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Open Regionalism in a World of Continental Trade Blocs

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Abstract

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 trade volume with outside countries, they have to engage in a dramatic reduction of trade barriers against non-member 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.

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SUMMARY

Like a wild fire, regional trade blocs is quickly spreading around the world. There are three important features of the current wave of regionalization. First, almost every country belongs to at least one trade bloc. Second, most trade blocs have been formed among neighboring countries. Many are along continental lines. Third, regional arrangements are put forward or accelerated in various parts of the world simultaneously.

Recent studies (e.g., Krugman 1991a, Bhagwati, 1993, and Frankel, Stein and Wei, 1995) have provided intellectual support for the worry that regional blocs may be welfare-reducing. On the other hand, as noted by Krugman (1991b) and Summers (1991), trade blocs formed along continental lines offer more hope to be welfare-improving. These studies focus on the effect on the total world welfare of trade blocs.

Concerned with the effect on the welfare of left-out countries, McMillan (1993) proposed to change GATT Article XXIV to require that there be no decrease in trade volume between member and non-member countries after the formation of a bloc. A difficulty with the McMillan criterion is that it requires member countries to engage in a dramatic reduction of trade barriers on imports from non-member countries. This may not be politically feasible.

Fortunately, the McMillan criterion is unnecessarily too stringent in the case of simultaneous continental blocs. This paper analyze a model that explicitly takes into account the three features of the current wave of regionalization. It shows that, in a world of continental blocs, an open regionalism in which trade blocs undertake modest external liberalization can usually produce Pareto improvement. For example, in the simulation of the benchmark case, a 40 percent reduction in external barriers is required to meet the McMillan criterion. But a 4 percent reduction in barriers, even if it is associated with a large fall in trade volume between member and non-member countries, is sufficient to generate welfare improvement. The same qualitative proposition is robust to various perturbations of the benchmark case.

I. INTRODUCTION

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 worry 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 trade blocs have been formed among neighboring countries. 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 NAFTA, the United States in 1994 proposed to discuss a possible bloc that will 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 non-member 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. A uniformly agreed-upon definition is lacking. In this paper, we define "open regionalism" to be external liberalization by trade blocs[2]. It is the reduction in barriers on imports from non-member countries that is undertaken when member countries liberalize the trade among

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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 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.

[2] Three 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) Non-prohibition 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 non-member countries. (3) Selective liberalization and open benefits Member countries can focus on liberalizing, on an MFN basis, those sectors where they dominate world trade so that they do not need to have preferential treatment against non-member countries.

themselves. The degree of liberalization on imports from non-members 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 non-members' 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 non-member countries after the formation of a bloc. In essence, the McMillan proposal is a particular kind of open regionalism in which the degree of external liberalization is such that the imports by members from non-members 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 make it clear, 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.

We organize the paper in a straightforward way. Section 2 lays out the structure of a simple model. Section 3 reports various simulation exercise investigating conditions needed to ensure welfare-improving trade blocs and comparing them to the McMillan criterion. Section 4 provides some concluding remarks.

II. 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), which 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, i.e., 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) in order to facilitate a 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

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[3] Strictly speaking, Kemp and Wan's paper did not discuss the effect of trade blocs on the welfare of the non-members if their trade is below or above the pre-bloc level. See Winters (1995) for a discussion.

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 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.

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 good leaving the exporting country, $1-\alpha$ unit arrives in the importing country on the same continent, and $(1-\alpha)(1-b)$ unit arrives in the importing country on a different continent. "α" and "b" 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 utility function:

$$\max \ \sum_i C_i^{\theta}$$

where $0<\theta<1$ represents the degree of substitutability. Her 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 her endowment. 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 her problem. Without loss of generality, we can normalize w and P_h to be one.

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[4] See Baldwin (1987 and 1992) for his pioneering work on the subject.

[5] See Deardorff and Stern (1992) 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.

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

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

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

$$P_{nc} = \frac{1+(1-kl)t}{(1-a)(1-b)}$$

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%, 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:

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

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

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

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

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

Her consumption of imported varieties can be computed by using her 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

$$U = C_h^{\theta} + (N-1)C_c^{\theta} + (C-1)N\, C_{nc}^{\theta}$$

$$= C_h^{\theta}\ [1+(N-1)P_c^{\frac{\theta}{\theta-1}} + (C-1)N\, P_{nc}^{\frac{\theta}{\theta-1}}]$$

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

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

III. 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 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 imports from every other country on an MFN basis. The substitutability parameter in the CES utility function, Θ, is set at 0.75. The inter-continental transaction cost, b, is estimated at 15 percent-16 percent in Frankel, Stein and Wei (1995). Hence, we set b=0.15. For simplicity, we set a=0. We will later examine sensitivity to different parameter values.

We compare trade volume (between members and non-members) 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 non-members rise monotonically. Second, the McMillan proposal of not reducing external trade volume by member countries is equivalent to require 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. Lastly 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, trade blocs can be welfare-improving as long as imports from non-member countries do not fall by more than twenty percent[7].

The McMillan criterion is a sufficient condition for Pareto improvement, as the author 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, an "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 in Figure 2. Our intuition 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 non-members 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, one would have to require member countries to reduce their external barriers by 32 percent before they are 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 α=3 percent in Figure 4. In the top panel, we

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[7] This model is structured in such a way 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.

[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 from Review of Maritime Transport 1990. UNCTAD, U.N.: New York, 1991.

retain b at 15 percent; whereas in the lower panel, we lower b 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 three continents with two countries on each continent. To be more realistic, we also examine the case of three continents with fifteen countries on each continent. The result is graphed 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 non-members.

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 24. 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, 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 around fifty to sixty percent (Frankel, Stein and Wei, 1995).

In Figure 6, we continue to consider a world of three continents with fifteen 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 non-members do not fall by more than 15 percent, continental trade blocs are welfare-improving.

IV. 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 non-members does not fall below 14-15 percent, trade blocs are likely to be welfare-improving.

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 in practice engage in external liberalization.

Figure 1: Benchmark Case

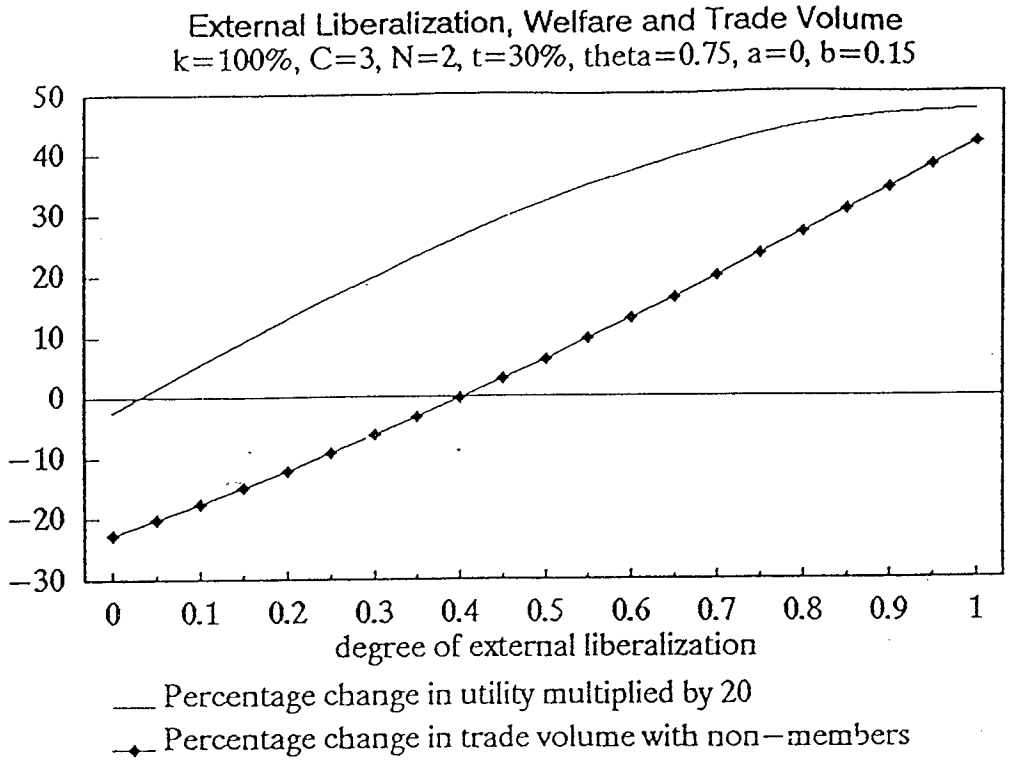


Figure 2: Sensitivity Analysis, t=10%

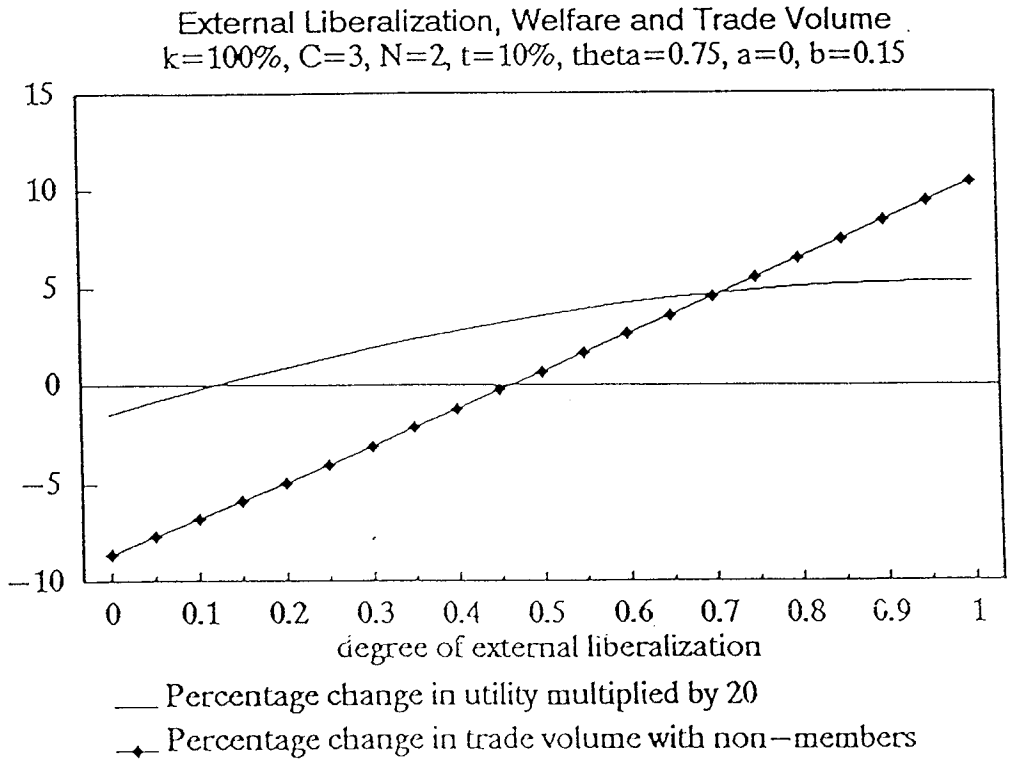
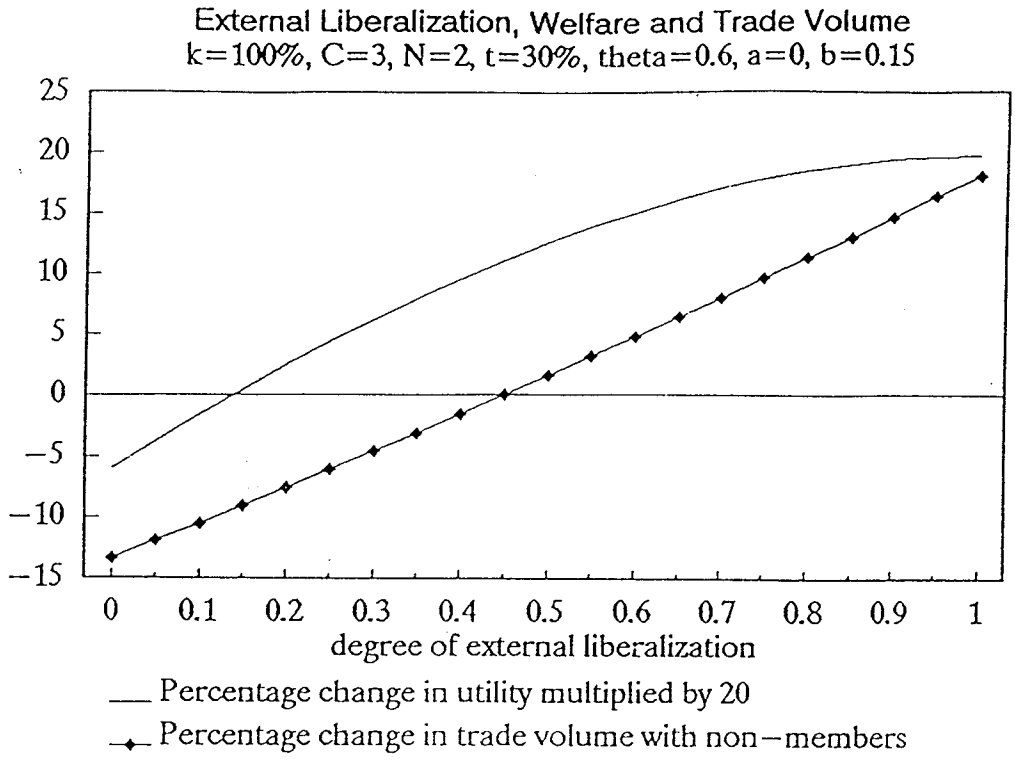


Figure 3: Sensitivity Analysis, Varying θ



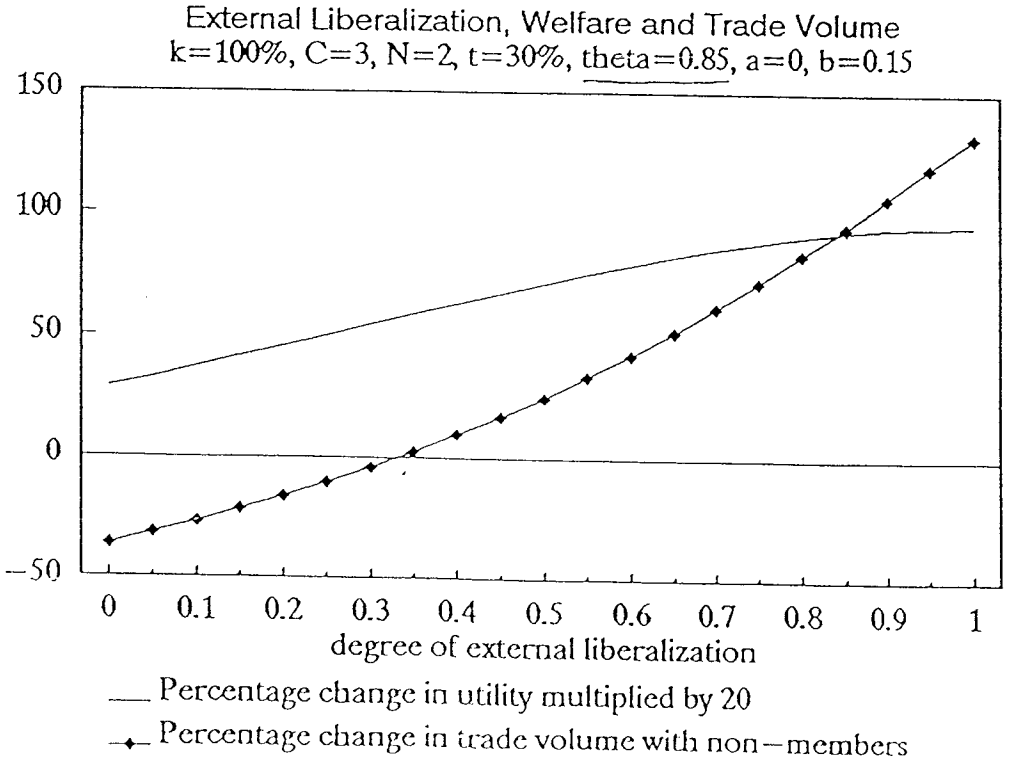
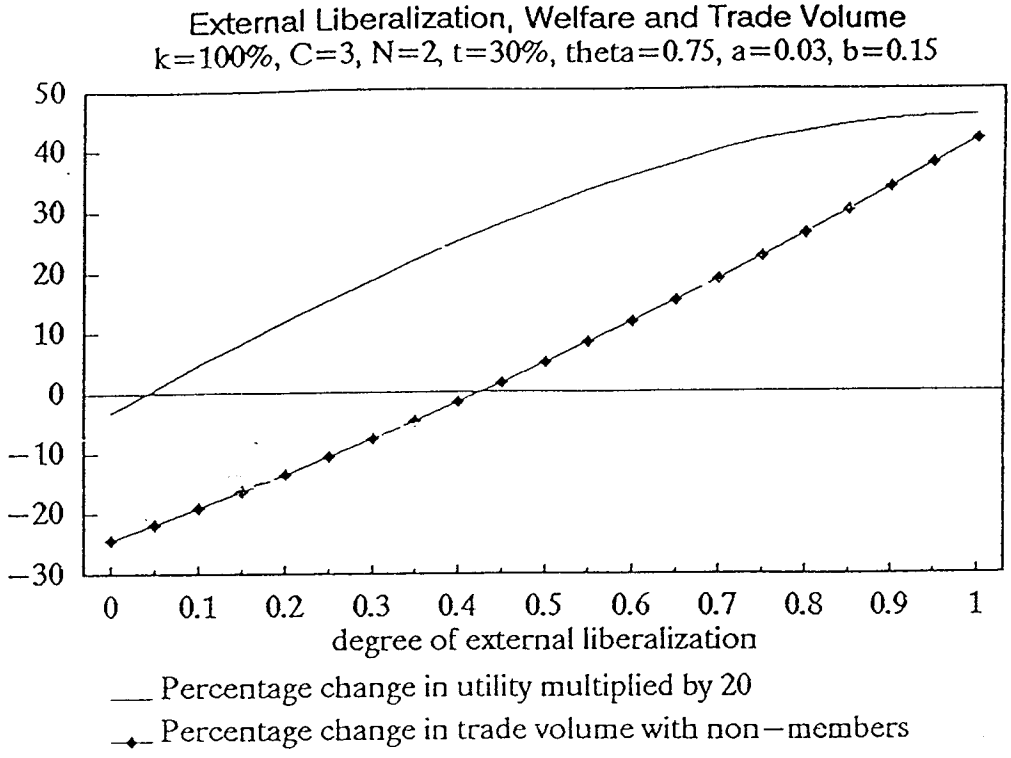


Figure 4: Sensitivity Analysis, Varying Transport Costs



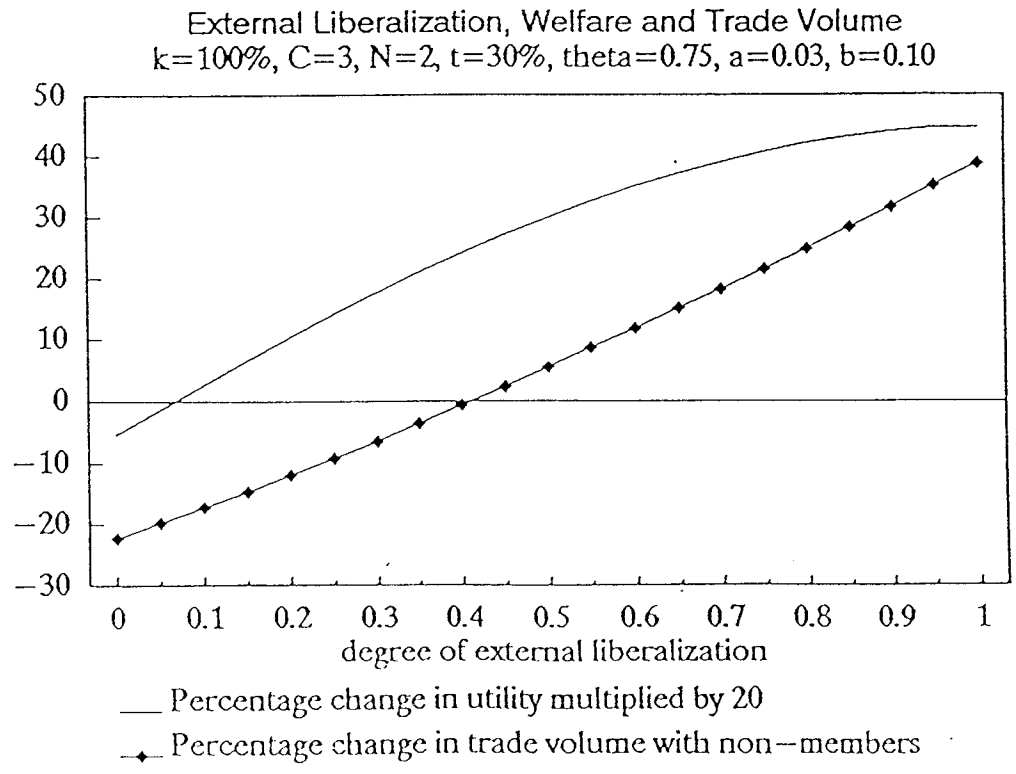


Figure 5: Sensitivity Analysis, Varying Number of Countries

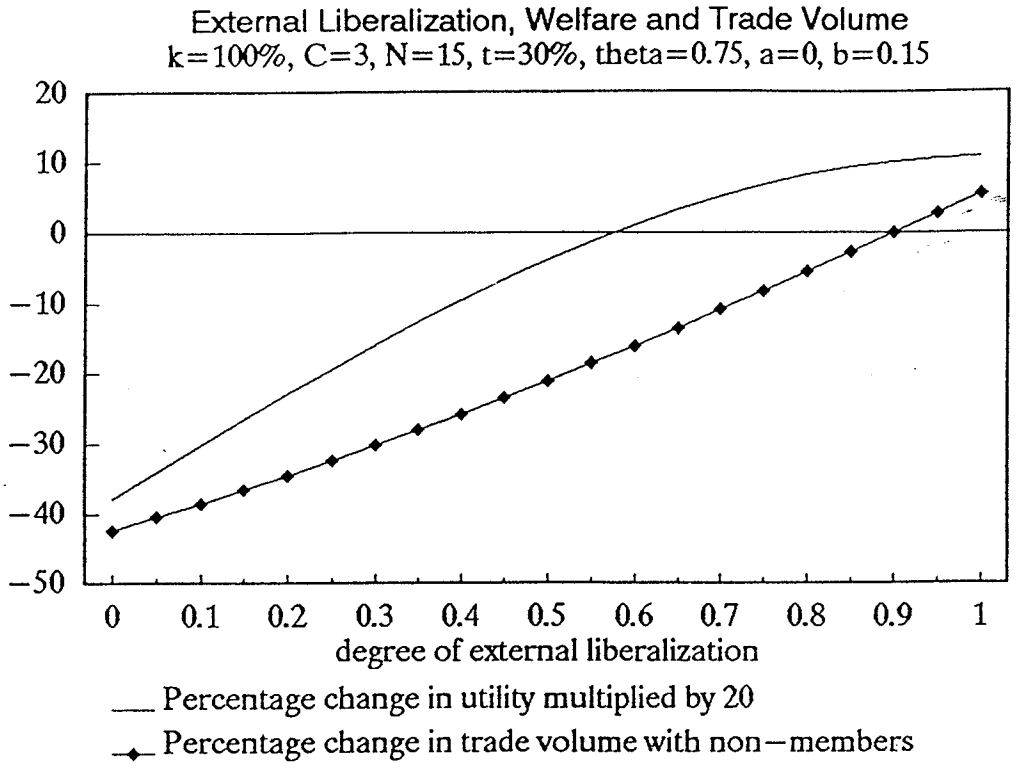
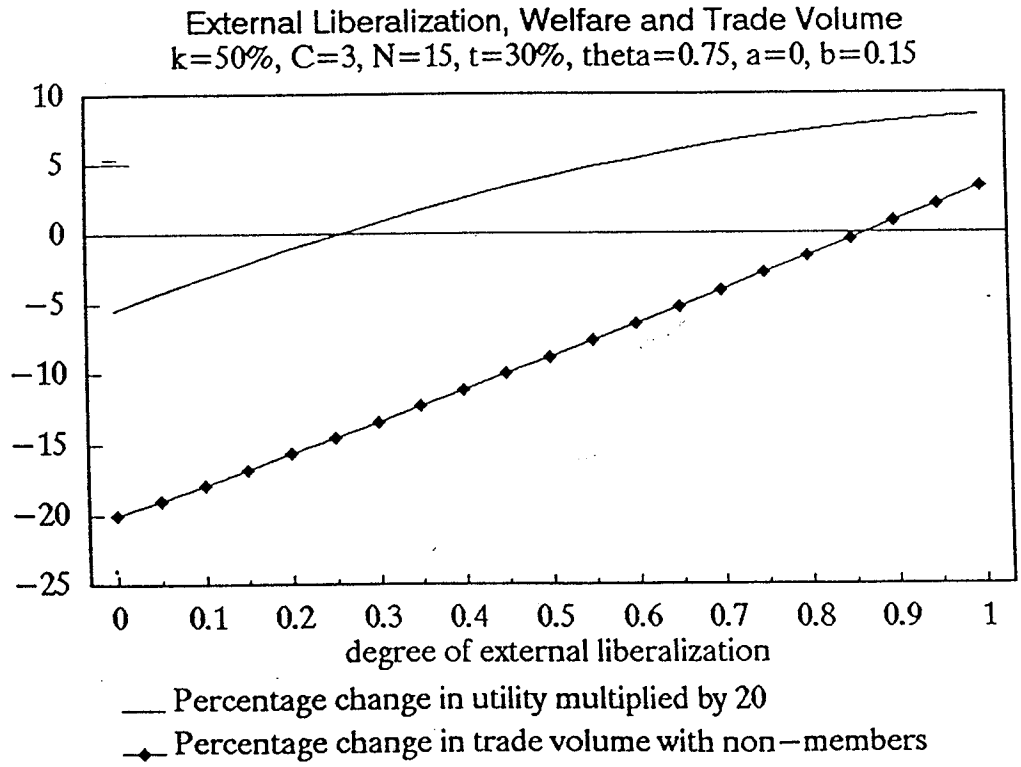


Figure 6: The Case of Partial Internal Liberalization



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