

Open Regionalism in a World of Continental Trade Blocs

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Continental trade blocs are emerging in many parts of the world almost in tandem. If trade blocs are required to satisfy the McMillan criterion of not lowering their trade volume with outside countries, they have to engage in a dramatic reduction of trade barriers against nonmember countries. That may not be politically feasible. On the other hand, in a world of simultaneous continental trade blocs, an open regionalism in which trade blocs undertake relatively modest external liberalization can usually produce Pareto improvement. [JEL F15]

AS REGIONAL trade agreements proliferate around the world, there is a renewed debate about their welfare implications. Recent studies (e.g., Krugman, 1991a; Bhagwati, 1993; and Frankel, Stein, and Wei, 1995) provide intellectual support for the concern that the current pattern of regionalization is likely to be welfare reducing.

There are three important features of the current wave of regionalization. First, almost every country belongs to at least one trade bloc.¹ Second, most

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¹ As of the end of 1993, among all member countries of the GATT, only Japan and Hong Kong did not belong to any bloc. China and Taiwan Province of China were two important non-GATT members that did not belong to any bloc. Even that has changed. In November 1994, the Asia-Pacific Economic Cooperation (APEC) Forum, of which all these economies were members, declared its intention to form a free trade area by no later than 2020.

trade blocs have been formed among neighboring countries, and many are along continental lines. Third, regional arrangements are put forward or accelerated in various parts of the world simultaneously. For example, in the Western Hemisphere, after the conclusion of the North American Free Trade Agreement (NAFTA), the United States in 1994 proposed to discuss a possible bloc that would cover most of the countries in the Americas. In Western Europe, the European Union and the European Free Trade Area (EFTA) in 1992 established the European Economic Area, thus formalizing their already highly integrated economic relation. In Asia and the Pacific, an upgraded APEC that encompasses most of the East Asian countries, North America, Australia, and New Zealand has declared its intention to achieve free trade. These features of the recent regionalization pattern have caught the attention of academics. Krugman (1991b) and Summers (1991), for example, noted that continental trade blocs are more likely to be welfare improving than otherwise.

In somewhat different contexts, two concepts have been proposed with the aim to mitigate the negative side of trade blocs on nonmember countries. The first is "open regionalism," and the second is the McMillan criterion.

The concept of open regionalism was formally introduced during the APEC discussion but a uniformly agreed-upon definition of the concept is lacking. In this paper, we define "open regionalism" to be external liberalization by trade blocs,² that is, the reduction in barriers on imports from nonmember countries that is undertaken when member countries liberalize the trade among themselves. The degree of liberalization on imports from nonmembers need not be as high as that for member countries.

The definition of open regionalism used here is closely related to the McMillan proposal. Kemp and Wan (1976) showed that trade blocs can always be constructed in a way that nonmembers' trade (and hence their welfare) are unaffected.³ McMillan (1993) proposed changing GATT XXIV to require that there be no decrease in trade volume between member and nonmember countries after the formation of a bloc. In essence, the McMillan proposal is a particular kind of open regionalism in which the

²Three other definitions are sometimes used. (1) *Open membership*: any outside country can choose to join the bloc as long as it satisfies the entry criteria. (2) *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. (3) *Selective liberalization and open benefits*: member countries can focus on liberalizing, on a most-favored nation basis, those sectors where they dominate world trade so that they need not offer preferential treatment to nonmember countries.

³Strictly speaking, Kemp and Wan's paper did not discuss the effect of trade blocs on the welfare of the nonmembers if their trade is below or above the pre-bloc level. See Winters (1995) for a discussion. Winters and Chang (1995) use price effects to examine the consequences of regional blocs for nonmember countries.

degree of external liberalization is such that the imports by members from nonmembers are the same as before the formation of blocs. The criterion is devised in the context of formation of a single bloc, as opposed to several continental blocs.

In this paper, we seek to understand the usefulness of these concepts as a guide to minimizing the possibility of welfare-reducing trade blocs, while facilitating welfare-improving ones. To clarify, the McMillan criterion was proposed to deal with the formation of a single bloc rather than simultaneous formation of multiple blocs. The question that we ask in this paper is, given the three features of the current wave of regionalism, how far is the optimal degree of open regionalism from the McMillan rule? Given that the model is very stylized, the lessons are meant to be suggestive rather than definitive.

I. An Illustrative Model

The simple model owes its basic structure to Krugman (1980 and 1991a), but is most directly based on Frankel, Stein, and Wei (1995), who incorporate transport costs into the Krugman model. For the purpose of examining “open regionalism” and the McMillan proposal, we allow for an explicit consideration of extra-bloc liberalization.

For several reasons, we will restrict our attention to continental trade blocs, that is, trade blocs formed among countries on the same continent. First, this simplifies the exposition. Second, it is broadly consistent with the observed features of the trade blocs. Third, this follows closely the paper by Frankel, Stein, and Wei (1995), to facilitate comparison. The Frankel-Stein-Wei paper did not allow for extra-bloc liberalization. In contrast, the main interest here is to uncover the minimum degree of open regionalism at which continental trade blocs can be welfare improving.

There are important limitations of the model. First, we ignore possible dynamic gains from the formation of regional trade blocs.⁴ Second, we ignore trade based on differences in endowment or technology.⁵ Third, we assume an exogenous number of trading blocs, leaving the process of the formation of the blocs itself unexplained. Fourth, we do not provide an explicit account of the political process in which external liberalization may take place.⁶

We explain the structure of the model in steps.

⁴ See Baldwin (1989 and 1992) for his pioneering work on the subject.

⁵ See Deardorff and Stern (1994) and Haveman (1992) for a discussion on some of the effects of inclusion of the endowment-based trade.

⁶ Frankel and Wei (1995) provide a survey of political economy arguments on the likelihood of trade blocs undertaking further liberalization. Wei and Frankel (1996) derive a model in which regional trade blocs make multilateral liberalization more likely.

Stylized “World Geography”

We consider a symmetric world in which all countries are linked through a hub and spoke transport system. There are altogether C continents with N countries on each. On any continent, all countries (spokes) are of the same distance from the center (hub) of the continent. Trade must go through the hub. To ship a good between countries on different continents, one has to travel from the exporting country to its continent’s hub, then to the hub of importing continent, before reaching the importing country.

Transportation cost is modeled by an “iceberg” assumption. With one unit of a good leaving the exporting country, $1-\alpha$ unit arrives in the importing country on the same continent, and $(1-\alpha)(1-\beta)$ unit arrives in the importing country on a different continent. “ α ” and “ β ” can be interpreted as intra- and inter-continental transport costs, respectively. Without loss of generality, we assume that each country produces one good.

Consumer’s Problem

A representative consumer has the following CES (constant elasticity of substitution) utility function:

$$\max \sum_i C_i^\theta,$$

where $0 < \theta < 1$ represents the degree of substitutability. The budget constraint is

$$P_h C_h + \sum_j P_{c,j} C_{c,j} + \sum_m P_{nc,m} C_{nc,m} = w + T,$$

where C_h , $C_{c,j}$, and $C_{nc,m}$ are consumption goods produced, respectively, in the home country, foreign country j on the same continent, and foreign country m on a different continent. P s are prices of those goods from the corresponding source countries; w is the consumer’s endowment; and T is the home country’s total tariff revenue, distributed to the consumer in a lump-sum fashion. The consumer takes the prices and tariff level as given in solving the problem. Without loss of generality, we can normalize w and P_h to equal one.

Producer’s Problem

Every producer is a monopolistic competitor. The production of any variety involves a fixed cost and constant marginal cost. In such a framework, every producer would choose to specialize in producing a different variety from other producers (Krugman, 1991a). This rationalizes our one-country-one-product assumption.

Government's Problem

Following Krugman (1991b) and Frankel, Stein, and Wei (1995), we abstract from modeling the process through which governments choose their tariff level. Instead, we assume that, before the formation of any regional trade blocs, a uniform tariff rate is imposed on all imports. We do not let the governments impose optimal tariffs for three reasons. First, real world tariffs (or any trade barriers) are rarely erected for optimal tariff reasons. Second, as Krugman (1991a) shows, optimal tariffs in such models are much too high relative to the actual levels of barriers we observe. Third, although optimal tariffs tend to rise as countries form regional trade blocs, GATT specifically forbids countries from raising tariffs subsequent to the establishment of a regional bloc.

Denote by t the initial level of tariff. Once a regional bloc is formed, within-bloc tariffs could be reduced to zero, while the extra-bloc tariffs may be kept as before. Instead of assuming this, we use somewhat more flexible expressions that allow for partial within-bloc and extra-bloc liberalization. The price of the goods from other countries on the same continent is

$$P_c = \frac{1 + (1 - k)t}{1 - \alpha},$$

where k indicates the extent of intra-bloc liberalization. The price of goods from countries on different continents is

$$P_{nc} = \frac{1 + (1 - kl)t}{(1 - \alpha)(1 - \beta)},$$

where l is the degree of extra-bloc liberalization relative to that of intra-bloc liberalization. For example, if the pre-bloc tariff level is 30 percent, $k = 1$, and $l = 0.5$, then, with the formation of the bloc, member countries reduce their internal tariffs to zero and cut the tariff against countries outside the bloc to 15 percent.

Equilibrium

In equilibrium, all countries are again symmetric, each producing the same amount. So a representative consumer in a representative home country imports the same amount from all other countries on the same continent and the same amount from countries on all other continents:

$$C_{c,j} = C_c \quad \text{for all } j, \quad \text{and} \quad C_{nc,m} = C_{nc} \quad \text{for all } m.$$

The total tariff revenue a representative country collects in this symmetric world is

$$T = (N-1)C_c \frac{(1-k)t}{1-\alpha} + (C-1)NC_{nc} \frac{(1-kl)t}{(1-\alpha)(1-\beta)}.$$

Incorporating this into a representative consumer's budget constraint and making use of the first-order conditions, we can solve for the consumption of home-made goods:

$$C_h = \frac{w}{1 + (N-1) \frac{P_c^{\frac{1}{\theta-1}}}{1-\alpha} + (C-1)N \frac{P_{nc}^{\frac{1}{\theta-1}}}{(1-\alpha)(1-\beta)}}.$$

The consumer's consumption of imported varieties can also be computed by using the first-order conditions. Since all individuals in this world are identical, the world welfare is proportional to the utility level of the representative consumer. This can be worked out as

$$\begin{aligned} U &= C_h^\theta + (N-1)C_c^\theta + (C-1)N C_{nc}^\theta \\ &= C_h^\theta \left[1 + (N-1)P_c^{\frac{\theta}{\theta-1}} + (C-1)N P_{nc}^{\frac{\theta}{\theta-1}} \right]. \end{aligned}$$

Imports from a nonmember country (i.e., on a different continent) are given by

$$V_{nc} = C_{nc} = C_h P_{nc}^{\frac{1}{\theta-1}}.$$

II. Desired Degree of Open Regionalism and the McMillan Criterion

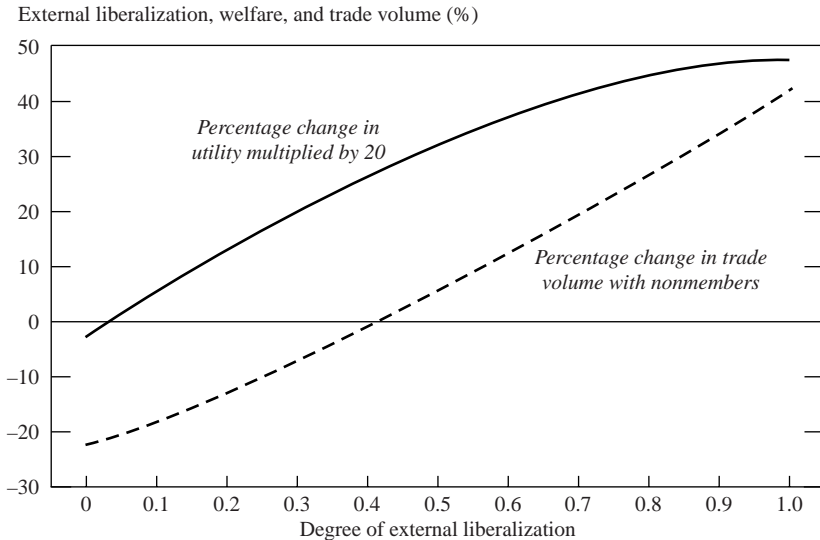
We now turn to compare the required degrees of external liberalization (given by parameter l) for welfare improvement and for the McMillan criterion. Unfortunately, we are not able to derive analytical solutions. So we turn to numerical simulations.

Benchmark

We would like to facilitate a comparison of the benchmark case with Frankel, Stein, and Wei (1995) by choosing the same parameters whenever

Figure 1. *Benchmark Case*

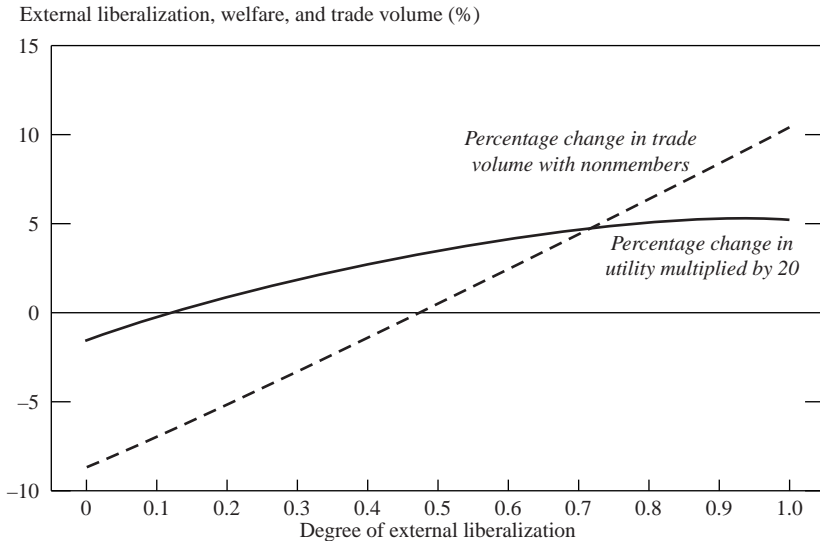
$k = 100\%$, $C = 3$, $N = 2$, $t = 30\%$, $\Theta = 0.75$, $\alpha = 0$, $\beta = 0.15$



possible. In particular, we consider a world of three equally distanced continents ($C = 3$) with two countries on each ($N = 2$). Before the formation of regional blocs, every country imposes a 30 percent tariff on imports from every other country on a most-favored nation (MFN) basis. The substitutability parameter in the CES utility function, Θ , is set at 0.75. The intercontinental transaction cost, β , is estimated at 15–16 percent in Frankel, Stein, and Wei (1995). Hence, we set $\beta = 0.15$. For simplicity, we set $\alpha = 0$. We will later examine sensitivity to different parameter values.

We compare trade volume (between members and nonmembers) and world welfare before and after the formation of continental trade blocs. Figure 1 plots the percentage changes of the two measures as a function of the degree of external liberalization, l . Three features are noteworthy. First, as the degree of external liberalization increases, both world welfare and trade volume with nonmembers rise monotonically. Second, the McMillan proposal of not reducing external trade volume by member countries is equivalent to requiring a relatively large degree of trade liberalization. In this stylized model, member countries of the blocs have to reduce their external barriers by 40 percent. Finally, and in contrast to the McMillan proposal, the degree of external liberalization required to ensure Pareto improvement is less than 4 percent. To put it differently,

Figure 2. *Sensitivity Analysis, $t = 10$ percent*
 $k = 100\%$, $C = 3$, $N = 2$, $t = 10\%$, $\Theta = 0.75$, $\alpha = 0$, $\beta = 0.15$



trade blocs can be welfare improving as long as imports from nonmember countries do not fall by more than 20 percent.⁷

The McMillan criterion is a sufficient condition for Pareto improvement, as McMillan originally remarked. In many countries and regions, the required 40 percent external liberalization may be considered too large, and thus unlikely to be implemented by the domestic political process. However, in a world of simultaneous continental trade blocs, this large degree of external liberalization is overkill from the welfare point of view. In fact, “open regionalism” with a modest 4 percent external liberalization can already bring about welfare improvement and is more likely to be achievable by the domestic political process.

Sensitivity Analysis

We now examine the robustness of the basic results with respect to the choice of the parameter values. We first let the tariff level prior to the formation of the blocs be 10 percent, closer to the average of the current OECD countries’ tariff levels. The result is shown in Figure 2. Our intuition

⁷This model is structured so that the difference between welfare-maintaining and import-volume-maintaining levels of external liberalization is accentuated. But the qualitative message is more general than the specific features of the model.

suggests that a lower initial trade barrier implies that trade blocs would lead to a smaller change in welfare. Apart from this, the qualitative features remain the same as Figure 1.

We also vary the utility parameter, Θ , in Figure 3. In the top panel, we lower Θ to 0.6, which means that different goods are now less substitutable than in the benchmark case. In this case, a 10 percent drop in trade volume with nonmembers can be consistent with welfare improvement. In the lower panel, we raise Θ to 0.85, making the goods highly substitutable. In this case, three continental blocs always improve world welfare even without any external liberalization. On the other hand, following the McMillan proposal, member countries would have to reduce their external barriers by 32 percent before they would be allowed to implement their regional bloc agreements.

So far, we have set the transport cost among countries on the same continent, α , at zero. In the real world, the weighted average of intra- and inter-continental transport and insurance costs is about 6 percent.⁸ As a robustness check, we set $\alpha = 3$ percent in Figure 4. In the top panel, we retain β at 15 percent; whereas in the lower panel, we lower β to 10 percent. In both cases, the basic results of the earlier figures carry through: only modest liberalization is needed to ensure a welfare increase from the continental blocs.

The benchmark case assumes a world of 3 continents with 2 countries on each continent. To be more realistic, we also examine the case of 3 continents with 15 countries on each continent. The result is shown in Figure 5. In this case, the critical values of external liberalization go up both for the trade volume and the welfare criteria. Intuitively, as there are more countries outside each bloc now (30 as opposed to 4), there is a greater scope for trade blocs to divert trade. It is worth emphasizing that, in the model, trade blocs can be welfare improving even when there is a 16 percent reduction in imports from nonmembers.

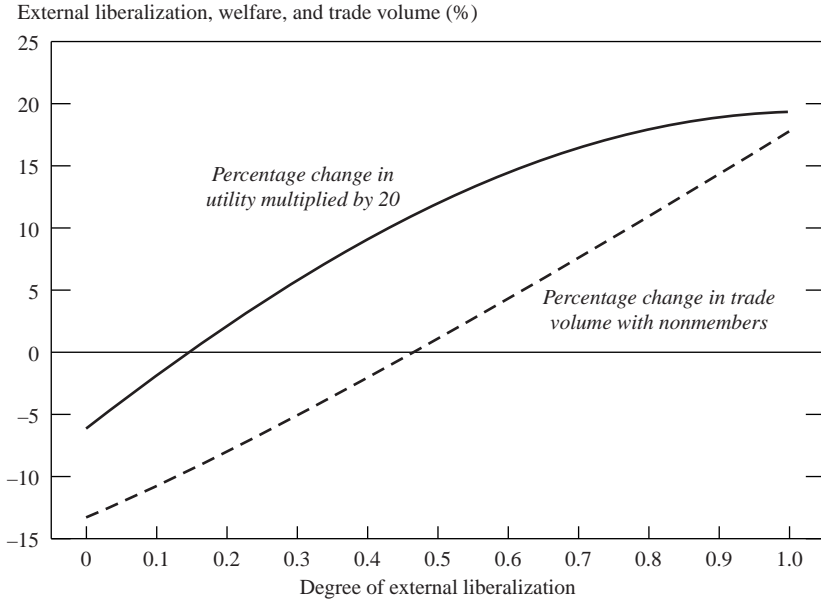
Partial Internal Liberalization

Up to now, whenever countries form a bloc, we have required them to eliminate completely barriers among themselves (i.e., setting $k = 1$). This is required by GATT Article XXIV. There are two reasons to consider less-than-complete within-bloc liberalization. First, from a normative viewpoint, less-than-complete internal liberalization is often better than complete liberalization (Meade, 1955; Frankel, Stein, and Wei, 1995). Second,

⁸ The ratios of c.i.f. and f.o.b. values of the world trade were 1.066 in 1980 and 1.053 in 1989 (Table 36, UNCTAD, 1991).

Figure 3. *Sensitivity Analysis, Varying θ*

$k = 100\%$, $C = 3$, $N = 2$, $t = 30\%$, $\Theta = 0.6$, $\alpha = 0$, $\beta = 0.15$



$k = 100\%$, $C = 3$, $N = 2$, $t = 30\%$, $\Theta = 0.85$, $\alpha = 0$, $\beta = 0.15$

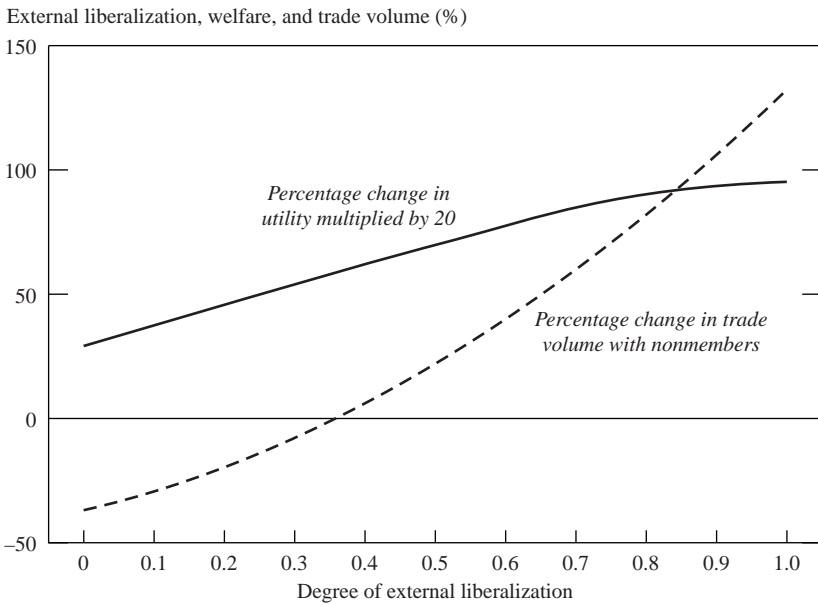
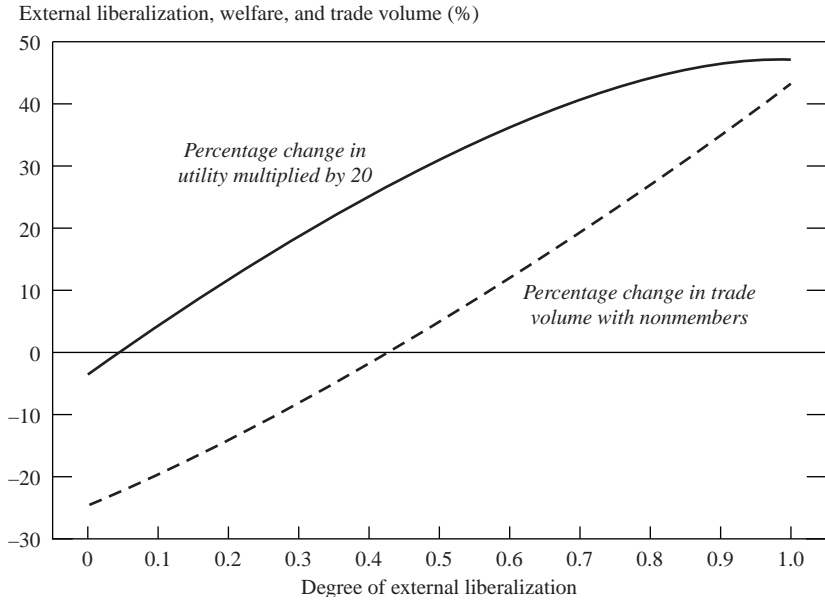


Figure 4. *Sensitivity Analysis, Varying Transport Costs*

$k = 100\%$, $C = 3$, $N = 2$, $t = 30\%$, $\Theta = 0.75$, $\alpha = 0.03$, $\beta = 0.15$



$k = 100\%$, $C = 3$, $N = 2$, $t = 30\%$, $\Theta = 0.75$, $\alpha = 0.03$, $\beta = 0.10$

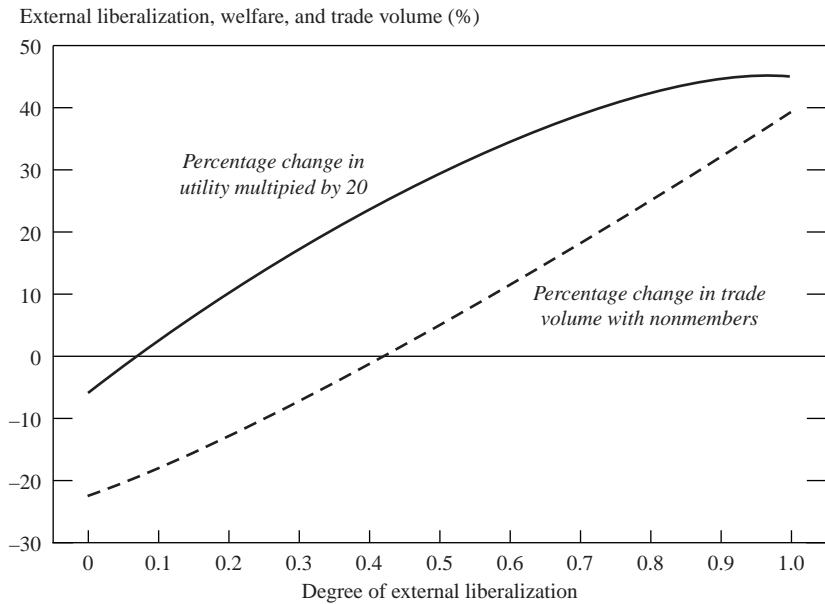


Figure 5. *Sensitivity Analysis, Varying Number of Countries*

$k = 100\%$, $C = 3$, $N = 15$, $t = 30\%$, $\Theta = 0.75$, $\alpha = 0$, $\beta = 0.15$

External liberalization, welfare, and trade volume (%)

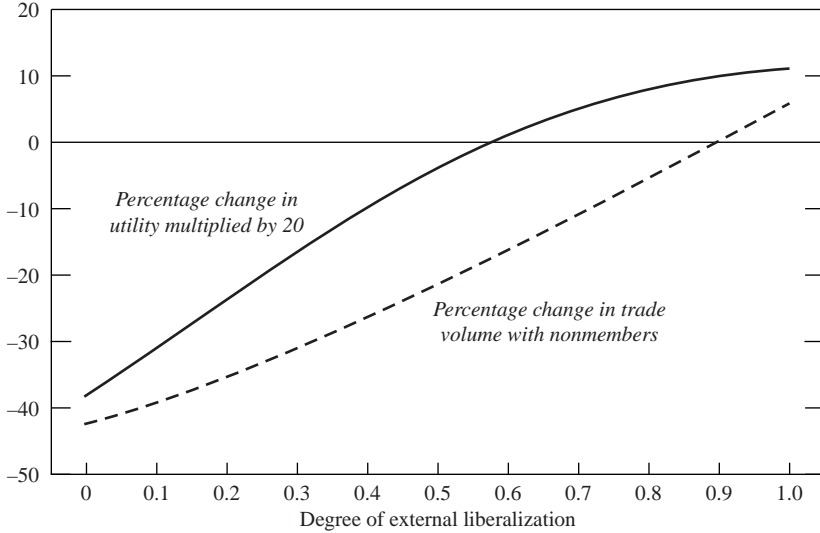
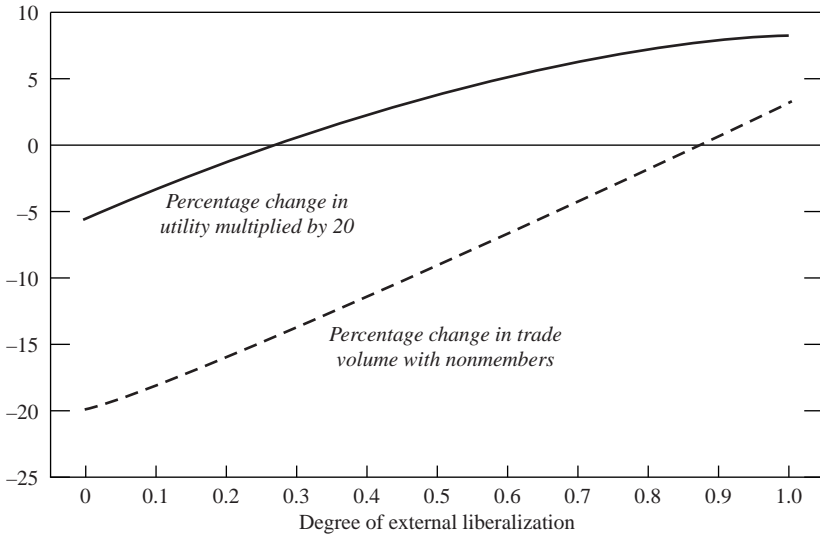


Figure 6. *The Case of Partial Internal Liberalization*

External liberalization, welfare, and trade volume (%)



many existing blocs in fact implement varying degrees of internal liberalization across sectors. For example, the average effective level of liberalization within the European Community in 1990 is estimated to be about 50–60 percent (Frankel, Stein, and Wei, 1995).

In Figure 6, we continue to consider a world of 3 continents with 15 countries on each. This time, we set within-bloc liberalization at 50 percent. The central message again is that certain levels of trade diversion can be tolerated. As long as imports from nonmembers do not fall by more than 15 percent, continental trade blocs are welfare improving.

III. Concluding Remarks

The recent wave of trade regionalization has spread to almost all continents in the world. There are warnings that trade regionalization may decrease world welfare. The notion of “open regionalism” and a proposal by McMillan to modify GATT Article XXIV aim to minimize the possibility of welfare-reducing trade blocs. In this paper, we show that the McMillan proposal may unnecessarily prevent the emergence of welfare-improving blocs (in a world of simultaneous formation of blocs). In the model, the exact threshold of external liberalization depends on the choice of parameters. But as a rough rule, as long as trade volume with nonmembers does not fall below 14–15 percent, trade blocs are likely to be welfare improving. We should note that, while an “open regionalism” with a modest external liberalization can be welfare improving, multilateral trade liberalization can be even more so.

Since the paper utilizes a very stylized model and draws its inferences based on simulations, the conclusions should naturally be treated only as suggestive. We think that two extensions will be particularly fruitful. First, it is important to check if the main conclusion carries over to a broader class of trade bloc models. Second, it would be interesting to examine empirically the degree to which trade blocs engage in external liberalization in practice.

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