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The Welfare Effects of Trade-Diverting Customs Unions: Some Missing Elements

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CUSTOMS UNIONS: SOME MISSING ELEMENTS

by

R. J. Wonnacott
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SOME MISSING ELEMENTS

Customs union analysis since Viner (1950) has tended to centre on an examination of the relative importance of trade creation and trade diversion. Initially it was assumed that creation involved a benefit and diversion a loss—but both of these propositions now yield to exceptions. On the one hand, while creation may be beneficial for the union as a whole, it need not necessarily be for each of its members; for example, it will not be for a country that, by joining a union, gives up an optimal tariff against a partner. Nor does diversion necessarily involve a loss: a country diverting trade will realize a net benefit if the cost of purchasing the good from a more expensive source (Viner, 1950) is more than offset by increased efficiency in consumption (Lipsey, 1960) and production (Bhagwati, 1971).

The purpose of this paper is to integrate with these effects a number of other implications of trade diversion; since these (almost without exception)

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1 The author wishes to thank (without implication) Richard Caves, Richard Lipsey, James Melvin, Egon Sohmen, Paul Wonnacott, and especially Clark Leith and Michael Michaely for helpful comments they have provided at one stage or another in the development of this paper. Some of the material was developed in the course of writing a research report for the Economic Council of Canada.

2 Readers are immediately warned of a semantic curse that has fallen on CU analysis: various definitions of creation and diversion are used by various authors. Definitions in this paper follow those of, for example, Bhagwati (1971): trade is diverted when import purchases are switched from a third country supplier to a union supplier, and the effects of diversion are defined as all the various consequences that occur (both favourable and unfavourable). Trade is created when trade with partner is increased, but no switching from third countries occurs. Two of the other competing definitions of diversion and creation in the literature are compared in Appendix A, where it is shown that the controversy that has arisen as a consequence is strictly semantic. Consequently, any set of definitions may be used; at the same time the reasons for preferring the set used in this paper—-at least to deal with the questions addressed here—are also set out in that Appendix.
imply possible benefits for the union, the conclusion will be that it is even more likely than previous authors have implied that a diverting CU may be beneficial to each partner. In fact, an even stronger conclusion is reached: under certain circumstances, even a "traditional CU loser" (i.e., a participant that only diverts trade) may realize a welfare benefit greater than that provided by non-discriminatory elimination of its own tariff; in extreme circumstances, this benefit may even approach that provided by free trade (i.e., reciprocal elimination of all world tariffs).

It will be argued that the key reason that possible gains of this order have not been recognized is because the traditional CU analysis using transformation curve geometry has thrown great light on the effects of removing the home country's tariff, but not on the potential benefits from eliminating partner's tariff. This has tended to limit the application of this analysis to two unlikely situations: (1) partner initially has no tariff; or, (2) partner does not reciprocally eliminate its tariff—in which case this is not CU theory at all, but rather the theory of the unilateral granting of preferential treatment, not to a "partner" so much as a "beneficiary." This omission of partner's tariff has been combined with inadequate emphasis on the fact that diversion is a two-way street: whenever there is a "divertor" purchasing imports from partner rather than a third country source, there must also be a "divertee", i.e., a union partner that finds its demand and sales increase precisely as a consequence. While diversion will provide the divertor with a mixture of cost and benefits (with no a priori judgment on the net effects being possible, as many authors have pointed out), it will be beneficial in several ways for the divertee. Since in forming a CU, a country becomes a divertor in some
products and a divertee in others, it is no surprise that a country may view CU participation in a more favourable economic light than sometimes supposed.

To avoid unnecessary complications, it is assumed that there are initially only three countries, each applying its own MFN tariff against the others; two of these countries (A and B) form a CU, with the other country C excluded; and this CU is strictly diverting, i.e., it involves no trade creation.\(^1\) Accordingly, it is assumed that the only trade is initially between A and the outsider C, and after the union is between the divertor A and B. Thus we abstract from trade between B and C,\(^2\) although the possibility of this will be taken into some very limited account later.

Finally, in line with much of the previous literature, it will be assumed (unless specified otherwise) that formation of the union would have no effect on members' terms of trade with C. (Our only reason for occasionally relaxing this assumption will be to illustrate the effect of the union on the outsider C; none of our basic conclusions of the effects on participants depend on an improvement in terms of trade with C—although such a possibility of course would provide an additional benefit.) On the other hand, in a departure from much of the previous literature, it will be assumed (unless specified otherwise) that terms of trade within the union are influenced by both members, rather than solely determined by one.

\(^1\)As I define it (see Appendix A).

\(^2\)Relaxing this assumption would appear to be one of the more fruitful ways of extending this analysis.
1. Cost and Benefits to the Divertor

A is the country diverting trade, and its situation is shown in Figure 1 with ZZ' representing A's initial trade vector with outsider C. In this diagram small letters represent slopes; thus m is A's initial tariff-ridden domestic terms of trade. VV' represents A's trade with partner B after the CU is formed; as a consequence, A's welfare increases from U₁ to U₄. (Community indifference curves are used in the early stages of this analysis for the sake of clarity; however all our conclusions can be shown to hold even if the analysis is based on the assumptions of a Samuelsonian revealed preference model.¹)

This welfare increase from U₁ to U₄ can be broken down into three components. (1) A terms of trade loss on the diversion of initial imports PQ; this follows because these imports are no longer purchased from outsider C at terms of trade c, but rather are purchased from partner at less favourable terms of trade b. This loss is represented by Z'R, the additional exports A must provide to acquire these imports; in other words, A's welfare is lowered from U₁ to U₂. (2) The consumption gain emphasized by Lipsey: when A's consumers are allowed to purchase at the union terms of trade b, they will increase their purchases of the import beyond R to S, thus increasing welfare from U₂ to U₃. (3) The increase in production efficiency as A's producers specialize, moving from Z to V (in response to the tariff-free union terms of trade b that they now face, rather than the original tariff-ridden terms of trade m). This increased production

¹Michaely (1975) uses the revealed preference approach to analyze exactly the same three essential effects that are analyzed here using indifference curves. The equivalence of the two approaches (along with a comparison of the different definitions used) is set out in Appendix Table A-1.
Figure 1
Benefits and Costs of a CU for the Divertor A

Good X (A's export)

Good Y (A's import)
efficiency (noted previously by Melvin (1969) and Bhagwati (1971)) increases A's welfare from $U_3$ to $U_4$.

Thus formation of the CU for the divertor is seen to involve one negative and two positive effects. While in Figure 1 the two positive effects dominate and the divertor enjoys a net welfare increase, this need not always be the case. In fact the divertor will face a net welfare loss if the terms of trade with partner are so inferior that the terms of trade loss dominates the two benefits, i.e., if $VV'$ falls so steeply that it is tangent to a lower indifference curve than $U_1$.\(^1\) Also note the apparent conclusion (which will be contested later) that regardless of how beneficial a CU may be, it will be less beneficial for the divertor than unilateral free trade (UFT), which would allow A to trade again with the outsider C at terms of trade $c'$,\(^2\) thus reaching an even higher welfare level at $J'$.

2. **Benefits to the Divertee**

The above effects are well known, since traditional CU analysis has concentrated on the divertor. Additional welfare effects, however, are immediately encountered when attention is turned to the divertee. Consider again $VV'$, the vector of CU trade between the two partners--trade that initially did not take place. Looked at from B's point of view, this same trade vector is reproduced in Figure 2 as $VV'$; (whether $VV'$ is tangent to B's transformation curve, or is not--as shown in Figure 2--does not affect the

\(^1\)Note that Michael's (1965) conclusion (that the divertor will incur a net welfare loss if $VV'$ intersects $ZZ'$) is almost correct, but not precisely so.

\(^2\)Although it is typically assumed that $c'$ will be identical to $c$ (i.e., that terms of trade with C are fixed), we shall leave open the possibility that $c'$ may be different.
argument immediately below, hence this issue is passed over until Section 4). B's move from an autarky pre-CU position like D to V increases its welfare and this increase can be decomposed into a gain resulting from increased production efficiency, and another based on increased consumption efficiency. (This decomposition would of course be similar to that used in the previous section to identifying the production and consumption gains for A.)

Our conclusion so far that the divertee unambiguously benefits is well recognized by officials negotiating CU's or free trade agreements, who recognize one of their major objectives is precisely this acquisition of preferences in partner's market. The benefit that follows is important enough that it is no surprise that it has been recognized elsewhere in the literature: for example, in Caves (1974), Kemp (1962), and Johnson (1962).¹ What is surprising is that it has not surfaced in the traditional analysis of CU's using the transformation curve geometry employed in this paper.² (It is true that this approach can be defended by noting the assumption commonly made that the divertee determines the CU terms of trade, in which case its benefits in Figure 2 disappear; but it will be shown in Section 4 below that if this is a reasonable assumption an even more serious omission will be encountered.)

¹I have recently discovered that this issue has also been discussed by M. Michaeley in an unpublished book manuscript on customs unions, and by M. Corden in an unpublished paper.

²Authors who use offer curves to analyze CU's (e.g., Caves, 1974) typically do not miss this important effect. That geometry, however, is useful in answering a different set of questions than those addressed in this paper; in particular, it does not allow the same sort of decomposition of the effect of a CU into the various subcomponents considered in this paper, including those subcomponents (cited in section 1) that have traditionally been at the centre of CU controversy.
A useful view of the free preferential access into partner's market vis-a-vis third countries that the divertee enjoys is that it is a special and particularly attractive form of protection. Even the simple, partial equilibrium geometry\(^1\) of Figure 3 can illustrate this point; in that diagram it will be shown how a country like B receiving such protection in partner's market will enjoy a net welfare benefit, rather than the net welfare cost it incurs by protecting its own market.

With domestic supply of \(s_B\) and completely elastic supply from third country C at price \(P_1\), the free trade equilibrium in country B would be at F, with imports of TF from C. B's imposition of its own tariff (at least equal\(^2\) to \(P_1P_2\)) results in a no-import equilibrium at E. Following the familiar

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**Figure 3**

Net Welfare Benefit to the Divertee B Resulting from Protection Provided by Partner (3), Compared to Net Welfare Loss from Own Protection (4).

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\(^1\) Using compensated demand and supply curves.

\(^2\) The conclusion remains the same if A's tariff is less than \(P_1P_2\); this is the case discussed by Johnson (1960).
analysis of Johnson (1960), the net cost to B of its own protection is area 4; (i.e., consumer surplus is reduced by \(1 + 4\), while producer surplus is increased by only 1). Thus own protection involves a net cost because it restricts supply.\(^1\)

Compare this with protection provided by partner that follows formation of the CU. Recall that A had previously been importing (subject to its tariff of, say \(P_{A}\)) from the least-cost source C; when A now provides B with protection (in the form of preferential tariff-free entry into its market), the demand for B's good is now increased from \(d_B\) to \(d_{B+A}\) (i.e., B's domestic demand \(d_B\) augmented by A's demand through the relevant range of prices below \(P_{A}\)). The new equilibrium for B is now at Q, with A diverting trade by importing VQ from B. The net gain to B of A's protection on B's behalf is area 3; (i.e., B's consumer surplus is reduced by 2, while its producer surplus is increased by \(2 + 3\)). Thus partner's protection involves a net benefit, because it increases demand.

Much is made of political considerations in forming a CU, and this simple example shows several reasons why. Either form of protection is attractive from the political point of view of increasing employment--own protection, by increasing output in the move from T to E; protection provided by partner, by increasing output in the move from E to Q. But in terms of economic welfare they differ: whereas own protection involves welfare loss 4, partner's protection involves welfare gain 3. Thus one key to understanding the formation of CU's is seen to be that this is a policy on which politicians and economists may be able to agree: politicians operating in a world of less than full employment and preoccupied with this problem may

\(^1\)From RTs\(_C\) to RTs\(_B\).
view free access to partner's market as a means of increasing employment; at the same time, economists who typically in CU analysis assume long-run full employment, may view free access to partner's market as a means of increasing welfare. In any case, regardless of whether full employment is assumed in the long run or not, formation of a CU may be viewed as a means of acquiring long-run benefits of trade liberalization while operating under the umbrella of partner's protection which minimizes short-run dislocation costs; specifically, the short-term unemployment and reallocation of resources necessary to achieve gains from trade creation occur in a period in which there is increased total demand for labour and other resources within the union because partners are exchanging preferences \(^1\) (i.e., protecting each other in their own domestic markets).

In short, the main point of joining a CU may not be to become a divertor--the role heavily analysed in the literature--but rather to become a divertee. To cite one example: a major French motivation in the formation of the EEC was the acquisition of agricultural markets in Germany.

3. Costs to the Excluded Country

These are easily illustrated by returning to Figure 1. Just as \(VV'\) represents the new trade \(B\) has captured as a result of the CU, \(ZZ'\) represents the trade outsider \(C\) has lost. Unless this original trade took place at terms of trade exclusively determined by \(C\), the result will be a loss for \(C\): in moving from a situation in which it was enjoying gains from trade back to an autarky equilibrium on its own transformation curve, \(C\) incurs a welfare loss which can similarly be decomposed into production and consumption effects.

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\(^1\) As Johnson (1965) has pointed out, in a world of escalated tariffs this exchange of preferences also results in a long-run shift in employment within the CU towards manufacturing—and participants may view this as a politically desirable objective.
4. Other Benefits to the Divertor

In joining a CU, a country typically becomes a divertor in some goods, and a divertee in others. Accordingly, CU participation offers the prospect of all the benefits discussed in sections 1 and 2 above, but only one cost: the terms of trade loss incurred in its role as divertor. But reconsideration of the divertor's situation in Figure 1 indicates that its terms of trade need not necessarily deteriorate on forming the CU, but may in fact improve. The reason that deterioration has traditionally been assumed is that account has typically been taken only of the divertor's removal of its own tariff without regard to the favourable effects of partner's preferential tariff elimination.

The favourable effect of B's tariff removal on the divertor A's terms of trade is most clearly seen in the limiting case (typically assumed in CU analysis) where union prices are determined in B's market, in which case B's tariff elimination allows A to trade with B at the more favourable terms of trade prevailing in B's domestic market; but even in our more general, less limiting case in which both countries influence terms of trade, B's tariff elimination may have a similar (though less clear-cut) effect. In short, the Vinerian terms of trade loss that A incurs in forming the CU because of its own preferential tariff elimination is only part of the story; against this must be set any terms of trade gain because partner preferentially eliminates its tariff. The net effect of these two is far from clear; but the possibility must be recognized that forming the CU may provide A with more favourable terms of

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1 It is obviously important to keep three separate issues sorted out: (1) the effect on A of A's tariff removal (discussed in Section 1); (2) the effect on B of A's tariff removal (discussed in Section 2); and (3) the effect on A of B's tariff removal (which is now being discussed).

The effect on B of B's tariff removal is another important issue, which—in the interests of not further burdening an already overloaded argument—is not highlighted in this paper. Some observation on this issue, however, is introduced in a later footnote.
trade with B than initially prevailed with C. ¹ Geometrically, this may be shown as follows: it has already been shown that if only A's tariff were eliminated, and B's tariff were not, A would trade along vector VV' in Figure 1, while B would trade along the same vector V'V in Figure 2, (with the non-tangency at V' reflecting the continued existence of B's tariff). But in forming the CU, B's tariff (against A) is removed; accordingly, the resulting terms of trade will be more favourable to A—say b' rather than b. Thus A will trade along the vector WW' in Figure 1, while B will trade along the same vector W'W in Figure 2. Thus, it is at least possible that A will find its union terms of trade (b') superior to its pre-union terms of trade c (as shown in Figure 1). In this case joining the CU will provide A with a terms of trade gain because the traditional Vinerian loss from preferential elimination of own tariff is more than offset by the terms of trade gain from partner's tariff elimination. Accordingly, it is seen that there is no a priori support for the presumption normally made that the terms of trade effect of diverting initial pre-CU trade must be to reduce welfare. ²

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¹ In other words, C may be the least cost production source, but C's tariff (where A has none) may make it a higher cost exchange source.

² Another statement frequently encountered is that J' represents the "free trade," rather than the UFT equilibrium—a statement that is true only in the very special case in which all other countries initially have no tariff.
Since a terms of trade gain for the divertor A is possible only because partner is eliminating its tariff, it would seem to follow that partner must incur a terms of trade loss. But paradoxically this does not follow.\(^1\) In fact, in our simple model no terms of trade loss is implied for B, since B initially had no trade.\(^2\) In other words, in Figure 2 B does not make two separate moves - first from D to V, and then from V to W; instead B makes a single move from the autarky point D to W (since both tariffs are simultaneously removed); accordingly, provided diversion of A's trade to B occurs\(^3\) (i.e., provided B moves from an autarky point D to a trading point like W), an improvement in B's terms of trade is guaranteed, and the union will increase B's welfare.\(^4\)

\(^1\)It will be seen that this terms of trade paradox (like Viner's original terms of trade loss) is to be explained by the fact that trade is being switched from one supplier to another. Hence a tariff reduction does not have the simple transfer effect that would occur if the supplying country remained the same.

\(^2\)It should be emphasized that our narrow definition (see Appendix Table A) relates terms of trade "gain" (or "loss") strictly to initial quantity of imports. This is necessary, since a broader definition (i.e., all the gains that can be achieved when terms of trade facing a country improve) would include any terms of trade gain as narrowly defined in this paper, plus production and consumption gains as well. Finally, also note that a change in the terms of trade facing a country is referred to as an "improvement" or "deterioration."

\(^3\)And provided B does not exclusively determine the union terms of trade.

\(^4\)Suppose A originally traded with both B and C (and trade diversion would consequently involve A switching some or all of its previous import purchases from C to B). Since B is initially trading with A, there now is the possibility of a terms of trade transfer from one partner to the other (i.e., if the terms of trade on this initial flow is affected more by B's tariff elimination than A's, then A will enjoy a gain at B's expense; or vice versa). This possibility of a loss to one partner modifies our conclusion that a CU will unambiguously benefit the divertee. But note that this would not be a loss to the union, but strictly a transfer from one partner to the other.
Finally, let us return to the situation facing the divertor A, and reconsider the possibility shown in Figure 1 that A may enjoy more favourable terms of trade after the union (at \( b' \)) than before (at \( c' \)). This is seen to imply that the CU equilibrium at \( W' \) would involve a higher level of welfare than that achievable under UFT at \( J' \).\(^1\) Thus our conclusion so far is that the possible effect of a CU on the divertor (the union "loser") runs the full range from a welfare loss at the one extreme to more benefit than even UFT at the other.

(But as an aside, notice that no claim is made that a CU could make both partners better off than UFT; in fact this cannot occur, so long as the terms of trade offered by C are fixed. This may be seen in an offer-curve diagram as follows: if the union terms of trade are more favourable for one partner [in our example A] than the straight-line terms of trade offered by C, then they must be less favourable for the other partner which can therefore benefit by non-preferentially eliminating its tariff and trading with C. Accordingly, our conclusion is that while a CU may be more beneficial for one partner than UFT, it can at best only be beneficial [i.e., better than the status quo] for the other partner.\(^2\) It is possible to upset this conclusion and to argue that a diverting CU could be more beneficial than UFT for both partners only if terms of trade with C are not fixed.)\(^3\)

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\(^1\) If \( c \) and \( c' \) are not identical, then \( c' \) must be inferior to \( c \) from A's point of view; this possibility would strengthen A's preference for \( W' \) over \( J' \).

\(^2\) This conclusion, however, should not deter a country which judges a CU to be superior to UFT from seeking to negotiate it, even though its prospective partner judges UFT economically superior to the CU. As a practical policy, partner is essentially certain (like other countries in the past) to judge UFT out of the question on noneconomic grounds. Accordingly, it need only be demonstrated that the proposed CU would benefit partner.

\(^3\) If the CU results in trade creation then this provides an additional reason why a CU may be preferred by both partners to UFT. For details (and a comparison for Canada of UFT and various hypothetical CU's - or more precisely, free trade arrangements), see Wonnacott (1975). But note again that the key is recognition of partner's tariff elimination: new trade created with partner will be greater and mutually more beneficial if both tariffs are being removed in a CU, than if only own tariff is being removed with UFT.
To return to the main drift of the argument: even though a CU may be more beneficial for a divertor than UFT, surely one conclusion must remain: it cannot be as beneficial as multilateral free trade (MFT). Surprisingly, when the potential importance of partner's tariff elimination is examined in more detail, even this conclusion does not necessarily follow. The reason is that even though C may have been the least cost tariff-ridden source, it is possible that B might be the least cost free-trade source.

To illustrate, consider the following extreme case: suppose B is the least cost free trade source, but B has imposed a prohibitive tariff that has precluded trade with all countries; accordingly, A has had no option but to trade with a less protectionist country, C. But if A and B form a CU, A will be able to trade with B, its least cost free trade source. In less extreme cases, this possibility could occur if B's initial tariff were higher than C's, and sufficiently so to have choked off A's "natural" initial trade with B and replaced it with an initial trade with C. In such circumstances, a failure to see beyond its own tariff could lead A erroneously to presume that C is its least-cost source—an error that would be avoided by examining foreign tariffs as well, and recognizing that the issue is not the apparent cost of imports—but rather their real cost in terms of the exports necessary to purchase them. Moreover, note that switching this trade from the outsider to the CU partner is not only desirable for the divertor, but also implies a move towards greater world allocative efficiency, hence increased total welfare; paradoxically, in this extreme case a CU with B is A's means of diverting imports from a higher cost source C to its reciprocally cheapest source B.

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1 Geometrically, the possibility discussed here implies in Figure 1 that tariff-free trade between A and C would take place at terms of trade somewhere between c' and b', say, c'' (not shown). Thus the removal of C's relatively small tariff would improve A's terms of trade from c' to c''; compare this with the preferential removal of B's larger tariff, which would improve A's terms of trade from b to b'.
In summary, when account is taken of other tariffs, it is at least possible for the divertor to enjoy a CU equilibrium at \( W' \) which is not only better than UFT, but which could conceivably coincide with the MFT equilibrium.

Finally, consider again the assumption traditionally made in this sort of CU analysis, that B determines the CU terms of trade. The more closely this assumption approximates reality, the more reasonable it becomes to disregard the CU gains to B from A's tariff elimination (discussed in section 2)—but the more unreasonable it becomes to disregard the effects of B's tariff elimination discussed in this section.

5. **Possible Implications of Economies of Scale**

The equilibrium of the two partners involving trade vector \( Ww' \) shown in Figures 1 and 2 illustrates how a CU may be collectively beneficial, and in addition beneficial to each individual member—even under a very unfavourable combination of assumptions, namely: (i) there is no trade creation; (ii) trade diversion is asymmetrical, with only one partner being the "beneficiary," but not the other; in other words, no account is taken of the products in which A would be the divertee; (iii) the members' terms of trade with the rest of the world do not improve; and (iv) production of all goods is subject to increasing costs. Note that as these assumptions are relaxed, the expectation of mutual beneficience increases. With respect to the first three issues, the reasons are straightforward; accordingly, the only assumption that will be now explicitly relaxed is that costs are increasing.
Economies of scale add to the potential gains from trade. The analytical problem is that less can be clearly concluded about the distribution of those benefits;¹ but this does not make the case for disregarding them. How might these gains be realized?

First, consider the divertee B. When its costs were assumed to rise (as in Figure 3), its gain from partner's diversion involved a production benefit \((2+3)\), partially offset by a consumption loss 2 (since its domestic price rose). But if, on the other hand, there are economies of scale and costs fall, production benefits no longer depend on rising price, hence no longer need necessarily involve a consumption loss. Instead, production gains may be associated with falling prices, in which case they would be augmented by consumer benefits. The interest of the producer and consumer need no longer necessarily be in conflict.

Next, consider the divertor A. Falling costs in B will make A's situation more favourable to the degree that A may now be able to acquire this good from B at a price that falls (rather than rises) with increased volume. Furthermore, if economies of scale are important enough (and B's supply price falls below \(P_1\) in Figure 3) then there is no longer any Vinerian terms of trade loss for the divertor on account of eliminating its own tariff; in other words, all the effects of the CU on A become unambiguously beneficial. Economies of scale of this magnitude make diversion beneficial in exactly the same sense as trade creation: purchases are switched from a higher cost to an (eventually) lower cost source. (Note that this is another example—in addition to the one cited in the preceding section—of how trade diversion could possibly move the world towards greater allocative efficiency and a higher level of total welfare.)

¹As pointed out e.g., by Melvin (1969).

To alleviate the problem of the breakdown of the competitive model in the face of economies of scale, it may be assumed that all such economies are external to the firm.
Finally, scale economies in C will tend to increase the loss it incurs when A and B form a CU. As C loses its market in B, its costs will rise rather than fall—hence its consumers as well as producers will incur a loss.\footnote{In the original case of rising costs, C's net loss from losing a foreign market would involve a loss to producers, partially offset by a gain to its consumers as price falls; (this is easily confirmed by an argument directly analogous to the one used to establish that B's gain from acquiring a foreign market was area 3 in Figure 3). But if there are economies of scale (with C's costs and prices rising as output is reduced) then C's producer loss will be augmented by a consumer loss as well.}

To sum up: the existence of economies of scale tends to increase benefits to the union and the costs incurred by third countries.

6. Conclusions

CU analysis should involve examining its two major implications: trade creation and trade diversion.\footnote{Again, the definitions of creation and diversion used here must be emphasized—and the fact that some authors use other definitions.} Each of these should be considered in terms of its various effects on both partners. But the familiar CU literature based on transformation curve geometry has examined only one of these implications (diversion), and has considered its effects on only one of the partners. In this paper, trade diversion is examined in terms of its effects on both partners; (the effects of trade creation on both partners are considered elsewhere (Wonnacott, 1974)).

The model used here has encompassed only a limited set of trade flows, and clearly could benefit from further generalization. Nonetheless, it has been possible to highlight a number of issues. Thus, in its combined role of divertor and diveree, it has been shown that a CU member faces a substantial set of possible advantages. Moreover, the only recognized cost of a CU, i.e., the Vinerian terms of trade change for the divertor—which has been for so long
a major focus of CU discussion, and which explains an apparent tendency for the benefits of at least some CU's to be understated—may turn out to be no problem at all; while it is possible that the divertor's terms of trade may deteriorate, it is also possible that they may improve—because of partner's tariff elimination. Recognition of this, in turn, has led to the conclusion that the welfare effect of even an asymmetrical strictly diverting CU\(^1\) on the divertor (i.e., the union "loser") may fall anywhere in the range between a net loss on the one hand to benefits approaching those of multilateral free trade\(^2\) on the other. Finally, note that this conclusion holds even if terms of trade with third countries are frozen. And if they are not, further benefits could accrue as a result of any terms of trade advantage that the members may collectively capture at third country expense; some of this will automatically follow their exchange of preferences and the decreased demand for third country goods this implies;\(^3\) in addition, further gains will follow if the union partners are able to raise their common external tariff towards an optimal level. Accordingly the search for political motivations for countries joining CU's

\(^1\)I.e., a CU in which there is only diversion (and no creation), and in which the home country is only a divertor, but never a divertee.

\(^2\)Although benefits equalling those of MFT were shown to be possible in our simplified model, they can hardly be achieved in a situation of more complex multilateral trade flows. Thus, for example, even if B may be A's least cost-free trade source of supply, B cannot achieve these minimum costs unless tariffs are removed on its trade with C. While MFT would do this, the CU between A and B would not.

\(^3\)For more detail, see Johnson (1965).
is clearly not necessary—although it may be enlightening; there may be good economic reasons for a country preferring membership in a CU over any other form of trade liberalization, up to and including MFT.

In comparing a CU with non-discriminatory options like UFT and MFT, only possibilities have been identified, not probabilities; in fact, at least one of the possible outcomes cited here (i.e., the case in which a CU would be as beneficial for a member as MFT) seems to this author to be very unlikely. Accordingly, this is not meant as a brief for CU's in general, but rather as an argument for a more complex assessment of each. In particular, in such an assessment the initial configuration of foreign tariffs seems to play a key role. For a home country with little influence over its terms of trade, the size of partner's tariff that is being eliminated may be crucial; if it is high enough,¹ then the home country may judge even a diverting CU to be preferable to UFT. Relative foreign tariffs may also be important; thus if prospective partner's initial tariff is higher than those of third countries, it is possible that the home country may realize benefits from the CU on the order of those even of MFT. Moreover, this more explicit highlighting of foreign tariffs may hopefully help to close the communications gap between the authors who have emphasized the importance of removing own tariff and negotiators who have emphasized eliminating partner's tariff. Both are right,

¹ And costs in the partner and outside countries are sufficiently similar.
although either may on occasion overstate their case.\footnote{To illustrate the overemphasis of own tariff, consider the question that is sometimes posed: "Since all the benefits of a CU (and none of its diversion cost) can be achieved by unilateral elimination of own tariff, why do countries form CU's?" This is a misleading question because the premise is wrong; a CU provides an advantage that unilateral free trade (UFT) does not--namely, free preferential access to partner's market.

More generally, the above question implies that UFT must be economically more beneficial than any CU, and this must be wrong--as is clear from a brief contemplation of what happens as the limiting case of forming a CU with all other countries is approached. (For a variant on this question, see, for example, Cooper and Massell, "A New Look at Customs Union Theory," \textit{Economic Journal}, Dec. 1965, p. 742, especially p. 746.)}

This wide range of welfare possibilities that a participant may face (from a loss on the one hand to benefits approaching those of MFT) not only applies to a trade-diverting CU, the subject of this particular paper; a similar wide range applies to a trade-creating CU as well.\footnote{The reason trade creation could involve a welfare loss to a CU participant is given in the first paragraph of this paper.} This in turn raises serious questions about any attempt by an individual country to evaluate participation in a CU simply by sorting out the expected degree of trade creation and trade diversion. The chief objective of such a sorting should rather be to provide a helpful clue in assessing the damage an excluded country may incur; it is questionable how useful it may be in assessing whether or not a CU will benefit a participant.
APPENDIX A

Table A compares three alternative approaches to defining trade diversion. The approach used in this paper follows that of Bhagwati and others, and defines diversion broadly as occurring when a country switches its import purchases from an outside source to a union source; the results of trade diversion are thus defined to include all three effects (one unfavourable and two favourable) shown in Table A.

An alternative approach is to define diversion more narrowly as just the one unfavourable effect (i.e., the terms of trade loss that results from switching only the original, pre-CU quantity of trade from the outsider to partner). Note that this is the definition used by Michaely (1975) and Johnson (1974), as shown in the last two columns of this table. Note, however, that for Michaely trade creation is only one of the favourable effects, but for Johnson creation includes both favourable effects shown. Since Johnson defines any increase in trade as creation, he seems able to finesse the problem: diversion by definition reduces welfare while creation increases welfare.

Since an extended debate in the Economic Journal has not yet clearly established "what Viner really meant," it seems unlikely that this question will ever be resolved;\(^1\) perhaps Viner did not know. While Johnson's definition may be, as he suggests, more elegant, it does not distinguish between the two favourable effects. Moreover, it can be argued, keeping

\(^1\)It is easy to see how this controversy arose. For example, one of the consequences that occurs when trade is diverted is the favourable production effect—and it seems eminently reasonable to call this (as Bhagwati does) one of the effects of trade diversion. On the other hand, since this particular effect involves replacing higher cost domestic production with lower cost imports from the union, it is eminently reasonable to call this trade creation (as Michaely and Johnson do).
When a country switches its import purchases from an outside supplier to a union source (i.e., diverts trade, as defined in this paper), then the three previously recognized welfare effects are:

<table>
<thead>
<tr>
<th></th>
<th>(1) referred to by e.g., Bhagwati (1971) and this author as:</th>
<th>(2) referred to by e.g., Michael (1975) as:</th>
<th>(3) referred to by e.g., Johnson (1974) as:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a welfare decrease, $U_1 - U_2$ in Figure 1</td>
<td>terms of trade loss</td>
<td>trade diversion effect (ER in Figure 1 of his 1975 article)</td>
<td>trade diversion</td>
</tr>
<tr>
<td>a welfare increase, $U_2 - U_3$</td>
<td>consumption effect *</td>
<td>consumption effect * (SR)</td>
<td>trade creation</td>
</tr>
<tr>
<td>a welfare increase, $U_3 - U_4$</td>
<td>production effect</td>
<td>trade creation effect (ET)</td>
<td></td>
</tr>
</tbody>
</table>

*These corresponding elements in columns (1) and (2) are essentially, though not precisely equivalent, since a slightly different question is being asked in the two cases.
these effects clearly sorted out may often be important. Provided this is done, it does not seem of great consequence what they are called. Much more important than the semantic issue is a recognition that these three effects are only a part of the story—namely the effect on the divertor of eliminating its own tariff; i.e., they represent an evaluation of a limited policy (unilateral preferential tariff elimination with no requirement of reciprocity from partner, as detailed in section 2). In other words a more important objective is to lift this discussion into a broader context, by examining the effects of a CU on all parties with particular attention given to the fact that not just the home country but all countries are preferentially removing their tariffs (effects that are detailed in sections 2, 3 and 4 of this paper).

Moreover, once the issue is broadened in this way, problems arise with any attempt to associate diversion with welfare loss. When the effect of partner's tariff is taken into account, it is no longer clear that diversion, even as narrowly defined by Johnson (i.e., as switching initially existing trade from a third country to a CU partner) necessarily involves a welfare loss; instead, it may involve a welfare gain, as shown in section 4.

There is another problem. If trade creation is dealt with as an effect associated with diversion, there may be some tendency to overlook the additional "pure trade creation" that occurs when trade between partners is increased without any switching from third countries; in other words, when imports purchased from partner before the CU are increased, or new products not previously imported from any country are purchased from partner. Such pure trade creation may be an important source of welfare gain and thus provide an important incentive for a country joining a CU. (Clearly, the
larger the CU, the more important; as the limiting case of joining a CU with all other countries is approached, diversion disappears, and the entire effect can be viewed as one of pure trade creation. In terms of realistic examples, a possible Canadian free trade association with the U.S., the present Swedish arrangement with the EEC, or the original participation of, say, Belgium in the EEC would all seem to provide cases of relatively small countries evaluating a union in which they would expect pure trade creation effects would be very important.)

In Table A, pure trade creation is not even considered; it is this—and only this—that I refer to as trade creation in this paper. This definition raises no conceptual problems: other authors would include this as trade creation (along with the other elements they so define in Table A), since it involves switching purchases previously made from a higher cost domestic source to a union source. There seems no reason for debate on this issue; the only question is whether any of the effects in Table A should also be included as trade creation, and if so, how many.

While the definitional system used remains largely one of taste, and while the system used in this paper is not as clean or elegant as one might wish, the problems with using an alternative (such as the approach given in column 3 of Table A) may be summarized as follows. Once trade creation has been dealt with as one of the effects associated with diversion in Table A, there may be some tendency to overlook the additional "pure" trade creation that may occur—and for some CU's this may represent a serious omission.

1 Trade creation for Canada in a North American free trade area would likely be much more important than diversion. Canadian imports from countries other than the U.S. represents the domain over which trade diversion could occur; and this is only about 30% of Canadian trade. On the other hand, the domain of trade creation is the remaining 70% of Canadian trade—plus products not now traded that might be.
In other words, there is a major advantage in referring to the entire discussion in this paper as the various effects of a trade-diverting CU; it emphasizes the fact that this is only part of the story, and that there is another issue that should not be overlooked—namely the various effects of a trade-creating CU. While the effects of a trade creating CU may be analysed with traditional trade theory, it is important that they are not overlooked. Second, the major motivation for the approach in column 3 is to provide a clean definitional association of diversion with welfare loss, and creation with welfare gain. But this is not possible; it has been shown in section 4 how an association of trade diversion with welfare loss may break down; now it may be further noted that an association of trade creation with welfare gain also raises a serious possibility of misinterpretation: while creation will provide a welfare gain for the union as a whole, it may involve a welfare loss for an individual member; for example, it would for a member with terms of trade influence that, in forming a CU, gives up an optimal tariff against its partners.
References


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