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# **A Selective Review of Developments in International Trade Theory: Commercial Policy and Free Trade**

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An important branch of international trade theory examines the effect of commercial policy on welfare. Commercial policy includes a wide range of instruments: tariffs, quantitative import restrictions, multiple exchange rates, export taxes, production taxes, consumption taxes and subsidies, taxes and subsidies on factor use and so on.

This review of international trade theory considers the type of arguments and policy objectives that justify a departure from the use of unified exchange rates.

In general, the use of tariffs as an instrument to achieve certain economic and non-economic objectives is not the preferred policy. Whatever valid arguments are used to justify intervention, policymakers must also be aware that questions like the form, level and optimal structure of the policy instruments are equally important.

## **1. Introduction**

An important branch of international trade theory studies the effects of commercial policy on welfare<sup>1</sup>. Commercial policy includes a wide range of instruments: tariffs, quantitative import restrictions, multiple exchange rates, export taxes, production taxes, consumption taxes and subsidies, taxes and subsidies on factor use and so on.

In this paper we will consider the policy objectives (and instruments) that justify a departure from free trade. By free trade we mean the absence of any type of trade restrictions so that the domestic commodity prices are identical to those prevailing in the international market.

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<sup>1</sup> An early work in this area in trade theory was Meade's (1955) work.

The following three propositions are basic to the welfare theory of trade.<sup>2</sup>

*Proposition (1) The trade situation is superior to the no-trade situation from the viewpoint of efficient technical possibilities.*

*Proposition (2) Under perfect competition, free trade will enable the economy to operate with technical efficiency.*

*Proposition (3) Under perfect competition, free trade will enable the economy to maximize utility, subject to the given constraints, so that from the viewpoint of utility-based rankings as well, free trade is optimal and superior to no-trade.*

There has been an accumulation of analytical research, particularly in the last fifteen years, that accepts the basic efficiency argument of specialization in trade but demonstrates the advantages of departure from free trade on economic or other considerations.

For example the basic case for free trade has been modified by a number of distinct arguments for protection: (a) the infant industry argument; (b) the terms of trade argument—the concept of the “optimum tariff” which balances the loss from trade restriction due to reduced international division of labour against the gain due to the improved terms of trade, a gain which is at the expense of other countries; (c) the distribution of income argument; and (d) the mercantilist or employment argument. These will be discussed in greater detail below. The type of arguments that have been put forward as a justification for a departure from free trade will provide a convenient framework for this review of international trade theory<sup>3</sup>.

## **2. Justifiable Departures from Free Trade<sup>4</sup>**

The types of arguments used can be placed under two main headings: (1) those that accept a traditional objective function but point to factors like externalities or monopoly power, for example, to show that a departure from free trade is called for; and (2) those that modify the objective functions thus yielding different optimality conditions.

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<sup>2</sup> See Bhagwati (1969). These results have been extended to the non-traded and intermediate goods areas. For example see Kemp (1969b) and Hazari, Sgro and Suh (1981).

<sup>3</sup> This is especially relevant at the present time when a great deal of discussion concerning free trade and protection is taking place at the policy-making level.

<sup>4</sup> The arguments in this section follow closely the framework used by Bhagwati (1969).

Under heading (1), three forms of intervention are generally discussed: (a) optimal tariffs; (b) optimal export subsidies; and (c) optimal domestic tax-cum-subsidies on consumption, production or factor use. Under heading (2), the type of arguments used usually relate to non-economic objectives such as collection of revenue, achievement of specified income distribution, maintenance of specified levels of production in industries of "strategic importance", and so on<sup>5</sup>.

## 2.1 Traditional Objective Functions

### 2.1.1 Optimal Tariff Intervention

In the presence of monopoly power in trade, the equalization of foreign and domestic prices will not equate the domestic marginal rate of transformation in production and the domestic marginal rate of substitution in consumption with the marginal rate of transformation through foreign trade. The first-best solution, therefore, will involve the levy of a suitable tariff (or structure of tariffs if more than two goods are considered) to equate these marginal rates<sup>6</sup>.

A second argument is a transitory one which relates to tariff negotiations. If the country possesses no monopoly power, the imposition of a tariff can be used as a lever with which to bargain for a reduction in the tariff of a trading partner. If and when *both* tariffs are removed, the net effect is to increase the country's welfare above what it would have been in the absence of a tariff<sup>7</sup>. This may be a reason why some countries insist on reciprocity in tariff cuts even though from theory it can be demonstrated that a unilateral cut would be beneficial (Johnson 1965; Bhagwati 1969). The reciprocity in tariff negotiations whereby tariffs are reduced, is complicated by the growth in non-tariff distortions. These include measures like import quotas, customs valuation procedures, anti-dumping regulations, export credit subsidies and anti-foreign government procurement policies (Baldwin 1970; Cooper 1971; Lloyd 1973).

<sup>5</sup> Some arguments relating to inter-temporal considerations or dynamic comparative advantage are sometimes also used under heading (2).

<sup>6</sup> The optimum tariff will vary with income distribution. The possibilities of retaliation does not necessarily rule out the possibility of gain from the imposition of monopoly tariffs (Johnson 1965a).

<sup>7</sup> Of some relevance here is the customs union literature. In a customs union all the member countries agree to lower their respective tariff rates on imports from each other but not on imports from the rest of the world. Hence a customs union tends, on the one hand, to increase free trade among the union member countries and, on the other hand, tends to provide relatively more protection against trade and competition from the rest of the world. Since a customs union deals with a situation where tariffs exist before formation (and afterwards) it is a particular case of the theory of second best. Useful surveys of the customs union literature can be found in Lipsey (1970) and Krauss (1972). Also see Berglas (1970), Collier (1979), Corden (1976), Michaely (1976), Reizman (1979), Viner (1950) and Wonnacott and Wonnacott (1981).

A third argument that is often used is that the imposition of quotas will induce an inflow of private investment from foreign firms interested in “sales maximization”, then it is possible that the loss imposed by protection is outweighed by the advantage gained by the resulting inflow of investment<sup>8</sup>.

### 2.1.2 Optimal Export Subsidies

There are three valid arguments often employed to support the use of export subsidization as a first best policy<sup>9</sup>. Firstly, if the private evaluation of risk with respect to sales abroad is in excess of the social evaluation. Secondly, it may be necessary to invest in establishing a market. Thus any firm breaking into a foreign market may find that, if *other* firms can exploit that market opened by its own expenditures, the private returns are less than the actual social returns. This element of *externality* would then justify the granting of an export subsidy. Thirdly, Auquier and Caves (1979) have examined the issue of export taxes and subsidies in a framework where monopoly power over a given market cannot simultaneously be preserved in an export market and eliminated at home. Thus it may be difficult or impossible for public policy to destroy the monopoly power of the brand name at home while preserving it abroad. There is thus a conflict between competitive policy and maximizing monopoly profits on sales abroad<sup>10</sup>.

### 2.1.3 Domestic Tax-cum-Subsidies as a First-Best Policy

This relates to *domestic* (as opposed to foreign trade) instruments as a first-best policy. Justification for such policies are generally based on two grounds. First, the domestic prices may not equal social opportunity costs thus breaking down the equality between the marginal rates of transformation in production with both the domestic marginal rate of substitution in consumption and the marginal rate of transformation through foreign trade.<sup>11</sup> This phenomenon may occur due to (a) externalities in production, (b) monopoly in product markets, or (c) imperfections in the factor market. Second, the domestic prices may not measure the social rate of substitution in consumption. This case arises if there are externalities in consumption.

<sup>8</sup> As Bhagwati (1968) argues however, if the same inflow of investment could be attracted by subsidizing domestic production instead, then it would be a superior policy, since it would permit the same advantage from the inflow of investment while reducing the cost of protection by permitting the consumption of the protected items to occur at international prices. This argument has also been made by Corden (1957).

<sup>9</sup> Purcell and Snape (1973) have shown that for the case of a small country where an exporting industry is subject to economies of scale and where the export price covers marginal, but not average costs, there *may* be a case for a production (and export) subsidy. Also see Bhagwati (1968).

<sup>10</sup> Bhagwati (1968) also includes the case where if a country is an aid recipient, a superior export performance may help in encouraging cash aid flows.

<sup>11</sup> The optimality condition  $DRS = DRT = FRT$  breaks down.

In each of the above cases, the suitable first-best policy will involve a *domestic* tax-cum-subsidy aimed at making effective market prices reflect true opportunity costs or ratios of social marginal utilities. Intervention in the form of commercial policy may be sub-optimal, although if appropriately chosen may result in welfare levels higher than under a unified exchange rate.

(i) *Tax-cum-Subsidies on Production*

(a) In the case of production externalities, the private return to production will fall below its social value. Meade's classical example of the orchardist and honey producer is a case in point. An appropriate production tax-cum-subsidy, given the foreign price ratio which is fixed, will result in an optimal welfare level. (b) In the case of product market monopoly there will be a similar divergence between commodity price and the social opportunity costs (Bhagwati 1964; Hazari 1974, 1978). In this case the first-best remedial policy is to use a tax-cum-subsidy measure to guide production to a mix where the marginal rate of transformation in domestic production equals the foreign prices at an exchange rate which is otherwise unified.

(ii) *Tax-cum-Subsidies on Factor Use*

In the case of factor market imperfections, the optimal policy will be the adoption of tax-cum-subsidy measures with respect to factor use rather than domestic production. Three principal types of factor market imperfections have appeared in the literature: (a) when the shadow wage differs from the actual wage: the "sticky wage problem" (Harberler 1950; Johnson 1965b; Lefebvre 1971; Brecher 1974a, b; Batra and Seth 1977; Schweinberger 1978; Sgro 1980a; Hazari 1974, 1978); (b) where the wage is sticky but only in one of the sectors: the "sector-specific sticky wage problem" (Harris and Todaro 1970; Bhagwati and Srinivasan 1973; Srinivasan and Bhagwati 1975; Corden and Findlay 1975; Khan 1980)<sup>12</sup>; and (c) where the wage is fully flexible but is unequal between the sectors: the "wage differential problem" (Hagen 1958; Fishlow and David 1961; Johnson 1965b, 1966; Herberg and Kemp 1971; Bhagwati and Srinivasan 1971; Manning and Sgro 1975; Hazari 1974; Sgro 1980b)<sup>13</sup>.

Not all differentials indicate distortions in the welfare reducing sense. For example they may reflect a utility preference between occupations on the part of wage-earners (Manning and Sgro 1975; Sgro 1979, 1980a), a rent (on scarce skills), return on investment in education (human capital), risk aversion<sup>14</sup> etc.

<sup>12</sup> Hazari (1978) has an excellent summary of the analytical results in this area.

<sup>13</sup> Important results in this area can be found in the work of Magee (1973, 1976), and Hazari (1978). The major results for "open" growth models have been analysed by Sgro (1980a).

<sup>14</sup> Magee (1976) has a comprehensive survey of the empirical studies in this area.

Differentials regardless of their cause have two major effects; on the economic structure, and on welfare. Bhagwati (1971) has suggested the following classifications of the structural effects:

- (1) Output effects such that an increase in the price of a commodity does not necessarily result in an increase in the output of that commodity (Fishlow and David 1961; Johnson 1965b; Lloyd 1970; Bhagwati and Srinivasan 1971; Herberg and Kemp 1971).
- (2) Shrinkage of the production possibility curve due to operation off the efficiency locus (Hagen 1958; Johnson 1966; Mieszkowski 1967; Johnson and Mieszkowski 1970; Bhagwati and Srinivasan 1971; Magee 1971).
- (3) Non-tangency between the commodity price ratio and the feasible production possibility curve (Hagen 1958; Johnson 1966; Batra and Pattanaik 1970; Lloyd 1970; Mundlak 1970; Bhagwati and Srinivasan 1971; Herberg and Kemp 1971; Magee 1971; Hazari 1974).
- (4) The production possibility curve may become convex to the origin (Fishlow and David 1961; Johnson 1965; Bhagwati and Srinivasan 1971; Herberg, Kemp and Magee 1971).
- (5) Factor value intensity reversals may occur (Bhagwati and Srinivasan 1971; Herberg and Kemp 1971; Herberg, Kemp and Magee 1971; Johnson 1965b; Jones 1971a; Magee 1971; Mundlak 1970; Hazari 1972).
- (6) Reversal in trade patterns may occur (Batra and Pattanaik 1970; Bhagwati and Srinivasan 1971; Herberg, Kemp and Magee 1971; Magee 1971; Melvin and Warne 1973; Hazari 1975).

Assuming the differential is distorting (in the welfare sense) it follows that a unified exchange rate will be a sub-optimal policy and that the first-best optimal policy will be a tax-cum-subsidy policy on factor use that offsets the differential. If such a first-best policy is ruled out, the second-best policy would be a tax-cum-subsidy on production (Bhagwati, Ramaswami and Srinivasan 1969; Bhagwati 1971; Hazari 1974, 1978). Thus intervention via trade policy would be inferior to both these first-best and second-best policies; but, if appropriately set, trade policy may be superior to a unified exchange rate.

For the case where there is a distortionary wage differential operating against commodity  $X$ , Figure 1 illustrates how (1) a factor-subsidy policy which abolishes the differential will be the first-best policy, taking welfare level to  $U_f$  and enabling production to be on the efficient production possibility curve at  $P_f$ , (2) a unified rate will result in production  $P_u$  along a shrunk-in production possibility curve, with non-tangency with the commodity price ratio  $P_u C_u$  and welfare level at  $U_u$ , and (3) a policy of tax-cum-subsidy on production can, as a second-best solution, take production to  $P_s$  on the shrink-in production possibility curve and welfare to  $U_s$  (Bhagwati 1968, figure 4, p. 20).

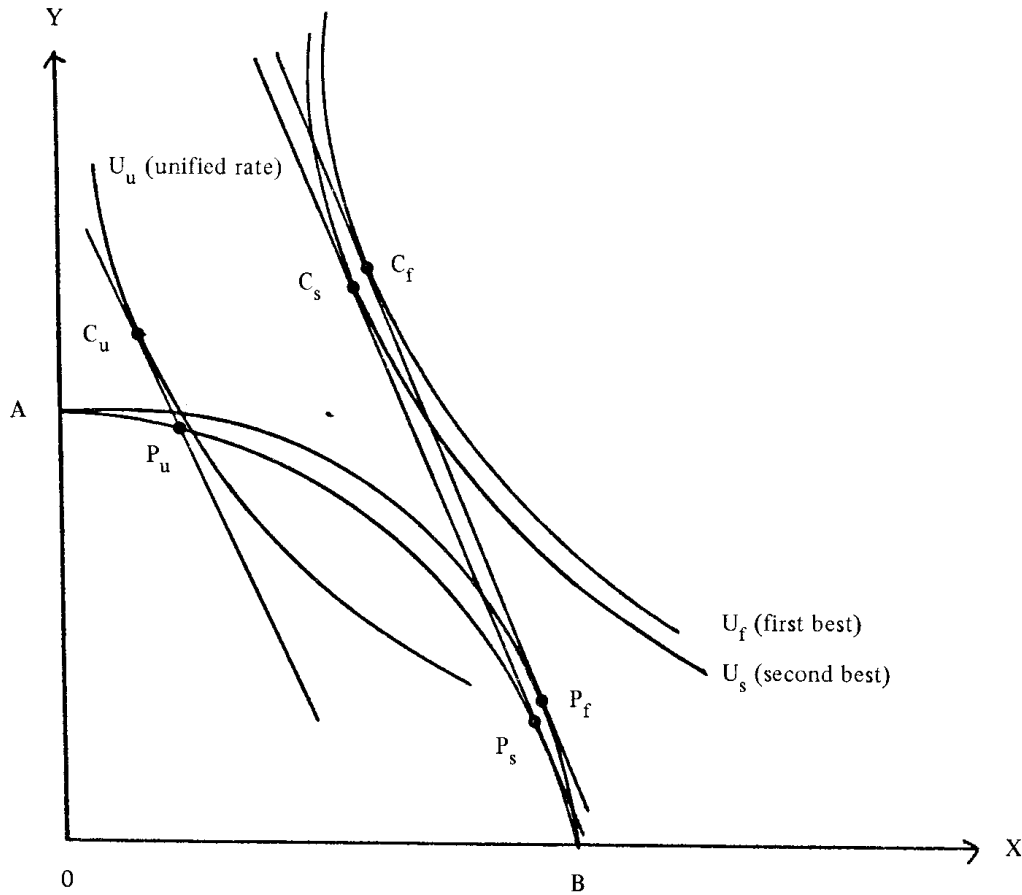


Figure 1—Welfare Policy Rankings with a Distortionary Wage Differential

For the case where the wage is identical between sectors *but* differs from the shadow or optimal wage (case (a)), the optimal policy would be to eliminate the distortions at the source itself by means of a suitable tax-cum-subsidy on factor use in *all* sectors.

In the case where the wage is identical between sectors but exceeds marginal product (case (b)), inefficient production occurs due to the non-tangency and shrinking-in of the feasible production possibility locus. Again, a suitable tax-cum-subsidy on factor use which equates the marginal products in the different sectors for the same factor will be the first-best policy.

There are two related issues in the trade literature that should be mentioned briefly in connection with factor market imperfections. One strand is a “dynamic” analysis of distortion while the other is the short-run factor specificity assumption.

Recently Mayer (1974) and Neary (1978a) have argued that the paradoxes that occur in the Heckscher-Ohlin models with factor reward differentials are incompatible with the stability of certain dynamic models so that, if the assumption of stability is granted, paradoxes like factor value intensity reversals and perverse price-output responses will almost never be observed. Paradoxes arise



from two sources (i) non-tangency, and (ii) value factor intensity reversals<sup>15</sup>. The work of Neary (1978a) only challenges results in (ii). This issue is not settled, however, as Herberg and Kemp (1980) argue that the Neary and Mayer conclusions depend, in part, on the type of dynamic disequilibrium adjustment mechanisms adopted<sup>16</sup>.

One way in which trade theorists have relaxed the assumption of the Heckscher-Ohlin model is to assume that one of the factors, capital say, is specific to a particular sector, at least in the short-run. (See, for example Jones 1971b; Samuelson 1971a, b; Kemp and Jones 1962; Corden and Gruen 1970; Mayer 1974; Mussa 1974; Neary 1978b; Hazari 1977, 1981a). In this sense, the Heckscher-Ohlin model is seen as a long-run equilibrium model. The argument is as follows: In the short-run any disturbances will lead to a reallocation of the labour force between sectors. But capital in each sector is a fixed factor so that differences in rental rates emerge between the two sectors. In the long-run, capital will flow between the two sectors, thus equalizing the rental rates<sup>17</sup>. Hence the short-run behaviour of market participants would lead to a behaviour difference from that implied by a long-run analysis<sup>18</sup>.

### (iii) *Tax-cum-Subsidy on Consumption*

If an externality exists with respect to consumption, the optimal form of policy intervention would be tax-cum-subsidy on consumption.

## 2.2 Modified Objective Functions

A general group of arguments for departure from a unified exchange rate involve the maximization of a social welfare function which does not depend exclusively on the current flow of goods and services. Formally the problem can be treated as maximizing a traditional social welfare function but with additional constraints in the form of added social objectives.<sup>19</sup> Some of the social objectives often put forward include the following:

- (i) achievement of a certain income distribution;
- (ii) achievement of specific levels of production in certain activities on grounds such as defence;
- (iii) achievement of specific levels of employment in certain activities on grounds such as "creation of national character" or "every man (and woman) has the right to employment"; and

<sup>15</sup> This distinction was first drawn by Hazari (1974) and Hazari and Sgro (1976).

<sup>16</sup> Furthermore the Neary and Mayer models can be imbedded in a more general model which may be stable while theirs are unstable.

<sup>17</sup> This is similar to the notion of transient imperfections analysed by Herberg (1972) and Herberg and Kemp (1972).

<sup>18</sup> One could equally assume labour is the specific factor. Neary (1978b) has a useful diagrammatic representation of these results.

<sup>19</sup> These problems will be treated as essentially second-best problems (Lipsey and Lancaster 1956; Tan 1971; Vandendorpe 1974; Yu 1975, 1977).

- (iv) reduction of import dependence or achievement of self-sufficiency<sup>20</sup>.

### 2.2.1 Income Distribution

The second-best solution involves a departure from unified exchange rates. Tax-cum-Subsidies on domestic production would be a superior and least-cost way of achieving the desired income distribution change via shifts in production rather than trade-policy measures that would additionally impose a consumption cost.

### 2.2.2 Specific Levels of Production

Corden (1957) has shown that a policy of tax-cum-subsidy on production will be a superior way of obtaining the requisite shift in production than a tariff (or export subsidy) policy for the familiar reason that it will avoid consumption cost by enabling consumption to occur at international prices. In fact, as Bhagwati (1969) has shown the policy of tax-cum-subsidy on production is also the *optimal* policy under the stated non-economic objective.

Of interest here is the analysis of Mayer (1977) who, using a national defence argument, has shown that in the case where a country faces the possibility of a trade embargo, free trade is suboptimal. A production tax-cum-subsidy is superior to a tariff (which is superior to free trade). Bhagwati and Srinivasan (1976) come to the same conclusion in their analysis of an exporting country faced with a market-disruption-induced trade restriction invoked by the importing country.

### 2.2.3 Specific Levels of Employment

One of the reasons often quoted by advocates for protection is the protection and raising of employment of labour in certain activities.

If the objective is to prevent levels of a factor in certain activities from falling below described magnitudes, Bhagwati and Srinivasan (1969) have shown that the optimal policy is to subsidize directly the use of that factor in the activity where its employment otherwise would fall below the required level.

### 2.2.4 Self-sufficiency or Reduction of Imports<sup>21</sup>

Johnson (1965b) has shown that in this case a tariff policy will be superior to a tax-cum-subsidy on production. Bhagwati and Srinivasan (1969) have further shown that in the non-monopoly power case as well as in the monopoly

<sup>20</sup> Other possible social objectives could include (a) collection of revenue for state expenditures, (b) reduction of domestic availability of certain luxury consumer goods on grounds of social policy, and (c) constraints through aid-tying requiring achievement of a specific form of aid utilization. See Bhagwati (1968).

<sup>21</sup> In the case in which there is no monopoly power in trade, this objective is identical with the objective of reducing the volume of imports (or exports).

power case, a tariff policy is the optimal policy<sup>22</sup>. Figure 2 illustrates the case where the country is small and has no monopoly power in trade (Bhagwati 1968, p. 39, Fig. 9). For the case where the non-economic objective is self-sufficiency, defined as a reduction in the value of imports, Figure 2 shows that, subject to the same loss of welfare, and, hence relegation to the same social-indifference curve  $U$ , a suitable tariff policy (with production at  $P_t$  and consumption at  $C_t$ ) will produce the largest reduction in imports, as compared with the tax-cum-subsidy on consumption ( $P_{cs}$  and  $C_{cs}$ ), the tax-cum-subsidy on production ( $P_{ps}$  and  $C_{ps}$ ) and the factor-subsidy policy ( $P_{fs}$  and  $C_{fs}$ ).

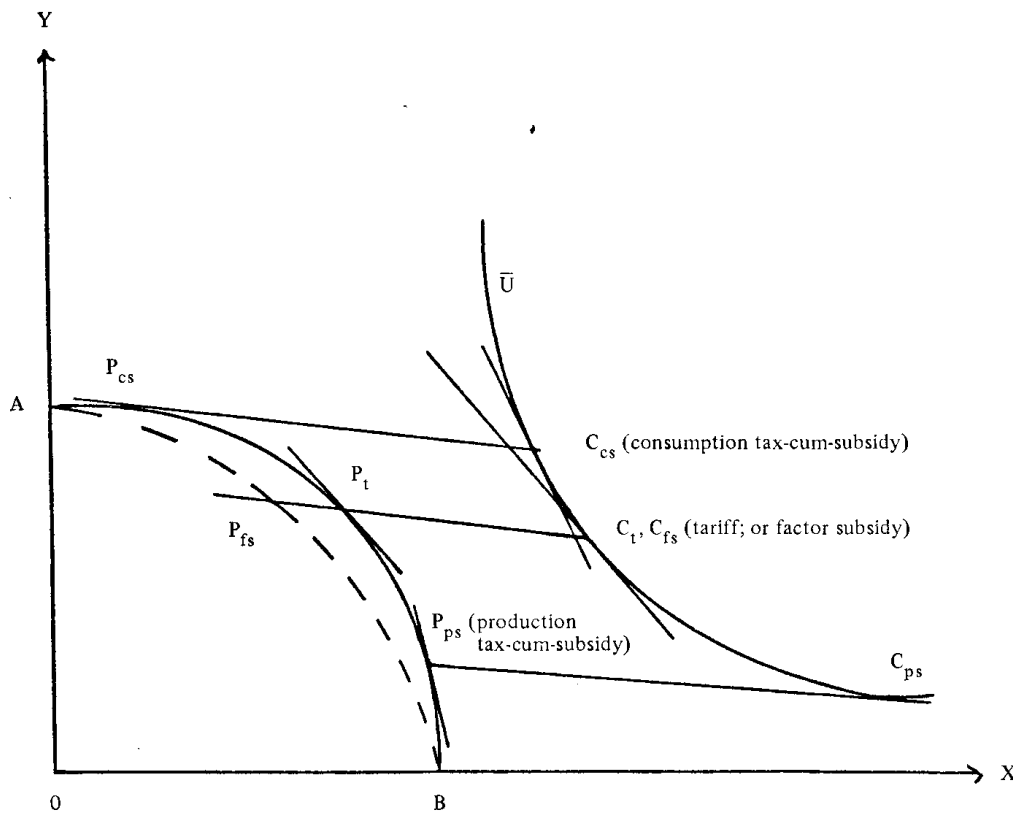


Figure 2—Self-sufficiency and the Welfare Ranking of Various Policy Alternatives

### 3. Alternative Market Structures

The market structure framework within which our discussion has taken place, so far, has been essentially a perfectly competitive system. However some of the theoretical developments in the trade literature have concentrated on other forms of market organization. As we move away from the competitive assumption, various results like the welfare ranking of free trade versus some form of restricted trade become less general.

<sup>22</sup> Pelcovits (1976) examines the non-equivalence of optimum tariffs and quotas under uncertainty, when the level of imports is constrained to a prescribed level. He also demonstrates that a tariff will yield less revenue than a quota which admits the same expected imports.

### 3.1 Imperfect Competition and Scale Economies

It is well known that scale economies create potential gains from trade and provide an alternative to differences in technology or factor endowments, as an explanation of international trade<sup>23</sup>. Scale economies also matter empirically. The large volume of intra-industry trade (estimated at 50% by Grubel and Lloyd (1975)), can only be understood within the context of product differentiation and economies of scale<sup>24</sup>.

Perfect competition is, in general, incompatible with economies of scale, so some form of imperfect competition will prevail. For example, most formal treatments of trade under *increasing returns* assume that scale economies are *external* to the firm, so that markets remain perfectly competitive (Melvin 1969; Kemp 1969a; Negishi 1969; Henderson 1972). An exception is Krugman (1979) who assumed that scale economies are *internal* to the firms with the market structure that emerges being one of Chamberlinian monopolistic competition. Krugman concludes that trade may be simply a way of extending the market and allowing exploitation of scale economies, with the effects of trade being similar to those of labour force growth (also see Grubel 1970; Negishi 1972; Markussen and Melvin 1981).

For descriptive purposes, one must therefore choose among the numerous alternative ways in which imperfect competition can be modelled—a general theory is not possible. The most one can hope for is a catalogue of special models. This same comment applies to welfare assessments. There are three major issues relating to trade in a world of scale economies and imperfect competition. The first relates to market structure: will trade by expanding the total market increase competition and thus reduce monopolistic competition? The answer is generally, yes. There is a double gain from trade—it should result in longer production runs (and thus lower average cost) and it should reduce mark-ups of price over marginal cost (Melvin and Warne 1973; Panagariya 1981; Dixit and Norman 1980)<sup>25</sup>.

The second issue relates to product selection. A common assertion is that trade is advantageous because an expansion of the market leads to the introduction of products that would otherwise not be produced. With imperfect markets, it can well be that certain product types disappear as the market expands, although there is a tendency for the total number of goods to increase. Concerning the normative aspects, the above proposition in an imperfect market setting may also be incorrect. If we consider a monopolist examining the profitability of alternative products, in his decision making, he neglects the consumer surplus associated with the products. Consequently a market outcome is biased *against* product types with a high ratio of consumer surplus to profit.

<sup>23</sup> For example Ohlin (1933) noted that increasing returns to scale are a cause of specialization and trade.

<sup>24</sup> For example, a very substantial proportion of the growth in intra-EEC trade following the customs union formation took the form of intra-industry trade (Belassa 1966; Grubel 1967). The *essential* difference between traditional and intra-industry trade is based on the fact that commodities in intra-industry trade are *close substitutes* in consumption, production or both.

<sup>25</sup> Dixit and Norman (1980) set out a wide range of assumptions under which this holds.

The integration of two economies through trade, may therefore increase such a bias thereby lowering welfare for some or all consumers (Spence 1976; Dixit and Stiglitz 1977; Dixit and Norman 1980).<sup>26</sup>

The third issue is that in considering trade explicitly, it may be simply a vehicle for market expansion, country labels as such being of minor importance (Krugman 1979, 1980; Dixit and Norman 1980).

### 3.2 Multiple Equilibria

One of the far-reaching implications of scale economies is that, in general, multiple equilibria result (Chipman 1965; Kemp 1969b). As Chipman (1965, p. 744) noted<sup>27</sup> "*The most interesting consequences of external economies is the existence of multiple equilibrium*". Since, at times, this multiple equilibria property is inconvenient, some writers have developed special models to avoid this "problem".

For example, Ethier (1979) builds up a model in which the increasing returns to scale depend on the scale of the *world* market rather than the national market. He is thus able to provide a basis for a theory of trade in intermediate goods (between similar economies) and avoid multiple equilibria and inter-industry specialization. Krugman (1980), on the other hand, sets up a model in which there are economies of scale in production and firms can costlessly differentiate their products. Each firm has some monopoly power but entry drives monopoly profits to zero<sup>28</sup>. Because of this assumption and the symmetrical entry of goods into demand, the "strategic interdependence among firms" is ruled out, equilibrium is thus determinate<sup>29</sup>. In Krugman's case, increasing returns produce trade and gains from trade even if the trading economies have identical tastes, technology and factor endowments<sup>30</sup>.

<sup>26</sup> Dixit and Stiglitz (1977) find no necessary connection between the *size* of a country and these biases. If a larger economy entails the selection of a good, or group of goods, with lower consumer surplus then utility can be lower for some or even all consumers in that larger economy.

<sup>27</sup> The infant-industry argument for protection is an example of externalities.

<sup>28</sup> Both trading economies are imperfectly competitive and have these properties.

<sup>29</sup> Brander (1981) analyses intra-industry trade in *identical* commodities. In Brander's case, the two way trade comes about due to strategic interaction among the firms.

<sup>30</sup> Markusen and Melvin (1981) also analyze a model in which equilibrium is determinate. Krugman (1980) shows that with increasing returns and *transport costs* there will be an incentive for a country to concentrate production of a good near its largest market (even if there is some demand elsewhere). Hence the notion that a country will tend to produce and export those products for which it has a relatively large domestic market (Grubel 1970; Corden 1970), is given a simple formal justification. In the model considered by Grubel (1970) and commented on by Corden (1970), the increasing returns took the form of external economies.

### 3.3 Foreign Capital Inflow and Welfare

Some work has been carried out recently on examining the welfare impact of trade liberalization in the presence of foreign-owned factors of production<sup>31</sup>. Generally the studies are concerned with the welfare effects on the host country of an inflow of foreign capital followed by the repatriation of that capital's marginal product. A general result is that the capital inflow can adversely affect the welfare of the host country, a result which arises due to monopoly power in trade of capital<sup>32</sup>.

## 4. Uncertainty and Commercial Policy

Recently trade theorists have sought to develop a more general theory of uncertainty and international trade (The pioneering work was by Brainard and Cooper 1968). Three types of uncertainty have been considered in the literature: (1) Price uncertainty (Batra 1975; Mayer 1976; Das 1977), (2) Technological uncertainty (Turnowsky 1974; Batra 1975; Kemp and Ohta 1979; Baron and Forsythe 1979; Dumas 1980), and (3) Uncertainty in preferences (Kemp and Liviatan 1973). In addition, two types of trading decisions have been considered: (a) *Ex ante* trading where *trading* decisions (exports or imports) are made before the resolution of uncertainty. In particular, these models assume price uncertainty—when an export or import commitment is made, the price that will be received is unknown (Brainard and Cooper 1968; Batra and Russell 1974; Ruffin 1974a), and (b) *Ex post* trading models where the *trading* decisions are made after uncertainty resolves (Kemp and Liviatan 1973; Turnowsky 1974; Ruffin 1974b; Helpman and Razin 1978a, b; Baron and Forsythe 1979; Dumas 1980). In both types of models, *input* decisions are made before the reduction of uncertainty<sup>33</sup>.

A further feature that differentiates the various studies is the presence (or absence) of a financial market. There are two cases: (i) no financial market or risk sharing arrangements prevail so that firms maximize the expected utility of future profits (Ruffin 1974a, b; Turnowsky 1974), and (ii) a unified securities market exists worldwide and firms maximize their market values (Kemp and Liviatan 1973; Baron and Forsythe 1977; Helpman and Razin 1978b, c; Dumas 1980).

<sup>31</sup> Hazari and Pattanaik (1980) use a three-good, three-factor model in which the foreign-owned factor is sector-specific. This specificity implies a wage differential. Also see Bhagwati and Brecher (1980), Bhagwati and Tironi (1980), Brecher and Bhagwati (1981) and Hazari (1981b).

<sup>32</sup> This result is consistent with the general theory of distortions as it suggests that in the presence of distortions, the movement of a factor from where its reward is low to where it is high may move the system away from a Pareto Optimum (Markussen and Melvin 1970; Bhagwati 1973; Brecher and Alejandro 1977).

<sup>33</sup> This means that in the case of technological uncertainty inputs do not determine a *certain* output level but rather a distribution of output.

In all the above model-types, excluding the case where a securities market is assumed, the main trade theorems (and hence the welfare theorem) break down. It turns out, however, that existence of an international risk sharing arrangement is *sufficient* to yield the standard trade theorems<sup>34</sup>. Of course, certain extra conditions need to be satisfied for the theorems to hold.

Considering the case of tariffs, in the presence of uncertainty, a tariff does not provide protection to the import-competing industry even in the small country case. This situation occurs when there is international trade in commodities, but no international trade in securities. If there is international trade in securities, a tariff provides the conventional protection (Helpman and Razin 1978c)<sup>35</sup>.

Our earlier discussion concerning the appropriate policies for various policy objectives is generally still valid in a world in which there is uncertainty and a unified securities market.

## 5. Implications

This paper has attempted a brief review of some of the recent theoretical developments in trade theory and related these various studies to commercial policy issues. We have discussed the appropriate policies that should be adopted in order to satisfy various economic and non-economic objectives. In general tariffs are not the appropriate policies<sup>36</sup>. Whatever valid arguments are used to justify intervention, policy-makers must also be aware that questions relating to the form and level at which the intervention takes place are equally important<sup>37</sup>.

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<sup>34</sup> The key to why this assumption makes the difference is that the securities market provides the market certainty-equivalent for the uncertain factors in the model (Helpman and Razin 1978 a, b, c; Baron and Forsythe 1979).

<sup>35</sup> In the uncertainty case, it is important whether the tariff is specific or *ad valorem* (Helpman and Razin 1978c).

<sup>36</sup> Apart from the cases of optimal tariff and the self-sufficiency objective.

<sup>37</sup> Some economists would therefore argue that because of the difficulty of these second-best type comparisons, for a "small country" like Australia, free trade should always be the preferred policy.

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