AN ELEMENTARY PROPOSITION CONCERNING THE FORMATION OF CUSTOMS UNIONS

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1. Introduction

In the welter of inconclusive debate concerning the implications of customs unions, the following elementary yet basic proposition seems to have been almost lost to sight.

Proposition. Consider any competitive world trading equilibrium, with any number of countries and commodities, and with no restrictions whatever on the tariffs and other commodity taxes of individual countries, and with costs of transport fully recognized. Now let any subset of the countries form a customs union. Then there exists a common tariff vector and a system of lump-sum compensatory payments, involving only members of the union, such that there is an associated tariff-ridden competitive equilibrium in which each individual, whether a member of the union or not, is not worse off than before the formation of the union.

A detailed list of assumptions, and a relatively formal proof, may be found in section 2. Here we merely note that there exists a common tariff vector which is consistent with pre-union world prices and, therefore, with pre-union trade patterns and pre-union levels of welfare for nonmembers.

The proposition is interesting in that it contains no qualifications whatever.

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1A crude version of the proposition, together with an indication of the lines along which a proof may be constructed, can be found in Kemp (1964, p. 176). A geometric proof for the canonical three-countries, two-commodities case has been furnished by Vanek (1965, pp. 160-179). Negishi (1972, p. 187) has provided an algebraic treatment of the same canonical case.

2With the same common tariff vector and system of lump-sum payments there may be associated other competitive equilibria which are not Pareto-comparable to the pre-union equilibrium. For this reason, the assertion is worded with care.
concerning the size or number of the countries which are contemplating union, their pre- or post-union trading relationships, their relative states of development or levels of average income, and their propinquitities in terms of geography or costs of transportation.

The proposition is interesting also because it implies that an incentive to form and enlarge customs unions persists until the world is one big customs union, that is, until world free trade prevails. More precisely, given any initial trading equilibrium, there exist finite sequences of steps, at each step new customs unions being created or old unions enlarged, such that at each step no individual is made worse off and such that after the last step the world is free-trading. (In general, at each step some individual actually benefits.) Indeed, on the basis of these observations one might attempt to rehabilitate the vague pre-Vinerian view that to form a customs union is to move in the direction of free trade.

Evidently the incentive is latent and insufficiently strong; tariffs and other artificial obstacles to trade persist. That the world is not free-trading must be explained in terms of:

(1) the game-theoretic problems of choosing partners, dividing the spoils and enforcing agreements;
(2) the noneconomic objectives of nations; and
(3) the possibility that the ‘right’ common tariff vector and system of compensatory payments might be associated with the ‘wrong’ post-union equilibrium, that is, an equilibrium in which some members are worse off than before the union.³

A role may be found also for:

(4) inertia and ignorance concerning the implications of possible unions (in particular, concerning the long list of lump-sum compensatory payments required) and, in the short run, for
(5) the restraint exercised by international agreements to limit tariffs and other restrictions on trade.

However (5) can form no part of an explanation of the persistence of trading blocks in the long run.

Topics (1)–(4) form a possible agenda for the further study of customs unions. For a preliminary analysis of (1) the reader may consult Caves (1971); and for suggestive work on (2) he is referred to Cooper and Massell (1965), Johnson (1965) and Bhagwati (1968).

2. Proof of the proposition

Suppose that (ia) the consumption set of each individual is closed, convex and bounded below, (ib) the preferences of each individual are convex and

³See footnote 2.
representable by a continuous ordinal utility function, (ie) each individual can survive with a consumption bundle each component of which is somewhat less than his pre-union consumption bundle, (ii) the production set of each economy is closed, convex, contains the origin and is such that positive output requires at least one positive input (impossibility of free production).

Consider a fictitious economy composed of the member economies but with a net endowment equal to the sum of the member endowments plus the equilibrium pre-union net excess supply of the rest of the world. In view of (i) and (ii), the economy possesses an optimum and any optimum can be supported by at least one internal price vector (Debreu (1959, pp. 92–93, 95–96)). Either the pre-union equilibrium of the member countries is a Pareto-optimal equilibrium of the fictitious economy (that is, corresponds to a maximal point of the utility possibility set), or it is not; in the latter case, a preferred Pareto-optimal equilibrium can be attained by means of lump-sum transfers among individuals in the fictitious economy. That essentially completes the proof. It only remains to note that the required vector of common tariffs may be computed as the difference between the vector of pre-union world prices and the vector of internal union prices.

Commodities can be indexed by location. Hence the resource-using activity of moving commodities from one country to another is accommodated in the several production sets; no special treatment of cost of transportation is needed.

References
Negishi, T., 1972, General equilibrium theory and international trade (North-Holland, Amsterdam).