define EC1 as a dummy for any bilateral trade that involves at least one EC country, and EC2 as a dummy for trade between any two EC countries. Define EFTA1, EFTA2, and so on, analogously.

In a gravity regression with these dummies, one may interpret the coefficient on EC1 as *the extent of abnormal trade between an EC country and a country outside the region relative to a random pair of countries that are not members of any bloc.* A negative coefficient implies that trade between a member of the bloc and a nonmember is smaller, on average, than that between two otherwise identical countries. This is indicative of possible trade diversion. On the other hand, a positive coefficient implies that trade between EC countries and countries outside the region is higher than what one would have expected from their economic, geographic, and linguistic positions. Thus, a positive coefficient is taken as possible evidence of an open trade bloc.

Relative to column (1), the coefficient on the EC2 dummy requires a different interpretation: it now represents any extra amount of trade between two EC countries relative to *their* trade with countries outside the region. In other words, even if trade between Sweden and Finland is the same as that between two identical countries outside the group, the coefficient on EFTA2 could still be positive if Sweden, Finland, and other EFTA countries trade less, on average, with countries outside the group. We can interpret the coefficients on other bloc dummies in a similar way.

In column (2), the coefficients on the basic gravity variables are not very different from before. Hence, we focus our discussion on the bloc dummies. In Europe, averaging over the two-decade period, the countries in the European Community tend to be more open than an average country: their trade with outside countries is 18 percent higher than the prediction of the model, as reflected by the coefficient on the EC1 variable. Once one controls for the European Community's general openness and the member countries' economic and geographic characteristics, intra-EC trade is no longer unusually high. In fact, it is 15 percent less than the prediction of the model (the EC2 coefficient). In contrast, the EFTA1 dummy has a negative coefficient (-0.38): over the sample, the EFTA countries tend to trade 38 percent less with countries outside relative to a random group of countries in the world. At the same time, the EFTA countries also trade 22 percent more among themselves than a random group. This suggests that EFTA may build up its intragroup trade concentration mainly by diverting trade away from outside countries.

We now turn to the three blocs in the Western Hemisphere. NAFTA was not established until the very end of the sample period. Nevertheless, the three countries in the group on average trade 20 percent less with outside countries than the model's prediction, but 36 percent more among themselves than a random group that does not belong to any bloc. In contrast, while MERCO-

SUR countries exhibit an intragroup trade bias during the sample, they also trade more with all countries in the world than the model's prediction. The Andean group members, on the other hand, show no unusual trade among themselves or with outsiders.

In the Asia Pacific region, the ASEAN countries, which constitute the only explicit bloc in East Asia, trade substantially more among themselves than a random group that does not belong to any bloc. At the same time, these countries are also more open in general as they have more trade with outside countries than one would predict based on their economic and geographic characteristics. We should further note, however, that the ASEAN group's trade pattern may not be substantially different from that of the rest of East Asia. The rest of East Asia, though lacking a formal bloc, also tends to be very open to all countries in the world and, at the same time, trades particularly intensively with other East Asian countries. Australia and New Zealand, connected by their Closer Economic Relations treaty, apparently generate higher trade between themselves than one would expect based on the gravity model. It is worth noting, however, that their trade with other countries, averaging over the two decades, does not seem to suffer too much from their cozy relationship.

5.4   Open Regionalism and Implicit Continental Blocs

The openness of existing trade blocs was examined in section 5.3. In this section, we turn our attention to a different classification of country groups. It has been observed that many continents may constitute implicit trade blocs. For example, it is sometimes alleged that there is an implicit trade bloc in East Asia, possibly centered on Japan. Opaque institutions and informal rules and cultures, possibly encouraged by implicit policies, may operate in the same way as tariffs, encouraging countries to trade more intensively with members of the "club" at the expense of outsiders. Frankel and Wei (1993) found some evidence of intracontinental trade biases in East Asia, Western Europe, and the Western Hemisphere. In some cases, once one controls for continental biases (e.g., an intra–East Asia bias), trade within subregions (e.g., among ASEAN members) no longer seems unusually high. The continental nature of trade blocs could have important welfare implications that are different from those of a bloc formed by a random group of countries (Krugman 1991b; Frankel et al. 1995, 1996).

Following Frankel and Wei (1994), we will consider four implicit continental blocs: Western Europe, the Western Hemisphere, East Asia, and APEC. Again, what we are looking for is not so much the effects of explicitly discriminatory tariffs, but those of opaque institutions, cultures, or implicit policies (i.e., nontariff barriers broadly defined). The basic results are presented in table 5.2. For comparison, column (1) reports a regression that includes only the dummies for within-bloc biases. The results with this more up-to-date data set are broadly similar to those in our earlier papers: There is evidence of intraregi-

Table 5.2   **Open versus Closed Continental Trade Blocs (total trade, 1970–92)**

Variable	(1)	(2)
Intercept	−9.355**	−9.520**
	(0.236)	(0.331)
1980 Dummy	−1.030**	−1.075**
	(0.049)	(0.054)
1990 Dummy	−1.323**	−1.389**
	(0.055)	(0.065)
1992 Dummy	−5.278**	−5.332**
	(0.153)	(0.169)
GNP	0.762**	0.761**
	(0.009)	(0.009)
GNP/pop	0.194**	0.214**
	(0.011)	(0.013)
Distance	−0.586**	−0.611**
	(0.021)	(0.028)
Adjacency	0.663**	0.624**
	(0.080)	(0.081)
Language	0.443**	0.517**
	(0.045)	(0.045)
Region2 variables[a]		
W.Eur.2 bloc	0.167**	0.120**
	(0.053)	(0.053)
E.Asia2 bloc	0.899**	0.786**
	(0.101)	(0.102)
APEC2 bloc	1.147**	0.937**
	(0.063)	(0.071)
W.Hem.2 bloc	0.355**	0.637**
	(0.070)	(0.079)
Region1 variables[b]		
W.Eur.1 bloc		0.101*
		(0.048)
E.Asia1 bloc		0.715**
		(0.056)
APEC1 bloc		−0.276**
		(0.059)
W.Hem.1 bloc		−0.082*
		(0.044)
N	6,102	6,102
Adjusted R^2	0.924	0.927
Standard error of regression	1.137	1.114

Notes: Dependent variable is total trade (T_{ij}). Data cover years 1970, 1980, 1990, and 1992. All variables except dummy variables are in logs.

[a]Region2 variables take the value 1 if both countries (i and j) in the pair are in the region.

[b]Region1 variables take the value 1 if the pair includes a country in the region.

*Significant at the 90 percent level.

*Significant at the 95 percent level.

**Significant at the 99 percent level.

onal bias in each of the four potential blocs in question. Based on data for the period 1970–92, two Western European countries trade 17 percent more than two otherwise identical non–Western European countries. The Western Hemisphere shows a slightly higher intraregional bias (about 40 percent extra trade). East Asia shows a much higher bias: two East Asian economies trade 145 percent ($\exp(.899) - 1$) more than two otherwise identical economies outside the region. The group that exhibits the highest inward bias is APEC, with a coefficient of 1.15.

Our central interest is the evidence regarding the openness of these groupings. In column (2), we include the dummies that represent trade between members of a group and nonmember countries. As it turns out, based on data for the period 1970–92, both the Western Europe and East Asia groups are "open" in the sense that their trade is in fact higher than one would expect from their economic, geographic, and cultural characteristics. A Western European country tends to trade 10 percent more with all countries in the world than an otherwise identical country. Interestingly, East Asia is more open than Europe even though it also has a very high intraregional bias. An East Asian country trades 100 percent ($\exp(.715) - 1$) more with a country outside the region than two random countries outside East Asia.

To be sure, these results do not mean that Western Europe and East Asia do not favor trade among themselves relative to trade with outsiders. What they mean is that, for both regions, the formation of (an implicit if not explicit) trade bloc has not led to a substantial amount of trade diversion from countries outside the regions. Indeed, the trade blocs in these regions appear to have promoted their openness in general, even though trade among themselves may have grown faster.

In contrast, both the Western Hemisphere and the APEC group display signs of trade diversion away from countries outside the regions. Trade between a Western Hemisphere country and an outsider during the period 1970–92 appears to be lower by 8 percent than one would expect based on their economic and geographic characteristics. The APEC group appears in the estimates to have a greater degree of trade diversion: trade between an APEC member and a nonmember is lower by 24 percent than trade between two random countries outside the region.

So far, we have looked at a *period average* of the intraregional bias and openness of the four groupings over the entire two-decade horizon. It may be of interest to examine how these indicators have changed over time. To do this, we create a variable "Trend," which is equal to the year of the observation minus 1970. We add interaction terms between this variable and regional bias and openness dummies. The coefficients on the interaction terms can be interpreted as annual percentage changes in the relevant indicators.

The results are reported in table 5.3. Again, column (1) only has the intraregional bias dummies (and their interaction with Trend). Although all four groups exhibit inward trade biases (as we have seen from table 5.2), there is

Variable	(1)	(2)[a]	(3)	(4)[a]
Intercept	−9.410**		−9.806**	
	(0.236)		(0.343)	
1980 Dummy	−1.062**		−1.006**	
	(0.050)		(0.068)	
1990 Dummy	−1.378**		−1.242**	
	(0.058)		(0.107)	
1992 Dummy	−5.358**		−5.181**	
	(0.154)		(0.188)	
GNP	0.763**		0.762**	
	(0.009)		(0.009)	
GNP/pop	0.198**		0.222**	
	(0.011)		(0.013)	
Distance	−0.585**		−0.605**	
	(0.021)		(0.028)	
Adjacency	0.667**		0.633**	
	(0.078)		(0.079)	
Language	0.445**		0.519**	
	(0.045)		(0.044)	
Region2 variables[b]				
W.Eur.2 bloc	0.236**	−0.006	0.117	−0.001
	(0.072)	(0.004)	(0.078)	(0.004)
E.Asia2 bloc	1.360**	−0.032*	1.360**	−0.040
	(0.226)	(0.013)	(0.226)	(0.013)
APEC2 bloc	0.841**	0.021**	0.824**	0.006
	(0.134)	(0.008)	(0.146)	(0.008)
W.Hem.2 bloc	−0.237*	0.045**	0.021	0.047**
	(0.099)	(0.007)	(0.116)	(0.008)
Region1 variables[c]				
W.Eur.1 bloc			0.303**	−0.016**
			(0.075)	(0.004)
E.Asia1 bloc			0.363**	0.026**
			(0.106)	(0.006)
APEC1 bloc			−0.079	−0.016**
			(0.089)	(0.005)
W.Hem.1 bloc			−0.014	−0.006
			(0.072)	(0.004)
N		6,102		6,102
Adjusted R^2		0.924		0.928
Standard error of regression		1.133		1.107

Table 5.3   **Trend in the Openness of Continental Trade Blocs (total trade 1970–92)**

Notes: Dependent variable is total trade (T_{ij}). Data cover years 1970, 1980, 1990, and 1992. All variables except dummy variables are in logs.

[a]Coefficients (standard errors) for the interaction between the region variables and a trend variable (defined as year minus 1970).

[b]Region2 variables take the value 1 if both countries (i and j) in the pair are in the region.

[c]Region1 variables take the value 1 if the pair includes a country in the region.

*Significant at the 90 percent level.

*Significant at the 95 percent level.

**Significant at the 99 percent level.

quite a bit of variation in terms of their dynamics. For Western Europe, the bias started high (24 percent) in 1970 and more or less remained that way to the end. East Asian bias started very high (290 percent = exp(1.36) − 1) and declined steadily over the next 23 years at the rate of 3.2 percent per annum. Intra-APEC bias started high (130 percent = exp(.84) − 1) and continued to grow over the period at the rate of 2.1 percent per annum. In contrast, two Western Hemisphere countries at the beginning of the 1970s actually traded 27 percent less than two random countries outside the region. Over time, intra-hemisphere trade increased at a high rate of 4.5 percent a year so that a strong intraregional bias can easily be detected over the entire 23-year period.

Column (3) reports trend changes in the degree of openness of various trade groups. At the beginning of the sample, both Western Hemisphere countries and members of the current APEC group traded less with countries outside their regions than would be indicated by the predictions of the gravity model, although the differences are not statistically significant. Somewhat surprisingly, over the period 1970–92, the point estimates of the degree of trade diversion appear to have increased for both groups. The change is statistically significant for the APEC group (a reduction in trade at the rate of 1.6 percent per annum).

Western European countries were quite open at the beginning of the sample. Their trade with countries outside the region in 1970 was 30 percent higher than trade between two random non–Western European countries. Over time, however, their trade with countries outside the region actually fell at the rate of 1.6 percent per annum. So, at least during this 23-year period, there appears in these estimates to be a steady diversion of trade away from countries outside Western Europe toward countries inside the region. Because of their high degree of openness in 1970, average trade between Western Europe and outside countries over the entire sample was still higher than the prediction of our gravity model. However, at the end of the sample, trade between Western Europe and countries outside the region was below what one would have expected based on economic, geographic, and cultural characteristics.

East Asia is unique relative to other groups. It was very open at the beginning of the sample: trade between an East Asian economy and a country outside the region in 1970 was more than 36 percent higher than that between a random pair. The indicator of East Asian openness actually grew at the rate of 2.6 percent a year over the next two decades. Hence, to the extent that there may be an implicit trade bloc in East Asia, this bloc appears to have promoted trade creation and openness as opposed to trade diversion.[5]

Let us summarize. Article 24 of the GATT only requires members of a trade bloc to refrain from raising external tariffs against nonmembers. It does not

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5. We caution readers that our empirical strategy does not formally distinguish between two possibilities: (1) all East Asian economies liberalize unilaterally independent of the implicit bloc in the region versus (2) they do so by collective regional action or by conscientiously following each other's example.

explicitly require trade liberalization. The normal logic that the optimal tariff increases with country size would imply that a trade bloc naturally has incentives to raise external barriers to trade with nonmembers disregarding Article 24. With or without an increase in external tariffs, one normally would expect to see a certain amount of trade diversion away from countries outside a bloc. This indeed appears to be the case for many blocs we have investigated.

One notable exception is East Asia, which has maintained a high degree of openness and in fact appears to have engaged in steady trade liberalization with respect to countries outside as well as inside the region. Part of the reason may be that many East Asian countries are resource poor and have small domestic markets so that they have to rely heavily on imports and exports, including trade with countries outside the region. A second possibility is the power of imitation: openness is often alluded to as an important reason why the four Asian Tigers have succeeded economically; their neighboring countries then follow these examples with zeal. Another possibility is that when countries choose to liberalize their trade with their neighbors, it may also facilitate their liberalization in general. For a formalization of this idea in a simple political economy model, see Wei and Frankel (1996).

5.5 Trade Blocs and Direct Investment: Does Trade Follow FDI?

One issue often raised in the context of trade bloc estimation is the role of FDI. Many authors (e.g., Encarnation 1992) have emphasized the importance of transactions within multinational corporations for international trade. In particular, FDI may generate trade as subsidiaries abroad (e.g., Honda USA) tend to buy more inputs from the home country (Japan) than an otherwise identical firm in the host country (Ford). It is sometimes hypothesized that the high volume of trade between Japan and other East Asian economies and that between Hong Kong and Mainland China are closely related to Japan's and Hong Kong's heavy direct investment in their respective trading partners.

We should note that, in principle, FDI can also displace trade as the sales of foreign subsidiaries (e.g., Honda USA) in the host country (United States) may reduce the source country's (Japan's) exports to the host country.[6] Whether FDI promotes or displaces trade depends on the balance of these two competing effects.

The net effect of FDI on trade and the degree to which the high integration of trade in Asia reflects an usually high level of intraregional direct investment should be subject to empirical examination. We rarely see such studies, partly because systematic data on FDI were not available until recently. For 1990, we now have assembled bilateral FDI data from 15 source countries to a large

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6. Note that for countries with a flexible exchange rate system, FDI has a minimum effect on bilateral trade balance in any case, if the exchange rate can move to offset any net change in trade balance that occurred at the initial level of the exchange rate.

number of host countries. Wei (1995, 1996) used the data to establish a model of direct investment and to examine whether China is an underachiever as a recipient country. In this section, we augment our basic trade regression in table 5.2 to include a measure of stock of direct investment.

Taking into account the special structure and availability of the FDI data, we make several modifications to our basic gravity specification. First, we use trade in 1992 as the dependent variable and the stock of FDI in 1990 as an added regressor. With this time lag, we can reasonably assume that the FDI stock is predetermined with respect to trade flows. Second, since a few countries supply most of the direct investment in the world, it makes more sense to look at corresponding exports from these source countries to the recipient countries of FDI.

The regression results are presented in table 5.4. For comparison, we replicate the regressions in table 5.2 on this restricted subsample. With substantially fewer observations (347 now, relative to 6,102 in table 5.2), we can still detect intraregional trade biases for most of the regions. Moreover, both the Western Hemisphere and the APEC group show evidence of trade diversion, whereas both East Asia and the European Community display higher than normal trade with outside countries.

In columns (3) and (4), we add as an additional regressor the stock of FDI from the exporting country to the importer. The coefficients on the new regressor in both equations are positive and statistically significant at the 1 percent level. Using the point estimate in the last regression, we find that a 1 percent increase in the stock of FDI is associated with an increase in trade by 0.17 percent after one takes into account other economic, geographic, and cultural characteristics of the country pairs. This lends support to the notion that the net effect of FDI on flows of goods trade is positive.

The coefficients on other variables change slightly. In particular, we observe that East Asia becomes more open to outsiders in terms of goods trade once one takes into account the FDI factor. This is so probably because FDI from East Asia to other areas in the world is relatively small and mostly concentrated in North America.

On the other hand, the extent of trade diversion for the Western Hemisphere is more pronounced once we take FDI into account. One possible reason is that the United States is a major investor in many parts of the world. Relative to its position as a source country of direct investment, the United States does not actually trade as much as one would have expected.

5.6   Concluding Remarks

The welfare effect of the formation of a regional trade bloc is ambiguous in general. However, an open bloc that liberalizes imports from countries outside the bloc as well as from inside is more likely to be welfare improving because trade diversion will be minimized. This is one possible interpretation of "open

Table 5.4	Do Exports Follow FDI?			
Variable	(1)	(2)	(3)	(4)
Intercept	−15.565**	−17.368**	−9.415**	−10.689**
	(1.356)	(1.612)	(1.552)	(1.617)
GNP_i	0.734**	0.747**	0.669**	0.6892**
	(0.043)	(0.042)	(0.039)	(0.038)
GNP_j	0.591**	0.604**	0.503**	0.513**
	(0.032)	(0.034)	(0.032)	(0.030)
GNP/pop_i	−0.191*	−0.119	−0.522**	−0.530**
	(0.105)	(0.103)	(0.117)	(0.110)
GNP/pop_j	0.096**	0.105**	0.074*	0.083*
	(0.036)	(0.034)	(0.035)	(0.033)
Distance	−0.591**	−0.556**	−0.525**	−0.478**
	(0.053)	(0.068)	(0.050)	(0.063)
Adjacency	0.500**	0.477**	0.421**	0.341**
	(0.125)	(0.129)	(0.115)	(0.116)
Language	0.247*	0.355**	0.134	0.265**
	(0.110)	(0.108)	(0.097)	(0.090)
Stock of FDI				
$(1990)_{ij}$			0.142**	0.169**
			(0.021)	(0.019)
Region2 variables[a]				
E.Asia2	0.156	−0.029	0.194	−0.046
	(0.197)	(0.219)	(0.179)	(0.198)
APEC2	0.997**	1.059**	0.863**	0.783**
	(0.114)	(0.150)	(0.109)	(0.138)
W.Hem.2	0.246	0.711**	0.165	0.630**
	(0.157)	(0.196)	(0.147)	(0.178)
EC2	0.323**	0.270*	0.231*	0.156
	(0.114)	(0.113)	(0.109)	(0.108)
Region1 variables[b]				
E.Asia1		0.315*		0.397**
		(0.122)		(0.110)
APEC1		−0.067		−0.127
		(0.169)		(0.148)
W.Hem.1		−0.380**		−0.477**
		(0.116)		(0.107)
EC1		0.155		0.003
		(0.126)		(0.113)
N	347	347	347	347
Adjusted R^2	0.793	0.817	0.816	0.847
Standard error of				
regression	0.677	0.638	0.639	0.581

Notes: Dependent variable is 1992 exports from i to j. All variables except dummy variables are in logs. Standard errors are heteroscedasticity-consistent.

[a]Region2 variables take the value 1 if both countries (i and j) in the pair are in the region.

[b]Region1 variables take the value 1 if the pair includes a country in the region.

*Significant at the 90 percent level.

*Significant at the 95 percent level.

**Significant at the 99 percent level.

regionalism." From a normative point of view, one useful reform in the international trading system would be to modify Article 24 of the GATT to require all new regional blocs to lower external barriers. From a positive point of view, the dynamic welfare effect of trade blocs depends on whether political economy forces in the process of regional bloc formation, on balance, tend to encourage or inhibit further trade liberalization.

Using an updated data set that covers more than one thousand country pairs over the period 1970–92, we have reached three main conclusions. First, among the seven explicit trade blocs we have examined, almost all show intrabloc trade biases. However, their openness toward outside countries differs dramatically. The European Community, MERCOSUR, and ASEAN countries tend to trade more with all countries in the world than one would have predicted based on their economic and geographic characteristics. The Andean group and the Australia–New Zealand pair at least did not trade less with outsiders than the predictions of the gravity model. In contrast, the EFTA and NAFTA countries were less open to outsiders in the sense that their trade levels with other countries were below the model's predictions.

Second, when we considered implicit continental trade blocs, we also discovered differing degrees of openness. Averaging over the period 1970–92, we found that Western Europe and especially East Asia were more open to imports from outside the regions than predicted by a gravity model. The Western Hemisphere and the APEC group traded less with outside countries than predicted by a gravity model. However, in terms of trend change, East Asia is the only grouping that started out open and became more open over the sample. Western Europe started open but gradually became trade diverting. The APEC group has managed continuously to shift trade away from countries outside in favor of those inside.

And finally, FDI appears to have promoted trade on average. Once we have taken into account the FDI effect, East Asia seems even more open to outsiders than otherwise.

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Comment   Taeho Bark

First of all, I would like to congratulate the authors for their excellent work. This paper greatly helps us to better understand the various definitions of open regionalism and the welfare implications of regional blocs. The empirical analysis presented in this paper will prove invaluable, particularly to those who are involved in the formulation of regional trade arrangements such as APEC.

Since the analysis and the results of this paper are quite clear, I do not have many comments to make with regard to them. However, I have found one major problem in the consistency between the paper's definition of the openness of regional trade blocs and its methodology for measuring the openness of regional trade blocs. Let me elaborate on this.

According to the definition given in the paper's introduction, in an open bloc, trade barriers set by members of the bloc against nonmembers are lowered at the same time that the barriers among the members are reduced. In the empirical analysis, a positive coefficient on the variable for trade between a member and a nonmember is taken as possible evidence of an open trade bloc. The problem with this is that the definition of an open trade bloc is based on the trade *regimes* of member countries with respect to outsiders while the empirical analysis is based on the trade *volumes*. Therefore, a positive coefficient can imply a case in which a member country trades more with outsiders, not because the member country's trade regime with respect to nonmember countries is more open, but simply because it exports more to outsiders. I think the openness of East Asia should be carefully interpreted. The findings on the openness of the East Asian bloc in this paper could be misleading.

Let me now turn to a few minor comments. First, I would like to comment on the authors' idea that new regional blocs could be required to lower external barriers partially, for example, 10 percent of the degree of intrabloc liberalization. If this requirement were compulsory, intrabloc liberalization negotiations among members would become more difficult with an added dimension when

they calculate the costs and benefits. Albeit a good idea, in reality, this proposal would be very difficult to implement.

Second, I think it would be interesting to add an additional empirical analysis to this paper for measuring biases of trade between members of two different blocs, for example, between Western European countries and Western Hemisphere countries. Such an analysis can provide at least an empirical base for judging whether the recently raised idea of forming a trans-Atlantic free trade area is appropriate or not.

Third, I think it will be useful in the future, when enough data become available, to do similar empirical analyses and compare the openness of actual trade blocs such as the European Union, NAFTA, EFTA, and MERCOSUR. These analyses will be more meaningful because we can examine the effects of actual trade blocs.

Finally, I would like to ask whether the model specification in the paper is stable and whether there are possible multicollinearities in the regression model, particularly among dummy variables.