

THE NEW REGIONALISM: CAUSES AND CONSEQUENCES

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ABSTRACT. We address three themes on the New Regionalism. First, the prominent analogy to a “spaghetti bowl” of economic integration agreements (EIAs) should be replaced by reference to a “market” for EIAs. We suggest a systematic economic framework for analyzing “competitive liberalization” of governments in a static, long-run context. Second, we address why *ex post* measurements of the average (treatment) effects of EIAs on trade seem so “small.” Third, after addressing evidence for long-run determinants of competitive liberalization, we discuss how one might conceptualize the process by which governments select into EIAs over time, that is, the growth of regionalism.

JEL Classification: F10; F13; F15.

Keywords: Trade; Gravity Equation; Free Trade Agreements.

RÉSUMÉ. Cet article appréhende le Nouveau Régionalisme sous trois angles différents. D’abord, à l’analogie établie entre un “bol de spaghettis” et les accords d’intégration économique (AIE) devrait se substituer l’idée d’un “marché” pour les AIE. L’étude suggère un cadre économique systématique pour analyser la “libéralisation concurrentielle” des gouvernements, dans un contexte statique, de long terme. Puis l’article explique pourquoi les chiffres *ex post* des effets moyens des AIE sur le commerce donnent des résultats très “modestes”. Enfin, après avoir exposé quels sont les déterminants à long terme de la libéralisation concurrentielle, les auteurs montrent comment conceptualiser le processus par lequel les gouvernements sélectionneront les AIE au fil du temps, c’est-à-dire, la croissance du régionalisme.

Classification *JEL* : F10 ; F13 ; F15.

Mots-clés : Commerce ; équation de gravité ; accords de libre-échange.

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One of the most notable events in the world economy over the past fifteen years has been the phenomenal growth in the number of international economic integration agreements. Economic integration agreements (EIAs) are treaties between economic units (in the case of international EIAs, between nations) to reduce policy-controlled barriers to the flow of goods, services, capital, labor, etc. Most though not all EIAs tend to be regional (or continental) in scope and most tend to be free (or preferential) trade agreements (henceforth, FTAs). According to the World Trade Organization (WTO) website, in 2006 there are nearly 300 regional trade agreements that are either planned, have concluded negotiations, or are in force. Interestingly, of the 250 agreements notified to the General Agreement on Tariffs and Trade (GATT) and WTO between 1947-2002, about half were notified since 1995. Thus, there has been a virtual explosion in the number of EIAs in the past decade. This is the New Regionalism.²

In this paper, we address three themes regarding the New Regionalism. First, we address how observers might conceptualize the notion of regionalism in both static and dynamic contexts. The prominent analogy to a spaghetti bowl of the current web of economic integration agreements perhaps should be replaced by an analogy to a market for EIAs. We discuss the notion of competitive liberalization, coined by Fred Bergsten a decade ago, and suggest a systematic economic framework for analyzing competitive liberalization in a static context. Hence, we address the economic criteria that might explain empirically governments selections into FTAs in a long-run economic equilibrium. Second, empirical evidence by economic researchers often yields insignificant effects in some cases, negative effects of FTAs on trade. Given the multitude of FTAs in the world, it is surprising that governments would consume the (political and economic) resources to form such agreements if they actually had such small effects on trade. We address why *ex post* measurements of the average (treatment) effects of FTAs on trade seem so small.³ The reason lies to a large extent on previous efforts lack of accounting properly for governments self-selection into such agreements. Third, we address competitive liberalization in a dynamic context. Having established evidence for long-run determinants of governments selection into FTAs, we discuss how one might conceptualize the process by which governments select into FTAs over time, that is, the growth of regionalism.

2. To some, the New Regionalism is also associated with increased depth of certain agreements, such as the European Union's deepening relative to the original European Economic Community.

3. The discerning reader, of course, should ask small, relative to what? The statement in the text more precisely requires specification of the counterfactual. In most cases, it would be relative to some quantitative prediction of the difference in trade levels with and without the FTA, that is, a general equilibrium comparative-static effect. The formal specification of such an effect is beyond the scope of this paper. However, many large-scale computable general equilibrium models suggest quantitative impacts. In the context of our paper, we focus on two issues. First, we discuss informally an alternative general equilibrium approach to estimating average FTA treatment effects that weds more closely theory and empirical evidence. Second, we address informally how endogeneity bias in empirical estimation of FTA treatment effects tends to reduce estimated effects.

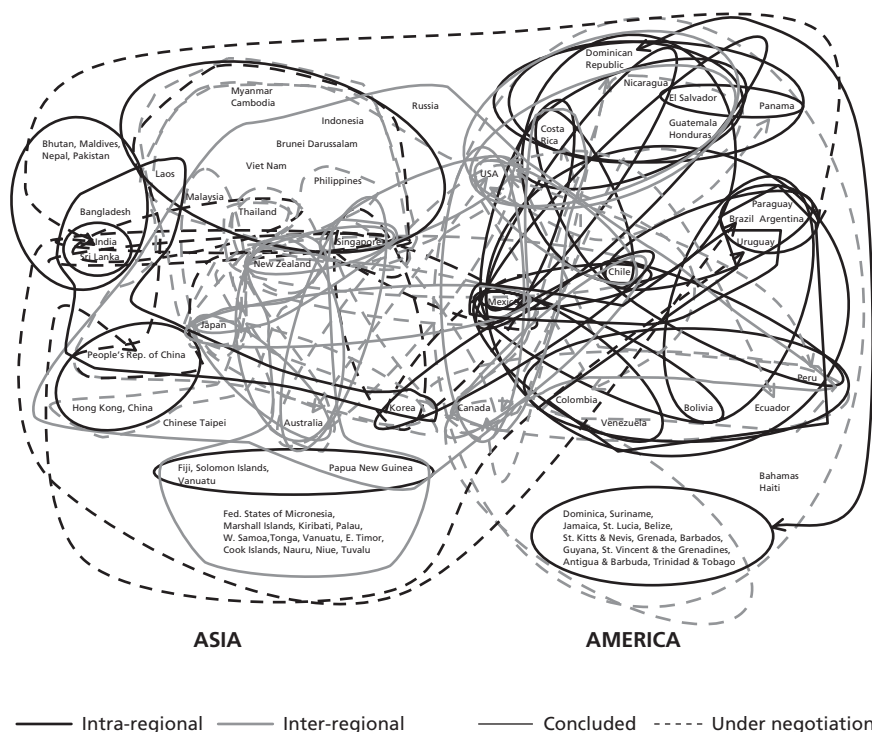
■ DETERMINANTS OF BILATERAL ECONOMIC INTEGRATION AGREEMENTS

International economists such as Richard Baldwin (1995) and C. Fred Bergsten (1996) noted a decade ago that there were seemingly strong competitive pressures in the world economy sensed by nations governments that induced such governments to liberalize trade both bilaterally and regionally. The large numbers of nations party to the GATT/WTO has grown over the past 50 years to approximately 150 countries. This large number of parties has likely made the ability of negotiators to liberalize trade in agriculture, services, capital, and labor under one agreement much more difficult.⁴ Nevertheless, governments are pressured by individual voters and firms lobbies to provide a framework of policies well-suited to both constituencies interests (maximizing economic welfare and economic profits, respectively). In the face of these pressures and an impasse in multilateral trade and investment liberalization at the WTO level, governments have sought alternative policy changes to improve economic welfare and firms profits. One alternative potentially a building block for further multilateral liberalization is regional economic integration agreements (which includes bilateral agreements). As shown in FIGURE 1 from Estevadeordal (2006), the proliferation of EIAs over the past fifty years has created what Bhagwati and Panagariya (1999), Estevadeordal (2006), and others refer to as a spaghetti bowl of EIAs.

However, Baldwin's domino theory of regionalism and Bergsten's competitive liberalization hypothesis are implicitly dynamic stories. But, in our view, before one can conceptualize about the New Regionalism, we consider it imperative to discuss first regionalism. That is, we start with a static long-run view of the determinants of regionalism (and bilateralism). The notion of competitive liberalization can be consistent with a static model of regionalism as well as a dynamic one. As is traditional in economics, one should probably examine the long-run economic factors influencing the equilibrium outcome before modeling explicitly the short- and medium-run factors influencing FTA formation, where the latter are often more easily observed and often discussed less technically.

We intentionally used the term Economic Integration Agreements initially to be inclusive. The term Economic Integration spans integration of goods, services, capital, and labor markets; in even broader views, it encompasses integration in economic activity that goes beyond economists' traditional categorizations of "goods and factors". We also used Economic Integration not Regional Economic Integration to be inclusive in geographic scope of coverage. Many recent economic integration agreements, the recently-signed Australian-U.S. FTA, for example involve countries on different continents; economists have occasionally referred to these as unnatural EIAs, in the sense that they are not in the same geographic

4. See Mansfield and Reinhardt (2003) and Moravcsik (2005). Also, Moravcsik argues that competitive liberalization pressures have been the dominant force behind much of European economic integration, with the likely exception of Germany's motivation in the 1950s.

Figure 1 - The “spaghetti bowl” of FTAs in the Americas and Asia-Pacific (2005)

Source: Integration and Regional Programs Department, the Inter-American Development Bank (IDB).

region or on the same continent.⁵ However, the vast bulk of EIAs are regional free trade agreements, limited in scope to countries on the same continent and to goods (and, in many cases, services) sectors. In the remainder of this section and the next section, we address FTAs and international trade in a static context. We discuss dynamic issues later.

Determinants of bilateral trade

Before addressing directly static determinants of FTAs, it will be useful to discuss first the underlying economic context of world trade in the absence of policy-oriented barriers to trade. After we establish the fundamental determinants of trade and economic welfare in the presence of only natural barriers to trade (e.g., distance between economic agents), we then introduce (exogenously) policy-oriented that is, unnatural or artificial trade barriers.

5. See, for example, Krugman (1991a & b), Frankel, Stein and Wei (1995 & 1996), and Frankel (1997).

This will provide the background to then discuss endogenous regionalism behavior by governments.⁶

Because regionalism typically entails bilateralism,⁷ we address briefly determinants of bilateral trade flows in an N-country world ($N > 2$) in the absence (presence) of policy-based (natural) trade barriers. The modern theory of international trade largely developed in the context of two countries with production of goods in two industries using two factors of production usually emphasizes that the economic rationales for international trade are traditional comparative advantage or inter-industry trade (i.e., trade is driven by Heckscher-Ohlin relative factor endowment differences or Ricardian relative productivity differences) and by acquired comparative advantage or intra-industry trade (due to increasing returns to scale in production of slightly differentiated products), but historically ignoring transport costs and economic geography.

However, motivated by the robust empirical regularity that bilateral trade flows between pairs of countries are explained well by the product of their gross domestic products (GDPs) and their bilateral distance, trade economists have formulated multi-country (or N-country) theoretical foundations for a "gravity equation" of bilateral international trade over the past 25 years, and in a manner consistent with established theories of intra- and inter-industry international trade. For instance, the first formal theoretical foundation for the gravity equation with a one-sector endowment economy, but many countries, was Anderson (1979). Anderson showed that a simple (conditional) general equilibrium Armington model with products differentiated by country of origin and constant-elasticity-of-substitution preferences yields a basic gravity equation similar to that just described:⁸

$$PX_{ij} = \beta_0 (GDP_i)^{\beta_1} (GDP_j)^{\beta_2} (DIST_{ij})^{\beta_3} \varepsilon_{ij} \quad (1)$$

where PX_{ij} is the value of the merchandise trade flow from exporter i to importer j , GDP_i (GDP_j) is the level of nominal gross domestic product in country i (j), $DIST_{ij}$ is the distance between the economic centers of countries i and j , and ε_{ij} is assumed to be a log-normally distributed error term. The theory suggested that $\beta_1 = \beta_2 = 1$ and $\beta_3 < 0$.

Other papers extended these theoretical foundations in various important directions. Helpman and Krugman (1985) introduced monopolistic competition and increasing returns to scale, motivating a gravity equation with trade flows to explain intra-industry trade between

6. As mentioned, our analysis initially will take as given exogenously the prevailing level of policy-oriented trade barriers, such as tariff rates. In reality, the ideal approach would be to consider the endogenously-determined Nash equilibrium tariff rates pre- and post-integration, as the pre-integration Nash equilibrium tariffs are likely to differ from the post-integration ones. Addressing this limitation, however, is beyond the scope of this paper, especially due to incorporation of asymmetric economic sizes of countries, inter-continental transport costs, and intra-continental transport costs.

7. In the remainder of the paper, we will often use the terms bilateralism and regionalism interchangeably.

8. As noted in Anderson and van Wincoop (2004), Anderson (1979) and Anderson and van Wincoop (2003) are conditional general equilibrium models, employing a trade separability assumption where the allocation of bilateral flows across N countries is separable from production and consumption allocations within countries.

countries with similar relative factor endowments and labor productivities. Bergstrand (1985) raised the issue of including multilateral price (resistance) terms for importers and exporters as important for determining bilateral trade flows; for instance, the trade flow from i to j is influenced by the prices, transport costs, and other trade costs that the consumer in j faces from its $N-2$ other trade partners as well as domestic firms. Bergstrand (1989, 1990) showed formally that a gravity equation evolved from a traditional Heckscher-Ohlin model with two industries, two factors and N countries with both inter- and intra-industry trade. Evenett and Keller (2002) provided empirical evidence that a model with both Heckscher-Ohlin inter-industry trade and Helpman-Krugman intra-industry trade with imperfect specialization fits the data best. Most recently, Anderson and van Wincoop (2003) have shown formally that proper estimation of the gravity equation (to avoid omitted variables bias) must recognize endogenous multilateral price (resistance) terms for both the exporter and importer countries, and likely requires estimation of a system of nonlinear equations using custom nonlinear least squares programming to account properly for endogeneity of prices:

$$PX_{ij} = \beta_0 (GDP_i)^1 (GDP_j)^1 (t_{ij})^{1-\sigma} P_i^{\sigma-1} P_j^{\sigma-1} \varepsilon_{ij} \quad (2)$$

where $\sigma > 1$, t_{ij} denotes bilateral trade costs (which potentially can be explained by various observable variables), and P_i and P_j are "endogenous" multilateral price terms that account for trade costs that agents in countries i and j face from all N countries (including at home).⁹ Details of estimating (2) for aggregate trade flows using either nonlinear least squares or fixed effects are addressed in Anderson and van Wincoop (2003), Feenstra (2004), and Baier and Bergstrand (2002 & 2006a,b). Baier and Bergstrand (2002) extend the Anderson-van Wincoop one-sector, N -country endowment economy to a world with two sectors, two factors, and N countries with Heckscher-Ohlin-Samuelson inter-industry trade and Chamberlin-Helpman-Krugman intra-industry trade, cf., Carrere (2006). Baier and Bergstrand (2006a) show a method for estimating coefficient estimates in equation (2) using ordinary least squares (OLS) that are virtually identical to those estimated using Anderson and van Wincoop's nonlinear least squares program or fixed effects, based upon a first-order Taylor series expansion of the theory.

The gravity equation in specification (1) has been used traditionally for about forty years to explain the variation in bilateral trade flows among pairs of countries for a particular year and more recently for panel variation (especially, within variation using fixed effects, cf., Egger, 2000 & 2002). Typically, several other binary variables are included to capture variation in various trade costs, such as an adjacency dummy and a language dummy. More relevant here, most researchers have included a dummy variable for the presence or absence of

9. See Anderson and van Wincoop (2004) for an excellent survey of the literature on theoretical foundations for the gravity model. In Anderson (1979), all prices were normalized to unity. In Bergstrand (1985, 1989 & 1990), a small-country assumption was employed to treat the other $N-1$ countries' price levels as exogenous to the country pair ij . In Anderson and van Wincoop (2003) all countries' price levels are endogenous.

an FTA (or EIA, more generally). As discussed earlier, quantitative estimates of the coefficients of these EIA dummies have varied dramatically, cf., Frankel (1997), with some estimated average "treatment" effects seemingly small and others even negative. Estimates of gravity equation (2) for FTAs are scarce, since equation (2) surfaced in the past five years. Baier and Bergstrand (2002, 2006b) and Carrere (2006) provide some early estimates.

Determinants of FTAs

In considering what factors determine formation of FTAs, one needs to distinguish along two dimensions. First, we address static versus dynamic determinants of FTAs. In the static view we take in this section, we consider a world in "long-run equilibrium." We ask the question: What are the economic factors that explain theoretically whether or not a pair of countries is likely to have an FTA? We then examine empirically using a qualitative-choice econometric model whether or not the pairs of countries that have FTAs are the most likely ones to have such agreements, conditioned upon a set of economic determinants suggested by theory and that full multilateral free trade liberalization under the WTO is prohibitively costly.¹⁰

Second, we must distinguish between the "economics of FTAs *versus* the "politics" (or political economy) of FTAs.¹¹ In reality, of course, national governments are empowered to sign treaties regarding international commerce and factor mobility. In the international trade literature, it is common to assume that a representative (national) government's objective is to maximize a weighted average of the welfare of individuals (in economic terms, voters' utilities) and the influence of firms (in economic terms, firms' economic "rents" or profits), which likely operate through lobbies.¹² While both factors play a role in reality, we follow the intuitive suggestion in Bergsten (1996) that in a long-run view economic welfare is likely to be the dominant force, and that political factors (lobbies, special interest groups, etc.) are likely to be relatively more important in the short- to medium-run. Bergsten states:

"There are of course different national circumstances which explain the detailed strategies and timing of the individual initiatives. The overarching force, however, has been the process of competitive liberalization (p. 2)".

Thus, in our initial static analysis of selection into FTAs, we assume that the economic welfare of two nations' representative consumers determines whether or not the governments of that pair choose to have an FTA or not. To avoid the role of economic rents, we assume monopolistically competitive markets for the production of goods, with large numbers of

10. In our theory, we assume that the decision to have or not have an FTA takes as exogenous the current WTO structure that impedes achieving free trade. We assume, as Bergsten (1996) states, it simply turns out to be less time-consuming and less complicated to work out mutually agreeable arrangements with a few neighbors than with the full membership of well over 100 countries in the WTO, p. 4). This is also consistent with the approach taken in Grossman and Helpman (1995b) that, as in Grossman and Helpman (1994a & 1995a), we suppose the incumbent government is in a position to set trade policy, which means here that it can either work toward a free-trade agreement or terminate the discussions (p. 670). A multilateral trade-policy alternative is ruled out by assumption.

11. We borrow this useful distinction from Krugman (1991a).

12. See, for example, Grossman and Helpman (1995b) or Gawande, Sanguinetti, and Bohara (2005).

profit-maximizing firms that find political coordination prohibitively costly.¹³ In later dynamic analysis that addresses more the “timing” of formations of FTAs, political economy considerations and economic rents could surface.

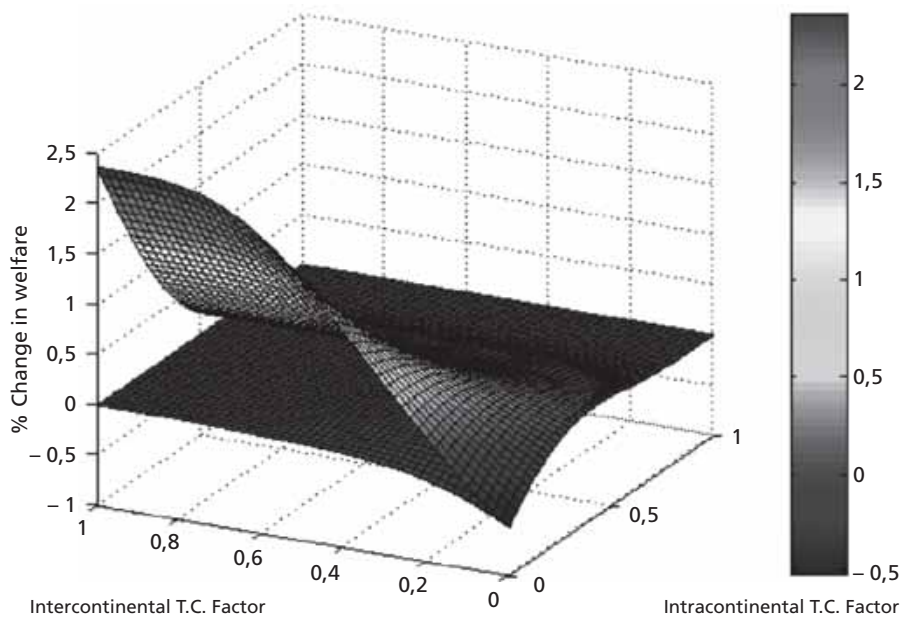
Following in the spirit of Krugman (1991a & b), Frankel, Stein and Wei (1996), and Frankel (1997), we create a model of a world economy recognizing explicitly inter- and intra-continental trade costs. Krugman (1991a) used a simple model of three symmetric (or identical) economies where firms produced slightly differentiated goods under increasing returns to scale in production to show that in a world with no trade costs regional FTAs decreased economic welfare of households unambiguously. However, Krugman (1991b) showed that in the same model but with prohibitive inter-continental trade costs regional FTAs increased economic welfare unambiguously. Frankel, Stein and Wei (1996) cleverly labeled this the “Krugman vs. Krugman debate”. Frankel, Stein, and Wei’s extension of Krugman’s model usefully allowed for a continuum of inter-continental trade costs, distinguishing “natural” (within continents) from “unnatural” (across continents) FTAs. Frankel, Stein, and Wei could then show the cross-over point in terms of inter-continental trade costs at which on net welfare changed from positive to negative. Using some empirical estimates of the costs of inter-continental trade based upon a gravity model of trade, one conclusion from Frankel’s (1997) book was that if all continents followed the European example the regionalization of the world economy would be “excessive.”

In order to establish a quantitative model to predict which pairs of countries should or should not have an FTA, Baier and Bergstrand (2004) extended the Frankel-Stein-Wei model to allow for asymmetric economies both in terms of economic size and in relative factor endowments and for asymmetric inter- and intra-continental transport costs. The model has six countries on three continents with countries on the same continent facing (Samuelson) iceberg-type intra-continental trade costs and countries on different continents facing additional iceberg-type inter-continental trade costs. Each country is endowed with two factors of production, capital (K) and labor (L). There are two industries, goods and services, with preferences for the two sectors’ outputs of the Cobb-Douglas type. Preferences for each sector’s output are of the constant-elasticity-of-substitution (CES) type, common to the trade literature. Each sector’s products are slightly differentiated, with each product produced under increasing returns to scale; consumers value variety. The productions of goods and services use capital and labor in different relative factor intensities. Standard demand functions are generated, the details of which are discussed in Baier and Bergstrand (2002 & 2004).

13. Even in a monopolistically competitive framework, countries might optimally choose higher tariffs in equilibrium. We assume they do not for three reasons: (1) the spirit of the GATT/WTO, where FTA members are precluded from raising their average external tariffs; (2) the Nash equilibrium may even yield a lowering of external tariffs (see work by Yi, 2000, and Ornelas, 2001); and (3) we have not observed increases in external tariffs (see empirical work by Estevadeordal, Freund and Ornelas, 2005).

If governments are welfare maximizers, then in the context of this model certain economic characteristics are likely to favor FTAs' formation in some pairs of countries relative to others. For example, FIGURE 2 shows two important economic factors, intracontinental and intercontinental trade costs. First, countries on the same continent (i.e., "natural" trade partners, top surface) benefit more from an FTA than countries on different continents ("unnatural" trade partners, bottom surface). Second, along the Intercontinental Trade Cost axis from 0 to 1, such costs increase from zero (0) to prohibitive (1). This suggests that the net benefits of a natural FTA increase, and the net costs of an unnatural FTA decrease, as intercontinental trade costs rise.

Figure 2 - FTA welfare changes: Impact on intracontinental and intercontinental trade costs

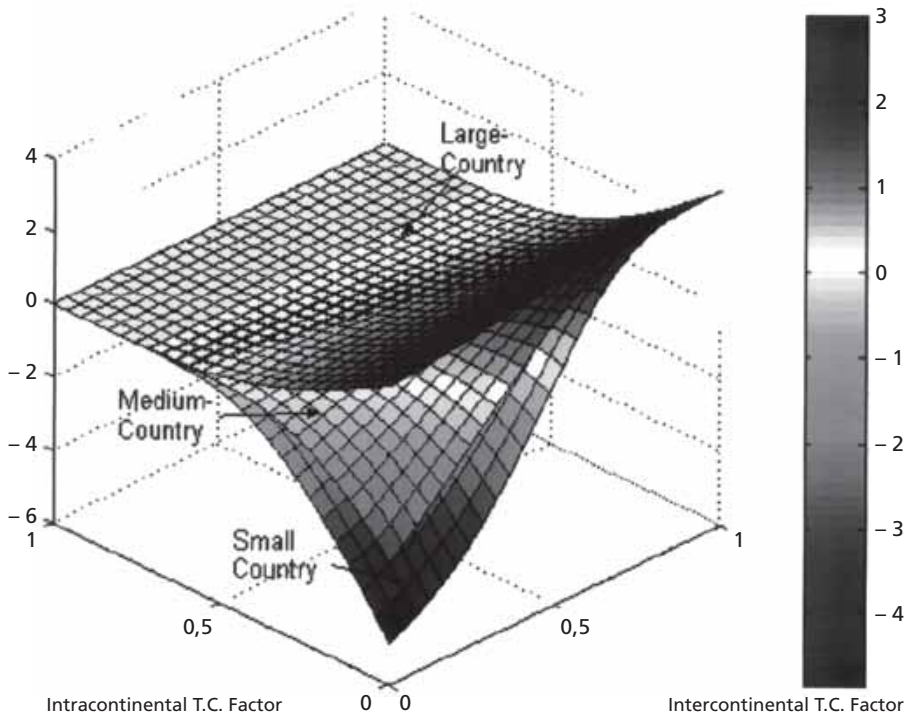


Notes: T.C. = Trade cost.

The top surface denotes countries on the same continent ("natural" trade partners) and the bottom surface countries on different continents ("unnatural" trade partners). Trade costs vary between zero (0) to prohibitive (1). The net benefits of a natural FTA increase as intercontinental trade costs rise.

FIGURE 3 illustrates that pairs of larger GDP economies tend to benefit more from FTAs than pairs of smaller countries, due to economies of scale in production and increased varieties of products available in larger economies.

Figure 3 - FTA welfare changes: Impact of country size

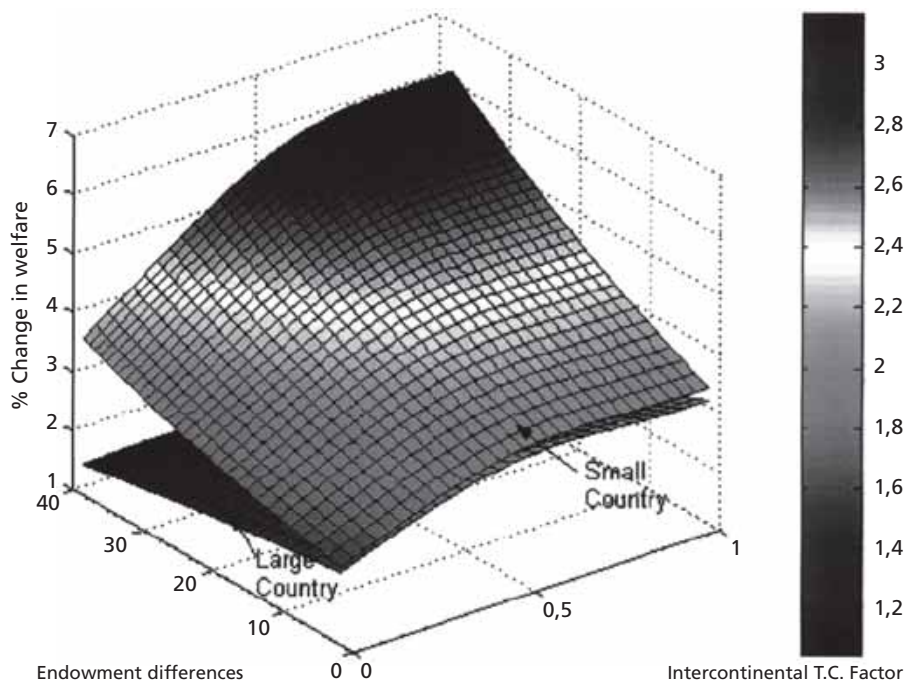


Notes: T.C. = Trade cost.

Pairs of larger economies tend to benefit more from FTAs due to economies of scale and increased varieties of products available in larger economies.

FIGURE 4 illustrates that as two countries' GDPs become increasingly different, the likelihood of an FTA decreases. A larger economy's benefit from an FTA diminishes as the two countries become more dissimilar in size (for a given total economic size) because the breadth of variety in imports contracts for the larger economy.

Figure 4 - FTA welfare changes: Impact of country size and factor endowment differences

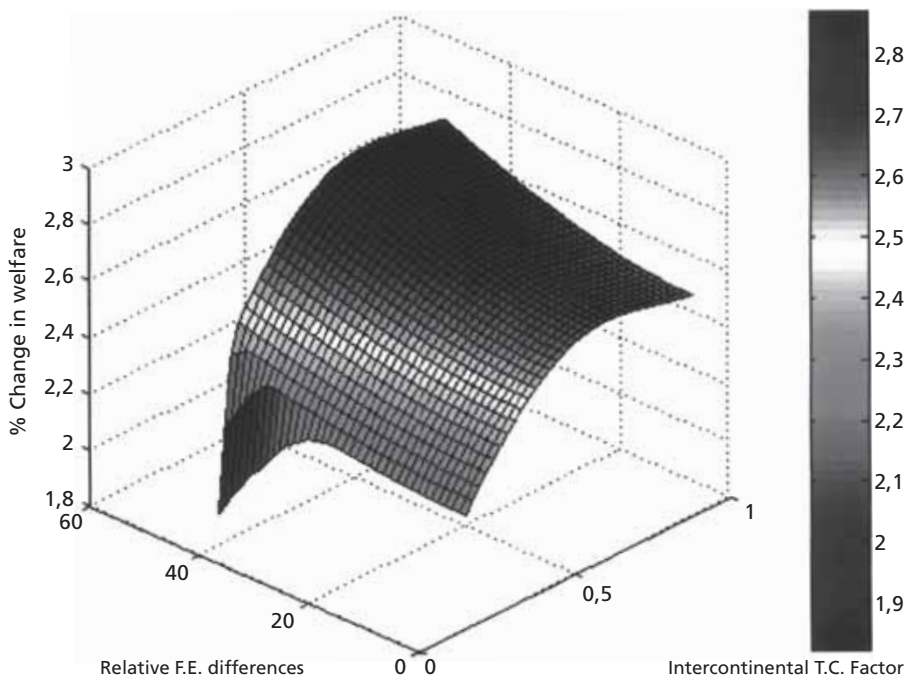


Notes: T.C. = Trade cost.

When countries are small and endowment differences and intercontinental trade costs are the highest, the welfare gains of an FTA are the largest.

FIGURE 5 shows that due to the presence of two industries and two factors the wider the relative factor endowments of a country pair, the more likely is an FTA (if inter-continental transports are sufficiently high) due to the gains of exchange relative comparative advantages, i.e., inter-industry trade.

Figure 5 - FTA welfare changes: Impact of relative factor endowment differences and trade costs



Notes: T.C. = Trade cost. Relative F.E. differences correspond to relative factor endowment differences (capital-labor ratios) between pairs of countries. The wider the relative factor endowment differences and the higher the intercontinental trade costs, the larger are the welfare gains of an FTA.

It is important to note as perhaps surmised already that most (if not all) of these economic factors are also well established as economic determinants of bilateral trade flows. The importance of this will become apparent later. Based upon the qualitative-choice econometric model of McFadden, we use a probit model to try to establish the relative importance of these factors for explaining and potentially predicting the likelihood of an FTA between country pairs. We employ a sample of bilateral pairings among 54 countries, or 1431 observations for FTAs observed in 1996 $[(54 \times 53)/2 = 1431]$. These probabilities are predicted

using bilateral distances, GDP sizes, GDP similarities, relative K/L ratios, and indexes of remoteness (or multilateral resistance) as explanatory variables, cf., Baier and Bergstrand (2004).

Empirical results

An empirical probit model actually works quite well. As a measure of overall fit, the pseudo- R^2 value of the full specification is 73 percent for 1431 country pairs. We note that, for a (more recently constructed) wider sample of 96 countries in 1995, the pseudo- R^2 remains high at 67 percent. Of the 286 FTAs in 1996 in our original sample, the model predicted 85 percent (or 243) correctly. Of the remaining 1145 pairs with no FTAs, the model predicted correctly 97 percent ($1114 = 1145 - 31$). Details are available in Baier and Bergstrand (2004).

We draw attention to three empirical outcomes. First, we note that the most likely FTAs in 1996 (using exogenous geographic variables and GDPs and K/L ratios from 1960) were the earliest FTAs. A suggestive implication from all this is that this model potentially can also reveal to us information about the growth of regionalism. We will return to this theme later.

Second, of the top 200 pairs (of 1431) that were the most likely to have an FTA in 1996, only 6 pairs did not have one: Iran-Iraq, Iran-Turkey, Chile-Peru (FTA being negotiated), Japan-South Korea (FTA being negotiated), Hong Kong-South Korea, and Panama-Venezuela.

Third, of the 1000 pairs (of 1431) that were the least likely to have an FTA in 1996, only 4 pairs actually had an FTA: Portugal-Turkey (EU-Turkey customs union), Egypt-Iraq, Mexico-Chile, and Mexico-Bolivia.

Inferences

Why does the model work so well? We believe the model is consistent with the notion of “competitive liberalization.” National governments realize countries are unique in economic characteristics. In the interest of liberalizing markets to improve productivity levels and levels of living standards, national governments select into arrangements with other countries for which they share certain economic characteristics, such as similar economic size or close proximity. Empirically, most pairs of countries with FTAs tend to have the key economic characteristics that the theoretical model suggests should be present for an FTA to enhance (on net) the welfare of pairs’ representative consumers. In many (if not most) cases, these are pairings where countries already trade extensively with one another. This is consistent with Bergsten’s “competitive liberalization” notion that economic welfare may be the dominant long-run “overarching force” in driving regionalism, despite political factors influencing timing. Hence, the same observable variables that explain trade patterns gravity-equation variables also explain the likelihood of an FTA because of likely net benefits for producers and consumers from creating such an FTA.

The reader might ask a seemingly obvious question: If national governments are simply maximizing consumers’ welfare, why not simply predict bilateral FTAs with bilateral trade flows?

First, there is an endogeneity issue. Predicting the likelihood of an FTA based upon a probit regression using trade flows on the right-hand-side of the probit regression will likely yield biased coefficient estimates. The reason is that “unobservable” variables such as institutional and political factors that likely influence the decision by governments to form FTAs also tend to influence trade flows. In cross-sectional data, these unobservable (to the econometrician) variables likely influence both FTA and trade variables and bias coefficient estimates.

Second, the probit specification we use helps identify the economic characteristics that influence the decision to form an FTA: economic geography variables, factors influencing intra-industry trade, and factors influencing inter-industry trade. However, at this time it does not include political variables. In reality, political variables are likely to also be important in explaining certain important economic integration agreements. Notably, the original European Economic Community was formed partly for political reasons associated with establishing political stability in Western Europe, and also to establish a common economic-based front due to concern over the spread of communism associated with Soviet-occupied central and eastern Europe. Even subsequent enlargements of the European Community to Greece, Portugal and Spain may have been related to political motives to help ensure democracy. Empirical work discussed later in this paper addresses political variables that could also be included to enhance this fundamentally economic approach.

The remainder of this paper addresses how these issues potentially help us to understand two topics: the quantitative impact of FTAs on trade and the growth of regionalism.

■ THE IMPACT OF FTAs ON TRADE

The approach and results just discussed have some potentially important implications for the forty years of empirical research using the gravity equation with cross-sectional data discussed earlier. Since Nobel Laureate Jan Tinbergen first used the gravity equation in 1962, the equation has been used increasingly to estimate the impact of FTAs on members’ trade flows. Tinbergen (1962) studied bilateral international trade flows among several countries in a cross-section from the 1950s including dummy variables for the BENELUX FTA and the British Commonwealth members; he found that membership in either of these agreements increased trade by only 5 percent. However, the previous discussion suggests that cross-section estimates of FTAs’ effects on trade over these forty years suffer from potential selection bias. If country pairs select into FTAs for unobservable reasons correlated with potential trade flows, OLS estimates will likely be biased.

For instance, in equations (1) or (2), the error term ε may be representing unobservable (to the empirical researcher) policy-related barriers tending to reduce trade between countries i and j that are not accounted for by standard gravity equation RHS variables, but may be correlated with the decision to form an FTA. Suppose two countries have extensive unmeasurable domestic regulations (say, internal shipping regulations) that inhibit trade (causing ε to be negative). The likelihood of the two countries’ governments selecting into an FTA may be high if there is

a large expected welfare gain from potential bilateral trade creation if the FTA deepens liberalization beyond tariff barriers into domestic regulations (and other non-tariff barriers). Thus, FTA in equation (3) below and the intensity of domestic regulations may be positively correlated in a cross-section of data, but the gravity equation error term ε and the intensity of domestic regulations may be negatively correlated. This suggests that FTA and ε are negatively correlated, and the FTA coefficient estimate in equation (3) may be underestimated.

Numerous authors have noted that one of the major benefits of regionalism is the potential for "deeper integration." Lawrence (1996, p. xvii) distinguishes between "international policies" that deal with border barriers, such as tariffs, and "domestic policies" that are concerned with everything behind the nation's borders, such as competition and antitrust rules, corporate governance, product standards, worker safety, regulation and supervision of financial institutions, environmental protection, tax codes ...and other national issues. The GATT and WTO have been remarkably effective in the post-WWII era reducing border barriers such as tariffs. However, these institutions have been much less effective in liberalizing the domestic policies just named. As Lawrence states it, "once tariffs are removed, complex problems remain because of differing regulatory policies among nations" (p. 7). He argues that in many cases, FTA agreements are also meant to achieve deeper integration of international competition and investment (p. 7). Gilpin (2000) echoes this argument: *Yet, the inability to agree on international rules or to increase international cooperation in this area has contributed to the development of both managed trade and regional arrangements* (p. 108; italics added).

We believe this omitted variable (selection) bias is the major source of endogeneity facing estimation of FTA effects in gravity equations using cross-section data. Moreover, the arguments above suggest that policymakers' decisions to select into an FTA are likely related to the level of trade (relative to its potential level), and not to recent changes in trade levels. Thus, the determinants of FTA are likely to be cross-sectional in nature.

With cross-section data, standard econometric techniques to address omitted variables (and selection) bias include estimation using instrumental variables and Heckman control functions. Only a small handful of studies in the past three years have attempted to do this; Baier and Bergstrand (2002) was the first. Of the few studies that have attempted to solve this dilemma using instrumental variables and other cross-section techniques, there has been little success, cf., Baier and Bergstrand (2006b). The reason basically is that in cross-section it is difficult in a convincing way to identify variables that are correlated with the FTA dummy variable and are uncorrelated with trade flows. That is, there are no observable variables to identify the respective equations.

However, some alternative techniques are available to address the problem. For example, if the decisions to form FTAs are "slow-moving" as they are likely to be but trade flows are not slow moving (also likely), then panel data offers an opportunity to better identify unbiased effects of FTAs on trade flows. Bayoumi and Eichengreen (1997) pursued this using first-

differences and Cheng and Wall (2005) using fixed effects, but both in the context of atheoretical gravity specifications with small samples.

Baier and Bergstrand (2006b) used both approaches in the context of a theoretically-motivated gravity equation for a broad sample of countries and panel data. Starting from the conditional general equilibrium of Anderson and van Wincoop (2003), Baier and Bergstrand (2006b) motivated the panel version of the Anderson and van Wincoop gravity equation:

$$\ln[X_{ijt} / (RGDP_{it} RGDP_{jt})] = \beta_0 + \beta_3(\ln DIST_{ij}) + \beta_4(ADJ_{ij}) + \beta_5(LANG_{ij}) + \beta_6(FTA_{ijt}) - \ln P_{it}^{1-\alpha} - \ln P_{jt}^{1-\sigma} + \ln \varepsilon_{ijt} \quad (3)$$

where X_{ijt} is the real (inflation-adjusted) trade flow from i to j in year t and $RGDP_{it}$ is real GDP of country i in year t .

Using bilateral-pair-specific fixed effects and country-and-time effects, Baier and Bergstrand (2006b) find that the cumulative average treatment effect of an FTA on trade after 10-15 years is 0.76. Given that $e^{0.76}$ equals 2.14, this implies that an FTA on average increases two members' international trade by 114 percent after 10-15 years. This estimated effect is both considerably larger and more robust to sensitivity analyses than earlier estimates.

■ THE GROWTH OF REGIONALISM

The predictions of the empirical probit model in Baier and Bergstrand (2004) discussed earlier, while based upon a static, long-run equilibrium approach, lend some insights into the growth – or path over time – of regionalism. We mention a few suggestive observations. First, the most likely country pair to have an FTA in our model in 1996 is Austria and Hungary. As we already know from history, Austria and Hungary had an economic and political integration agreement prior to 1919 – formally called “Austria-Hungary”; the economic integration agreement was, in fact, a customs union. There was some, though quite incomplete, federal-level political integration as well. Political factors – including World War I, the evolution of the Soviet Union, and the creation of the “Iron Curtain” – led to the dissolution of this EIA and the lack of a new EIA until 2004, when Hungary joined the European Union (which Austria had independently joined in 1995).

Interestingly, the next most likely pair is Belgium/Luxembourg and the Netherlands. In our data set, Belgium and Luxembourg are treated as one “country,” as much aggregate economic data on the two countries are frequently combined. This is interesting because in the post-World War II period, the first EIA was actually the Belgium-Netherlands-Luxembourg customs union (Benelux); it was formed in 1948.

The next major EIA was the European Economic Community (EEC), formed in 1957 under the Treaty of Rome. The six members were the three Benelux countries, France, Germany, and Italy. Of the original ten EEC member pairs ($10 = (5 \times 4)/2$, considering Belgium-Luxembourg

as one country), eight of the ten are in the top 25 most-likely pairs to have an FTA, according to our model.

Another major EIA was the Central American Common Market (CACM), formed in 1960, including El Salvador, Guatemala, Honduras, and Nicaragua; later Costa Rica joined as a full member and Panama as an associate member. Of the original six CACM member pairs ($6 = (4 \times 3)/2$), five of the six are in the top 25 most-likely pairs.

In considering the growth of regionalism, dynamic economic factors become relatively more important, and also political factors become more important. The results above, while generated in a static context, are suggestive of economic factors that might explain the growth of regionalism. These factors might include changes in economic size, economic similarity, relative factor endowments, or trade costs. Since relative changes (across country pairs) in economic size, economic similarity, and relative factor endowments are likely to be very slow moving, one must look to factors that change more significantly from decade to decade to explain the growth of regionalism. Such economic factors may be multilateral trade costs. For instance, in the 1950s the creation of the EEC altered dramatically for the 1960s the multilateral prices facing all countries in the world, but most importantly those of countries trading most heavily with the original EEC countries, such as the United Kingdom and Denmark. By raising these latter countries' levels of multilateral resistance, this likely made the relative economic benefits of membership in the EEC much more beneficial and perhaps induced such countries to join the Community. Every time another group of countries joined, multilateral price levels of all countries in the world changed, inducing a change in every pair of countries' decision to form or not form an EIA (or join an existing one). The process being described is an economic one, and shares many of the aspects central to Bergsten's "competitive liberalization" idea and Baldwin's "domino theory."¹⁴

Of course, political factors are likely to have played a more prominent role in the actual evolution of formation of agreements.¹⁵ The theories of Grossman and Helpman are potentially useful to enrich an empirical investigation of the growth of regionalism. Gawande, Sanguinetti, and Bohara (2005) provide some early empirical evidence on a "test" of the Grossman-Helpman political-economy theory of free trade agreements' formations.

Some empirical work in political science already sheds some light on political factors influencing the formation of FTAs. Mansfield (1998), Mansfield, Milner and Rosendorff (2002), Mansfield and Reinhardt (2003), and Mansfield, Milner and Pevehouse (2004) have examined

14. Along the same lines, the change in the 1980s in U.S. policy from one wedded to "multilateral" liberalization under the GATT to one allowing regional EIAs likely reflects a "competitive" response to the enlargement of the European Community beginning in 1973. In fact, only 8 years after the EEC was born, the United States and Canada signed a free trade agreement for the automotive sector, and discussions were being pursued for a full U.S.-Canada free trade agreement.

15. For instance, many would argue of course that eliminating future wars between France and Germany and establishing a united trade agreement among Western European countries to confront the Soviet Union's military threat were important factors in establishing the original EEC.

empirically the growth of FTAs. With the exception of the time-series approach in Mansfield (1998), the other three studies all examined empirically factors which explained the change of a country pair's status from having no FTA to having an FTA. The authors found that country pairs with democratic regimes, fewer military disputes, more alliances, common colonial heritages, fewer third-party disputes, and fewer potential "veto players" (of an FTA formation by national governments) were more likely to change from "no-FTA" to "FTA." Moreover, the analyses controlled for several economic variables, such as GDP sizes, changes in GDPs, and levels of bilateral trade. Curiously, in most cases, the political level variables explained the change from no-FTA to FTA. However, without a more formal model, it is unclear why levels of variables should influence changes in FTA status. The discussion earlier suggests that changes in trade policy should be related to changes in relevant economic and political variables. Moreover, the discussion above concerning selection bias suggests that unobservables causing trade are likely also to be causing FTA formation, so that the inclusion of bilateral trade as a RHS variable in such regressions is likely to result in inconsistent coefficient estimates. Furthermore, these early analyses have little role for changing multilateral trade costs. Thus, while these studies provide a good start, much more work needs to be done.¹⁶

■ CONCLUSIONS

The emergence of a seeming "spaghetti bowl" of regional free trade agreements in the past decade and a half suggests that the world trading system is evolving in a disorderly, ineffective, and potentially harmful manner (in terms of consumer welfare). However, an alternative view of the "spaghetti bowl" is a market for regionalism.¹⁷ This paper addressed three issues in this regard. First, we discussed a systematic, static, long-run economic framework for explaining and predicting whether a pair of countries should have an FTA or not. Strong cross-section empirical evidence is consistent with the view that economic factors explain the presence or absence of FTAs. Second, we noted that much of the *ex post* empirical evidence of the effects of FTAs on trade flows suggests that FTAs have either minor positive effects, and in some cases negative effects, on trade volumes. We argued and summarized evidence that much of the apparent downward bias of such estimated treatment effects is likely attributable to selection bias. That is, unobserved variables causing trade also tend to explain the presence or absence of an FTA. Third, one of the most important issues that remains is understanding the growth of regionalism. While "theories" of domino behavior and competitive liberalization exist, none have been formulated in a systematic, formal manner. We argued that a prominent consideration seemingly omitted is a systematic understanding and quantifying of multilateral trade costs to better explain the path of regionalism over time.

S. L. B., J.H. B. & P. E.¹⁷

16. As addressed in the text, political factors are likely quite important in the "timing" of agreements.

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REFERENCES

- Anderson, J.E., 1979. A theoretical foundation for the gravity equation, *American Economic Review* 69 (1), March, 106-116.
- Anderson, J.E., van Wincoop, E., 2003. Gravity with gravitas: A solution to the border puzzle, *American Economic Review* 93 (1), March, 170-192.
- Anderson, J.E., van Wincoop, E., 2004. Trade costs, *Journal of Economic Literature* 62 (3), September, 691-751.
- Baier, S.L., Bergstrand, J.H., 2002. On the endogeneity of international trade flows and free trade agreements, University of Notre Dame, Working Paper, http://www.nd.edu/~jbergstr/working_papers.html.
- Baier, S.L., Bergstrand, J.H., 2004. Economic determinants of free trade agreements, *Journal of International Economics* 64 (1), October, 29-63.
- Baier, S.L., Bergstrand, J.H. 2006a. Bonus vetus OLS: A simple approach for addressing the "border puzzle" and other gravity-equation issues, University of Notre Dame, Working Paper, http://www.nd.edu/~jbergstr/working_papers.html.
- Baier, S.L., Bergstrand, J.H., 2006b. Do free trade agreements actually increase members' international trade?, *Journal of International Economics*, 71 (1), March, 72-95.
- Baldwin, R., 1995. A domino theory of regionalism, in *Expanding Membership for the European Union*, Baldwin, R., Haaparanta, P., Klander, J. (Eds), New York: Cambridge University Press.
- Bayoumi, T., Barry, E., 1997. Is regionalism simply a diversion? Evidence from the evolution of the EC and EFTA, in *Regionalism vs. Multilateral Arrangements*, Ito, T., Krueger, A.O. (Eds), Chicago: The University of Chicago Press.
- Bergsten, C.F., 1996. Competitive liberalization and global free trade: A vision for the early 21st century, Washington, DC: Institute for International Economics, Working Paper 96-15.
- Bergstrand, J.H., 1985. The gravity equation in international trade: Some microeconomic foundations and empirical evidence, *Review of Economics and Statistics* 67 (3), August, 474-481.
- Bergstrand, J.H., 1989. The generalized gravity equation, monopolistic competition, and the factor-proportions theory in international trade, *Review of Economics and Statistics* 71 (1), February, 143-153.
- Bergstrand, J.H., 1990. The Heckscher-Ohlin-Samuelson model, the Linder hypothesis, and the determinants of bilateral intra-industry trade, *Economic Journal* 100 (4), December, 1216-1229.
- Bhagwati, J., Panagariya, A., 1999. Preferential trading areas and multilateralism, in Bhagwati, J., Krishna, P., Panagariya, A. (Eds), *Trading Blocs*, Cambridge, MA: MIT Press.
- Blonigen, B.A., 2005. A review of the empirical literature on FDI determinants, Working Paper, <http://darkwing.uoregon.edu/~bruceb/workpap.html>.
- Carrere, C., 2006. Revisiting the effects of regional trading agreements on trade flows with proper specification of the gravity model, *European Economic Review* 50 (2), February, 223-247.
- Cheng, I-H., Wall, H.J., 2005. Controlling for heterogeneity in gravity models of trade, *Federal Reserve Bank of St. Louis Review* 87 (1), January-February, 49-64.

- Egger, P., 2000. A note on the proper econometric specification of the gravity equation, *Economics Letters* 66, 25-31.
- Egger, P., 2002. An econometric view on the estimation of gravity models and the calculation of trade potentials, *The World Economy* 25 (2), 297-312.
- Estevadeordal, A., 2006. The rise of regionalism, presentation at the conference, "The New Regionalism: Progress, Setbacks, and Challenges", Washington, DC: Inter-American Development Bank, February 9-10.
- Estevadeordal, A., Freund, C., Ornelas, E., 2005. Does regionalism help or hinder multilateralism? An empirical evaluation, paper presented at the conference, "The Sequencing of Regional Economic Integration: Issues in the Breadth and Depth of Economic Integration in the Americas," Kellogg Institute for International Studies, University of Notre Dame, Notre Dame, Indiana, September 9-10.
- Evenett, S., Keller, W., 2002. On theories explaining the success of the gravity equation, *Journal of Political Economy* 110 (2), April, 281-316.
- Feenstra, R., 2004. *Advanced International Trade: Theory and Evidence*, Princeton, NJ: Princeton University Press.
- Frankel, J.A., 1997. *Regional Trading Blocs*, Washington, DC.: Institute for International Economics.
- Frankel, J.A., Stein, E., Wei, S.-J., 1995. Trading blocs and the Americas: The natural, the unnatural, and the super-natural, *Journal of Development Economics* 47 (1), 61-95.
- Frankel, J.A., Stein, E., Wei, S.-J., 1996. Regional trading arrangements: Natural or supernatural?, *American Economic Review* 86 (2), May, 52-56.
- Gawande, K., Sanguinetti, P., Bohara, A.K., 2005. Exclusions for sale: Evidence on the Grossman-Helpman model of free trade agreements, Working Paper, Texas A&M University, October.
- Gilpin, R., 2000. *The Challenge of Global Capitalism*, Princeton, NJ: Princeton University Press.
- Grossman, G.M., Helpman, E., 1995b. The politics of free-trade agreements, *American Economic Review* 85 (4), September, 667-690.
- Grossman, G.M., Helpman, E., 1995a. Trade wars and trade talks, *Journal of Political Economy* 103 (4), August, 675-708.
- Grossman, G.M., Helpman, E., 1994a. Protection for sale, *American Economic Review* 84 (4), September, 833-850.
- Helpman, E., Krugman, P., 1985. *Market Structure and Foreign Trade*, Cambridge, MA: MIT Press.
- Krugman, P., 1991a. Is bilateralism bad?, In Helpman, E., Razin, A. (Eds), *International Trade and Trade Policy*, Cambridge, MA: MIT Press.
- Krugman, P., 1991b. The move toward free trade zones, in "Policy Implications of Trade and Currency Zones", proceedings of a Federal Reserve Bank of Kansas City symposium.
- Lawrence, R.Z., 1996. *Regionalism, Multilateralism, and Deeper Integration*, Washington, DC: The Brookings Institution.
- Mansfield, E.D., 1998. The proliferation of preferential trading arrangements, *Journal of Conflict Resolution* 42 (5), October, 523-543.

Mansfield, E.D., Milner, H.V., Pevehouse, J.C., 2005. Democracy, veto players, and the depth of regional integration, paper presented at the conference, "The Sequencing of Regional Economic Integration: Issues in the Breadth and Depth of Economic Integration in the Americas," Kellogg Institute for International Studies, University of Notre Dame, Notre Dame, Indiana, September 9-10.

Mansfield, E.D., Milner, H.V., Rosendorff, B.P., 2002. Why democracies cooperate more: Electoral control and international trade agreements, *International Organization* 56 (3), Summer, 477-513.

Mansfield, E.D., Reinhardt, E., 2003. Multilateral determinants of regionalism: The effects of GATT/WTO on the formation of preferential trading arrangements, *International Organization* 57 (3), Fall, 829-862.

Markusen, J.R., 2002. *Multinational Firms and the Theory of International Trade*, Cambridge, MA: MIT Press.

Moravcsik, A., 2005. Sequencing and path dependence in European integration, paper presented at the conference, "The Sequencing of Regional Economic Integration: Issues in the Breadth and Depth of Economic Integration in the Americas," Kellogg Institute for International Studies, University of Notre Dame, Notre Dame, Indiana, September 9-10.

Ornelas, E., 2005. Rent destruction and the political viability of free trade agreements, *Quarterly Journal of Economics* 120 (4), November, 1475-1506.

Tinbergen, J., 1962. *Shaping the World Economy*, New York: The Twentieth Century Fund.

Yi, S.-S., 2000. Free-trade areas and welfare: An equilibrium analysis, *Review of International Economics* 8 (2), May, 336-347.

