

## Chapter 11

# Free Trade vs. Protection, and Preferential Trade Cooperation

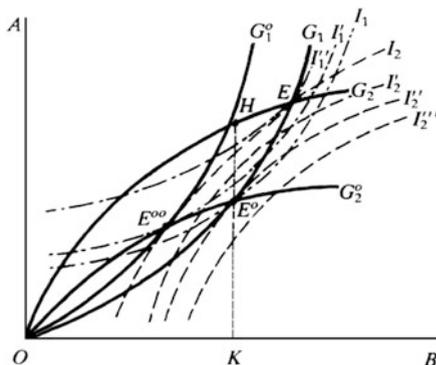
In the previous chapter we have implicitly talked of protectionism by talking of tariffs, quotas, etc. This chapter explicitly examines the main arguments in favour of protectionism and the rebuttal of them by the advocates of free trade; here the theory of second best will throw new light on this age-old debate. We shall then go on to examine preferential trade cooperation among countries. This cooperation has the purpose of reducing or eliminating protection among the participating countries, and may take various forms, but in any case the main question is whether these countries are better off. For other treatments of the topics examined in this chapter see, e.g., [Bhagwati et al. \(1998\)](#), [Corden \(1971a, 1974, 1984b\)](#), [Deardoff and Stern \(1984\)](#), [El-Agraa \(1984\)](#), [Ethier and Horn \(1984\)](#), [Greenaway \(1983\)](#), [Hicks \(1981\)](#), [Jones \(1979\)](#), [Kemp \(1976\)](#), [Krauss \(1972\)](#), [Lipsey \(1960\)](#), [Lloyd \(1974\)](#), [Markusen et al. \(1995\)](#), [Meade \(1952\)](#), [Pearce \(1970\)](#), [Puga and Venables \(1997\)](#), [Swann \(2000\)](#), [Takayama \(1972\)](#), [Vousden \(1990\)](#).

It should be pointed out that by *protectionism* in the broad sense we mean any intervention of the government (which may consist of tariffs and/or any other non-tariff barrier) giving rise to a divergence between domestic relative prices and world relative prices of the same commodities. More precisely, this divergence must be greater than that accounted for by costs of transport (including insurance). But, as usual, we shall ignore these costs to simplify the analysis.

In our treatment we shall refer exclusively to the welfare of the society as a whole and not to the welfare of single rent-seeking groups within the society (for a treatment of these problems see, e.g., [Bhagwati, 1982a, 1995](#); [Krueger, 1974](#)).

Finally, we must point out that our treatment will be confined in the context of the traditional theory: strategic trade policy in the context of the new trade theories has been examined in Sect. 10.8.

Fig. 11.1 The optimum tariff



### 11.1 The Optimum Tariff

Protectionism is better than free trade because—so the argument runs—it is always possible to find a tariff such that the imposing country’s welfare is greater than under free trade.

The examination of this argument requires the study of the welfare effects of a tariff in the general equilibrium context presented in Sect. 10.5.2. This can be done by introducing social indifference curves.

In Fig. 11.1, besides the two countries’ offer curves (assumed to be normal), also their social indifference curves are drawn. It should be noted that the latter curves, unlike those drawn in previous diagrams—see for example Fig. 10.1—are *increasing*. This can be explained as follows, considering, for example, country 2. Whilst on the horizontal axis there are the quantities of *B* obtained (imports), on the vertical axis there are the quantities of *A* released (exports). It is therefore obvious that a greater amount of the commodity acquired will have to correspond to a greater amount of the commodity given up so as to remain on the same indifference curve. The (ordinal) index of satisfaction increases as we move downwards and to the right, for in  $I_2'$  the amount of the commodity acquired is greater than in  $I_2$  with the same amount of the commodity given up (take any horizontal straight line—not shown in the diagram—parallel to the *B* axis). Finally, these curves are convex to the export axis (concave to the import axis) because in order to maintain a given satisfaction level, ever decreasing successive increments of the commodity given up (exports) will correspond to equal successive increments of the quantity of the commodity acquired (imports). This is the equivalent of the principle of decreasing marginal rate of substitution along the usual curves.

In like manner we can draw the family of country 1’s social indifference curves:  $I_1, I_1', I_1''$  etc. Let us now assume that country 2 imposes a tariff, so that  $OG_2$  shifts to  $OG_2^0$ : the new international equilibrium point is  $E^0$ . Country 2’s welfare has increased, for  $I_2''$  represents a higher welfare than  $I_2$  does, and this confirms that in normal circumstances the imposition of a tariff improves the terms of trade and the welfare of the imposing country. From the diagram we also see that country 1’s

welfare has decreased, for this country is now on  $I_1$  which represents a lower welfare than  $I_1''$  does. Therefore the tariff-imposing country increases its own welfare at the expense of the other country, which confirms the opinion that *the free-trade situation is a Pareto-optimum* (so that it is not possible to improve the situation of a country without worsening the other country's). It goes without saying that, given the ordinal nature of the social indifference curves, it is not possible to ascertain whether the welfare of the world as a whole has increased or decreased as a consequence of the movement from  $E$  to  $E^0$ .

Let us go back to country 2 and investigate the welfare-maximizing tariff from its point of view, that is, country 2's optimum tariff. Graphically, this amounts to finding country 2's highest social indifference curve compatible with the *given* offer curve of country 1. It turns out that this curve is exactly  $I_2''$ , tangent to  $OG_1$  at point  $E^0$ . It should be stressed that the tangency is to be found between a social indifference curve of country 2 and country 1's offer curve, which is the constraint of the problem. In fact, as we know, each country can, by imposing a tariff, cause a shift in *its own* offer curve, but cannot influence the other country's offer curve. This explains why the constraint for country 2 is country 1's offer curve and vice versa.

Thus in our case the optimum tariff is that which shifts country 2's offer curve downwards so as to make it pass exactly through point  $E^0$ , namely from  $OG_2$  to  $OG_2^0$ . The corresponding optimum tariff rate can be computed graphically as shown in Sect. 10.5.2, for example as  $HE^0/E^0K$ .

We have thus demonstrated the proposition that *for the single country there always exists a cum-tariff (the optimum tariff) situation superior to free trade*. But of course the other country's welfare worsens, as we have shown above, and this may give rise to retaliation.

In fact, we have so far assumed that  $OG_1$  is given, thus implicitly assuming that country 1 *does not introduce tariffs*. But, if we exclude non-economic factors, it is not plausible that country 1 should not retaliate: this country, therefore, will also levy a tariff, presumably the optimum one from its own point of view. As the first step has already been made by country 2, country 1 will take the  $OG_2^0$  curve as given, and determine its own optimum tariff as that corresponding to point  $E^{00}$ , where an indifference curve ( $I_1'$ ) is tangent to  $OG_2^0$ .

We observe that thanks to the retaliation, country 1 recovers part of (though not all) the loss due to the initial imposition of a tariff by country 2: country 1, in fact, passes from  $I_1$  to  $I_1'$  which, though better than  $I_1$ , is worse than the initial  $I_1''$ . We also observe that in  $E^{00}$  international trade is further reduced with respect to  $E^0$ .

But not even point  $E^{00}$  is a stable equilibrium: in fact, once the tariff war begins, there is no reason why country 2 will not counter-retaliate and impose a new optimum tariff in correspondence to  $OG_1^0$ , and so forth.

It is not possible to determine a priori a precise outcome of the tariff war, for in general it is possible either that the process continues until trade disappears because tariffs have reached the prohibitive level in both countries<sup>1</sup> or that it stops before

<sup>1</sup>This cannot happen with the curves drawn in Fig. 11.1, but it is conceivable that it may happen with other curves.

for various reasons, for example because a stable equilibrium situation has been reached: this happens when a point is reached where the optimum tariff change is zero for both countries, that is, each country, by taking the other's offer curve as a constraint and maximizing its own welfare, finds that the optimum situation is the current one. This possibility can be readily verified by experimenting with diagrams similar to Fig. 11.1. It is also possible for a "tariff cycle" to occur: see [Johnson \(1953\)](#), who considers all possible cases. Other reasons for the tariff war to stop before the disappearance of trade are that one country yields, or the two countries reach an agreement (in this case it is even possible for the initial free trade situation to be restored or for a bilateral tariff cut to be negotiated). The outcome can also be studied in the context of game theory ([McMillan, 1989](#), chap. 4).

Therefore the statement made above, that for the single country there always exists a cum-tariff situation better than the free trade one, must be taken with caution, as it may be no longer valid in the presence of retaliation.

That statement, however, enables us to show the lack of general validity of the *first* of the two traditional propositions concerning the relationships between international trade and social welfare, which are:

1. Free international trade is better than restricted (tariff-ridden) trade;
2. Some international trade, even if restricted, is better than no trade.

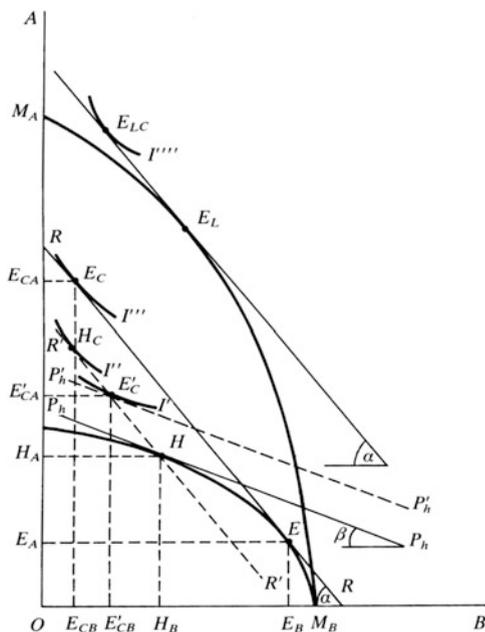
On the contrary, the *second* proposition remains valid even in the optimum-tariff context. With reference to Fig. 11.1 above, we see that it is always possible to find a restricted-trade point (for example,  $E^{00}$ ), such that the social indifference curves passing through it certainly do represent for both countries a social welfare greater than that represented by the respective social indifference curves passing through the origin (these are not shown, but can be readily drawn by the reader).

## 11.2 The Infant Industry

This is probably the oldest and best known argument for protectionism: a domestic industry in its infancy cannot compete with well-established foreign firms and therefore it must be protected by a tariff, to give it time to grow up and become competitive with foreign firms; at that point the protection can, and must, cease. It is clear that for the validity of this argument it is necessary for the protected industry to have within it the germs for growing up to the level at which it can compete with foreign firms at world prices and, in addition, that the benefits accruing to society from the operation of this industry when protection is discontinued, will more than compensate for the losses deriving from the protection itself.

But, even if these conditions are satisfied, it can be seen that the advantages of the infant industry becoming adult can be obtained with lower costs by way of non-tariff protection, for example by giving the infant industry a subsidy which enables it to charge domestic consumers a price for the commodity equal to the world price.

Fig. 11.2 The infant industry



This can be shown by way of the analysis made in Sect. 10.5.1 and, in particular, of Fig. 10.3, reproduced in Fig. 11.2. A tariff levied on commodity *A* (the importable) shifts the production point from *E* to *H*, thus favouring the domestic output of *A*. But, as we saw, the consumption point shifts from *E<sub>C</sub>* to *E'<sub>C</sub>*, so that social welfare decreases, for the indifference curve *I'* is lower than *I'''*. If instead of imposing a tariff the government subsidized the domestic output of *A* so as to reach the same production point *H*, the situation would improve. In fact, as there is no difference between the domestic and the world relative price, the consumption point would be *H<sub>C</sub>*, which lies on *I''*, higher than *I'*.

The same diagram can be used to see the long-run advantages deriving from the protection of the infant industry, provided that it succeeds in becoming competitive with foreign firms. Thanks to the protection, there is a continuous improvement in production techniques, labour skills, etc., in the sector producing commodity *A*, so that the country's transformation curve shifts gradually upwards and to the right,<sup>2</sup> up to the long-run position *M<sub>A</sub>M<sub>B</sub>*. At this point protection can cease and (for simplicity's sake we assume that the terms of trade remain the same) the country will produce at *E<sub>L</sub>* and consume at *E<sub>LC</sub>*. In the diagram we have illustrated the case in which *E<sub>LC</sub>* is to the left of *E<sub>L</sub>* so that the country remains an importer of commodity *A*, but it may equally well (with different shifts of the transformation

<sup>2</sup>This amounts to saying that protection has enabled sector *A* to benefit from technical progress in a broad sense. On technical progress and (free) international trade see Sect. 13.5.

curve and/or different shapes of the social indifference curves) become an exporter of this commodity (point  $E_{LC}$  is to the right of  $E_L$  along the terms-of-trade line). In any case the long-run consumption point  $E_{LC}$  will lie on a higher indifference curve than  $E_C$  does.

This is a comparative-static result; dynamically, the economic system can follow various paths to pass from  $E_C$  to  $E_{LC}$ , but in any case there is an initial fall in social welfare, from  $I'''$  to  $I'$  (if a tariff is used) or to  $I''$  (in the case of a subsidy). As the transformation curve shifts, welfare increases, but will remain below  $I'''$  for a longer or shorter time before overtaking it and increasing towards  $I'''$ .

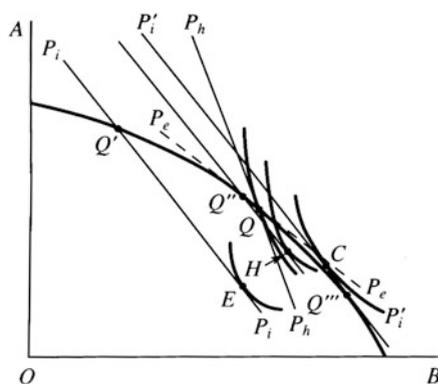
It is therefore clear that the protection of an infant industry, even if it may give benefits in the long run, will cause welfare losses in the short and medium run. Isn't it possible, then, to balance benefits and costs and check whether there is a net benefit or a net cost of protecting the infant industry? In theory the answer is yes, provided that one has a sufficient amount of very precise information. One must, in fact, not only know the precise *dynamic path* followed by the economic system but also assume that social welfare can be *measured* (or proxied) by a cardinal function and, finally, determine a *social discount rate* to bring to the same point in time the various quantities of future welfare and thus be able to compare the various alternatives. Now, even if it is granted that the required information can be obtained, it would nevertheless remain true that the aforementioned elements would be different from case to case, so that it is *not possible* to state *in a general way* that protection of the infant industry is definitely beneficial or definitely harmful. It is however possible to state that, with the same benefits, costs are lower if a subsidy is used instead of a tariff, as shown above.

### 11.3 Distortions in Domestic Goods Markets

We consider here all those situations in which the domestic relative price of commodities does not reflect, as it should, the marginal rate of transformation. These distortions may be due to monopolistic elements (which make the selling price higher than the marginal cost) or to external economies or diseconomies (which make the producer's marginal cost different from the social marginal cost, that is, cause a divergence between the private and the social marginal cost).

When the domestic relative price and the marginal rate of transformation are unequal, free international trade may even cause a *decrease* in welfare with respect to the autarkic situation. This (possible but not necessary) case is shown in Fig. 11.3. In the pre-trade equilibrium, the country is producing and consuming at point  $Q$ , where—because of distortions—the domestic relative price ( $p_B/p_A$ , represented by the absolute value of the slope of  $P_h P_h$ ) is different from the marginal rate of transformation (slope of  $P_e P_e$ ). More precisely, since the slope  $P_h P_h$  is greater than that of  $P_e P_e$ , the price of commodity  $A$  is too low relative to that of  $B$ . The world price ratio is represented by the slope of  $P_i P_i$ , smaller than that of  $P_h P_h$ : this signals the fact that the country has a comparative advantage (at distorted prices) in

**Fig. 11.3** Distortions in domestic goods markets: specialization in the wrong direction



commodity *A*, since  $p_B/p_A$  is higher, and so  $p_A/p_B$  is lower, on the international than on the domestic market. Summing up, the situation at point *Q* is given by the double inequality

$$(p_B/p_A)_e < (p_B/p_A)_i < (p_B/p_A)_h, \tag{11.1}$$

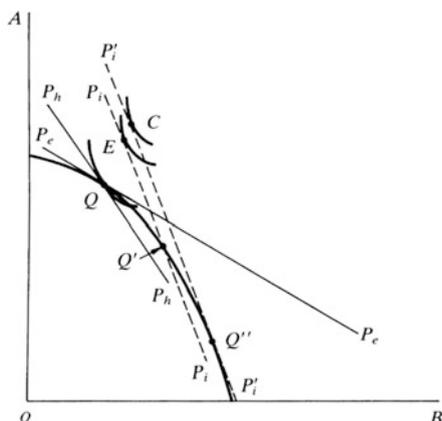
that is,

$$(p_A/p_B)_h < (p_A/p_B)_i < (p_A/p_B)_e. \tag{11.2}$$

Since, as we said, the signal to which domestic producers respond is given by the comparison between  $(p_B/p_A)_h$  and  $(p_B/p_A)_i$ , or, what amounts to the same thing, between  $(p_A/p_B)_h$  and  $(p_A/p_B)_i$ , when trade is opened up, the country increases the output of *A* and moves to a production point on the left of *Q*, for example *Q'*. As the country can exchange goods at the given terms of trade—we are making the small country assumption—the consumption point will be *E*. Point *E* is clearly inferior to point *Q*, as it lies on a lower indifference curve. But, as we said at the beginning, the welfare loss with respect to the initial autarkic situation is not a necessary outcome. If, for example, the production point is *Q''* instead of *Q'*, the country will be able to consume at *H*, which lies on a higher indifference curve than *Q*.

We observe that, in all the cases examined, the distortion has induced the country to specialize in the wrong direction. In fact, in the absence of distortions, the domestic price ratio at *Q* would have been equal to the slope of  $P_e P_e$ , showing the *true* comparative advantage to be in commodity *B*. Now—so the protectionist argument runs—the introduction of a tariff on commodity *B*, by increasing its domestic relative price, stimulates the production of this commodity in which—as we saw a moment ago—the true comparative advantage lies, thus increasing the country’s welfare. But the imposition of a tariff, which in this case involves a production gain (deriving from a better allocation of resources), causes a consumption loss, so that the net result can be, in general, either a loss or a gain.

**Fig. 11.4** Distortions in domestic goods markets: specialization in the right direction



We must further observe that the imposition of a tariff can never *reverse* direction of international trade: it can, at most, make imports of the commodity cease (prohibitive tariff), but will never make this commodity become an exportable. Now, the optimal situation for the country (determined by comparing the slope  $P_e P_e$  with the terms of trade) is to be an exporter, rather than an importer, of commodity  $B$ , as can be seen from the fact that the (hypothetical)  $P'_i P'_i$  parallel to  $P_i P_i$ , would give rise to the production point  $Q'''$  and the consumption point  $C$  (both hypothetical). It is therefore obvious that tariff will never be optimal, even if it were to improve social welfare with respect to the free trade situation.

Thus the imposition of a tariff is not the best policy, even in this case. The optimal policy—better than both free trade and a tariff—is to subsidize the production of  $B$  and/or tax that of  $A$ , so as to reduce the domestic price ratio  $p_B/p_A$  to the level of the marginal rate of transformation (that is,  $P_h P_h$  comes coincide with  $P_e P_e$ ). The country can then engage in free trade and obtain maximum welfare by producing at  $Q'''$  (which from being hypothetical now becomes actual) and consuming at  $C$ .

We have so far examined the case in which the country, as a consequence of the distortions, specializes in the wrong direction; the conclusions, however, do not change even if it specializes in the right direction. A specialization in the right direction occurs, for example, when the terms of trade, instead of being include between the marginal rate of transformation and the distorted domestic relative price, are greater than both. In symbols,

$$(p_B/p_A)_i > (p_B/p_A)_h > (p_B/p_A)_e, \tag{11.3}$$

that is,

$$(p_A/p_B)_e > (p_A/p_B)_h > (p_A/p_B)_i. \tag{11.4}$$

In this case the signal coming from the comparison between the terms of trade and the (distorted) domestic price ratio points in the right direction—that is, the same direction in which the comparison between the terms of trade and the marginal rate of transformation would point—as can be seen from inequalities (11.3) and (11.4), even if not with sufficient intensity.<sup>3</sup> In terms of Fig. 11.4, the country moves from  $Q$  to the right, but does not reach the optimum position  $Q''$  as the too feeble signal induces it to stop beforehand, for example at  $Q'$ , and to consume at  $E$ . Here social welfare is certainly better than that at the autarkic point  $Q$ , though lower than at the optimal consumption point  $C$  (corresponding to the production point  $Q''$ ).

In such a situation the advocates of protectionism suggest, to offset the distortion, a commercial policy such as, for example, a subsidy to exports. This subsidy brings about a production gain but a consumption loss (due to the fact that domestic consumers pay a higher price for commodity  $B$  than the one that foreign consumers are charged), with an ambiguous net outcome.

Also in this case, the optimal policy is a less protectionist one, that is, a subsidy to the domestic production of  $B$  (and/or a tax on the domestic production of  $A$ ), so as to offset the initial price distortion without introducing consumption losses. In fact, since the subsidy is to *all* domestic production (not only to the part of it being exported), the production of this commodity will be enhanced with no consumption loss, because—as all production is subsidized—domestic consumers will pay the same lower price as the foreign ones. The “less protectionist” qualification is due to the fact that, according to the classification in Sect. 10.6.4, point (c), a subsidy to production is in general listed among the obstacles to free trade. On production subsidies see Sect. 12.4.

## 11.4 Distortions in Domestic Factor Markets

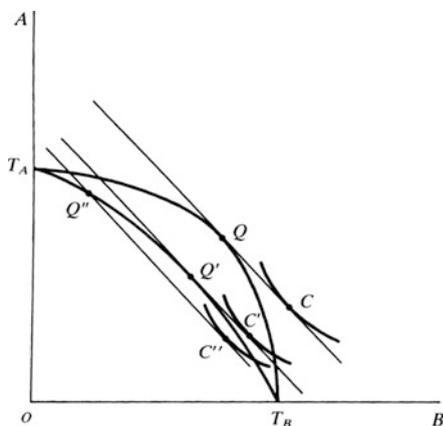
These distortions imply that the equality between the price of a factor and the value of its marginal productivity and/or the equalization of the price of a factor in all sectors do not hold. For example, the industrial wage rate may exceed the value of the marginal product of labour in industry, or the wage rate in agriculture may be different from that in industry, though both are equal to the value of the respective marginal productivities. This will lead to an inefficient allocation of resources and, consequently, the country will not be on its true transformation curve, say  $T_AQT_B$  in Fig. 11.5, but on a lower curve, say  $T_AQ'T_B$ .

In other words, the distortions under consideration prevent the country from reaching the efficiency locus in the box diagram (see Sect. 3.1), since the conditions of efficiency require that the marginal rate of technical substitution (given by the ratio between the marginal productivities of the two factors) should be equal in both sectors and equal to the (common) factor-price ratio. One

---

<sup>3</sup>It is also possible for the signal to be too strong, so that the country overspecializes in the right direction and overshoots the optimal point. See, for example, Chacholiades (1978, pp. 509–510).

**Fig. 11.5** Distortions in domestic factor markets



might think that no problem arises so long as this ratio is the same though the absolute factor prices are different (of course by a common factor, say,  $p_{LA} = qp_{LB}$ ,  $p_{KA} = qp_{KB}$ ,  $q > 0$ ), and each factor is paid the value of its marginal productivity. This, however, is not true, for the optimum conditions also require (see Sect. 19.1) that  $p_A/p_B = MPL_B/MPL_A = MPK_B/MPK_A$ . Now, if  $p_A MPL_A = p_{LA}$ ,  $p_B MPL_B = p_{LB} = qp_{LA}$  etc., we get  $p_A MPL_A / p_B MPL_B = q$  etc., whence  $p_A/p_B = q MPL_B / MPL_A$  etc., which is not consistent with the optimum conditions unless  $q = 1$ .

Since the transformation curve  $T_AQT_B$  is derived—as shown in Sect. 3.1—from the efficiency locus, if the country is not on this locus its production possibilities will also be lower than the maximum ones (represented by the  $T_AQT_B$  curve), whence the curve  $T_AQ'T_B$ . Let us note that the intercepts with the axes are the same, because, when all productive factors are employed in the production of one good, no problem of resource allocation arises and the distortions will be irrelevant.

In Fig. 11.5 we have drawn a family of parallel straight lines with a slope equal to the given terms of trade. If we assume for the time being that the distortions in factor markets have no effect on goods markets, what happens is that the country will produce at point  $Q'$  (which is optimum with reference to the distorted transformation curve) instead of producing at  $Q$ , and will consume at  $C'$  instead of  $C$ , thus achieving a lower welfare level.

It is however to be presumed that the distortions in factor markets will cause distortions in goods markets so that—as shown in Sect. 11.3—the country's production point will be to the left of  $Q'$ , for example, at  $Q''$ , and the consumption point will be at  $C''$ . We must now distinguish between two aspects of the problem: the achievement of the optimum point on the distorted transformation curve and of the optimum point on the true transformation curve. As regards the former, the prescription is the same as that given in Sect. 11.3: the optimal policy is not the imposition of a tariff, but a subsidy to the production of  $A$  and/or a tax on that of  $B$ , so as to cause the country to reach the optimum point  $Q'$  on the distorted

transformation curve  $T_A Q' T_B$ . As regards the latter aspect, the optimal policy will consist in taxes (and/or subsidies) on the use of factors, so as to eliminate the divergences which cause the distortions: in this way the efficiency conditions are restored and the country can move to the true transformation curve  $T_A Q T_B$ , then producing at  $Q$  and consuming at  $C$  which denotes a higher welfare level than  $C'$ .

## 11.5 Non-economic Motives for Protection

The most frequently cited non-economic motives for protection are three in number. The first and perhaps oldest motive is *national defence*. The seventeenth century British mercantilists already used this argument to advocate protection for the domestic shipbuilding industry, which in their opinion had to be kept strong and flourishing so that, in case of war, warships could be rapidly built. More generally, seeing that, if war breaks out, international trade will be reduced or even discontinued, the country must maintain domestic production of certain strategic commodities (even if in period of peace it is more expensive to produce them domestically than to import them) so as not to find itself at the mercy of the enemy should war come.

The second motive is *national pride*. To produce a certain commodity at home may become a motive of national pride, much as winning Olympic medals or the America Cup. In such cases, the industry producing that commodity will be protected in any event, even if this involves a very high cost.

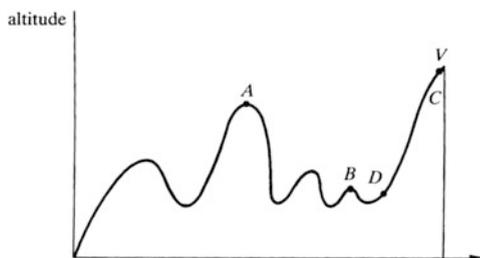
The third motive refers to *foreign policy*. Countries often use economic means (aid, tariffs, embargoes, etc.) to obtain political benefits.

It is obvious that in all cases in which non-economic motives are present, protectionism will be brought into being even if it were shown not to be advantageous from the strictly economic point of view. This, it should be stressed, is not at all irrational, for it simply means that in the social welfare function the arguments “national defence”, “national pride”, etc., are also present and predominate over economic arguments.

## 11.6 The Theory of Second Best

It is time to inquire whether it is possible to reach general results on the outcome of the free-trade-versus-protection debate. Many authors share the opinion that free trade is better than restricted trade (excluding the case of the optimum tariff without retaliation) and that, if the country wants to help infant industries or correct the effects of distortions, it had better use subsidies and/or taxes rather than tariffs, as was shown in Sects. 11.2–11.5. This opinion, however, must be qualified, as its validity has been demonstrated in a situation of free competition in all national and international markets (of both commodities and factors).

**Fig. 11.6** Intuitive graphic representation of the theory of second best



When this situation does not occur (and as a rule it doesn't), the problem is quite different and we must have recourse to the theory of second best. This theory purports to find the (second) best situation when (because of distortions or whatever) it is not possible to fulfil all the conditions for a Pareto optimum (first best). The fundamental principle of this theory is that *once one or more of the Pareto-optimum conditions is violated, it is not necessarily true that the (second) best situation is that in which all the remaining conditions are fulfilled.*

A corollary of this principle is that it is not possible to ascertain on purely a priori grounds whether the replacement of a violation of the Paretian conditions with another violation improves or worsens the situation. Another corollary is that the elimination of a violation (except when it is the only one) does not necessarily improve the situation, and that the introduction of a further violation does not necessarily worsen it. In other words, this means that, in a world in which are present non competitive situations, distortions, and various restrictions to free trade, *the elimination of one or more of these restrictions does not necessarily mean the achievement of a better situation, and the introduction of one or more further restrictions does not necessarily mean a deterioration of the situation but, paradoxically, might even lead to a better situation, though still suboptimal.*

A rigorous proof of the fundamental principle of the theory of second best will be given in Sect. 25.2; here we give an intuitive idea of it, by elaborating on an analogy due to [Meade \(1955, p. 7\)](#). Imagine a person who wishes to reach the highest point on a range of hills. In walking towards this point, the person will have to climb lower hills and then go downhill: it is therefore not true that to reach the goal this person will always have to walk uphill. Furthermore, as the highest hill is surrounded by lower ones of different heights, after having climbed one hill the person will probably have to climb yet another one but of lower height: it is therefore not true that any movement towards the target brings the climber to an ever higher point.

Elaborating further on this effective analogy, if for example a gorge or another insuperable obstacle prevents the climber from reaching the summit and if this person's objective is despite everything to climb to the highest possible point, our climber may have to go back quite a long way if the second highest hill is a great distance from the very highest. In terms of Fig. 11.6, the climber arrives at *B* and sees that the way to *V* is blocked by an insuperable gorge at *D*. Then, instead of staying at *B* or, worse, walking towards *V* as far as *D*, the climber will have to backtrack to *A* to reach the second highest point.

Now, if we apply the theory of second best to the free-trade-versus-protection debate, it immediately follows that, *in the real world*, it is not possible to ascertain a priori whether a protectionist policy improves or worsens the situation nor is it possible to state that any movement towards freer trade automatically gives rise to an improvement.

Similarly, it is not possible to state, as the traditional theory goes, that there exist other policies decidedly better than the imposition of a tariff. This statement, in fact, is certainly true only if *all* the violations of the Pareto-optimum conditions are eliminated; a particular case occurs when there is *only one* violation (for example a distortion in the factor market or in the goods market), in which case the elimination of the violation without the introduction of others restores the optimum situation for certain (in terms of Fig. 11.6, if our climber is at *C*, the last step uphill will certainly bring this person to *V*). This, as the reader can check, has implicitly been the line of reasoning followed—in accordance with traditional theory—in Sects. 11.2–11.5.

But if, as is true in the real world, there are numerous violations of the Paretian conditions, it follows from the theory of second best that it is not possible to state for certain that a policy which eliminates one of these without introducing another violation is better than a policy which eliminates the same violation by introducing another.

It is clear that, things being so, it becomes impossible to make statements valid in general and deduce a priori policy prescriptions from a limited number of guiding principles. In reality any outcome is possible and one must ascertain which is the best policy (free trade or protection in its various forms) in each actual case without being blinded by theoretical preconceptions.

## 11.7 Preferential Trading Cooperation

### 11.7.1 *The Various Degrees of Cooperation*

After dealing with tariffs and protectionism it is natural to proceed to the theory of preferential trading cooperation, whose main forms (in order of increasing degree of integration) are:

1. A *preferential trading club* (or *agreement*), which is an agreement between two or more countries to reduce tariffs and other restrictions on imports from one another; each member, however, retains complete freedom to impose different tariffs and other restrictions on imports from non-member countries.
2. A *free-trade area* (or *association*), in which the partner countries abolish tariffs and other restrictions on imports from one another, while retaining complete freedom over their commercial policies towards the rest of the world.
3. A *customs union*, which, in addition to the provisions of the free-trade area, establishes a common external tariff schedule on all imports from non-member countries.

4. A *common market*, in which the countries, in addition to the provisions of the customs union, allow free movement of all factors of production among themselves.

It should be pointed out that cooperation can exceed agreements on free movement of goods and factors. The partner countries may decide to unify their economic policies. This unification can have various degrees, going from the harmonization of a limited range of policies up to the complete unification of all economic policies (including monetary policy, possibly with a common currency). In these cases we are in the field of international economic integration, possibly leading to an economic and monetary union. In the older literature preferential trading cooperation was often called (a form of) international economic integration, but to avoid terminological confusion we do not use this definition.

According to these classifications the EEC (European Economic Community), even before its transformation into the European Union, although article 9 of the founding treaty (Treaty of Rome, 1957) stated that the Community was founded upon a customs union, more properly belonged, at least in theory, to the category of economic unions, since it involved unification of some economic policies (agricultural policy, for example).

We finally note that, as in the world there are several preferential trade cooperation arrangements, the issue of their interrelations arises. This gives rise to complex problems, for example of the “hub-and-spoke” type. This term refers to arrangements that give one region (the hub) better access to other regions (the spokes) than these have to one another (Baldwin, 1994; Kowalczyk & Wonnacott, 1992; Krugman, 1993b). For example, as a consequence of association agreements between the European Union and several CEECs (Central and East European Countries), bilateral trade liberalisation between the EU and each of these CEECs has taken place, but trade barriers between the CEECs have remained. For these problems we refer the reader to the cited authors.

### ***11.7.2 The Effects of a Customs Union***

In this section we shall deal mainly with the theory of customs unions but most of the analysis can be applied to other forms of trade cooperation. In general, it might seem that, since a customs union represents a step towards the ideal situation of free trade, it will improve social welfare. But this is not the case: as we know from the theory of second best (Sect. 11.6), when the Pareto-optimum conditions are violated, the elimination of part of these violations does not necessarily bring about an improvement. We must therefore examine the effects of the formation of a customs union more closely. Viner (1950), in examining these effects on the production side, introduced the distinction between *trade creation*, which represents an improvement in resource allocation, and *trade diversion*, which, on the contrary, represents a worsening in this allocation.

**Table 11.1** Effects of a customs union

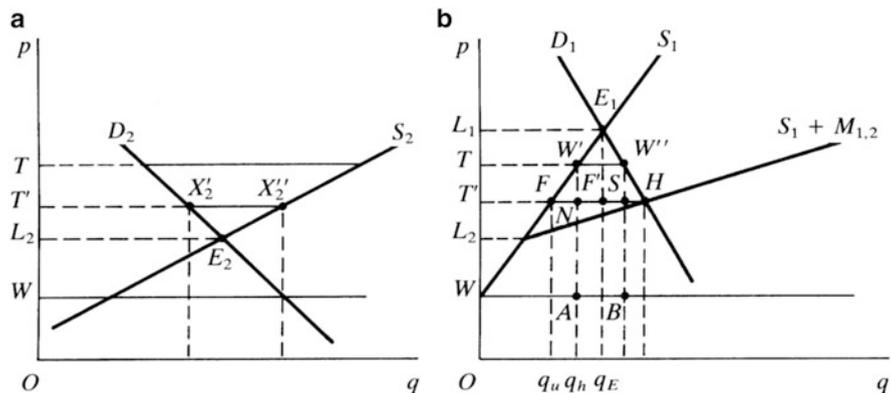
Commodity	Cost	Country 2 (exp to 1)	Country 1	Country 3 (exp to 1)	Effects
A	Cost	12	14	10	
	Cost + tariff before the union	15.6	14	← 13	
	Cost + tariff after the union	12	→ 14	13	Trade diversion
B	Cost	14	11	15	
	Cost + tariff before the union	18.2	11	19.5	Neither diversion
	Cost + tariff after the union	14	11	19.5	Nor creation
C	Cost	12	15	13	
	Cost + tariff before the union	15.6	15	16.9	
	Cost + tariff after the union	12	→ 15	16.9	Trade creation

*Trade creation* refers to the fact that, as a consequence of the elimination of tariffs (in this section, for brevity, “tariffs” indicates “tariffs and other barriers to trade”) within the union, a commodity—which before the union was produced domestically by each partner country and not traded because of tariffs—is now traded and so is produced by that partner country which is most efficient in its production. This brings about a better allocation of resources.

*Trade diversion* occurs when the elimination of tariffs within the union induces a partner country to import a commodity from another partner country instead of from a country outside the union as it did before, because, though the latter is the most efficient in producing the commodity, it is no longer competitive on account of the tariff, which has been maintained against it. This leads to a worse allocation of resources.

Better to explain these effects, we must consider at least three countries: two which form a union and a third representing the rest of the world. The following numerical example may be helpful. Consider two countries, 1 and 2, forming a customs union, whilst country 3 remains outside, and three commodities *A*, *B*, *C*. The arrows in Table 11.1 represent the direction of trade flows; no arrow means no trade. The productive efficiency is measured in terms of the unit cost of production (a common unit is used) in the absence of tariffs; for simplicity this cost is assumed constant. Before the customs union, country 1 applied a 30% tariff on all imports, whilst after the union it keeps the tariff on imports coming from country 3 and eliminates it on imports from country 2. Let us now consider the effects of the union with reference to country 1.

As regards commodity *A*, the most efficient country is country 3, where the unit cost is lowest. Before the union, country 1 imports commodity *A* from country 3, as its price, even with the tariff, is lower than the domestic cost of production



**Fig. 11.7** Effects of a customs union

(13 instead of 14). After the union, country 1 imports the same commodity from country 2, because its cost is 12, lower than 13: the lower efficiency of country 2, with respect to country 3, in producing *A* is more than offset by the tariff schedule. Therefore, the union causes a less efficient allocation of resources (trade diversion). As regards commodity *B*, the most efficient country is country 1: the formation of the customs union, therefore, does not change the fact that, for this country, it is better to produce *B* domestically rather than to import it. The situation for country 1 is the same both before and after the union and the union has no effect on its trade.

Finally, the presence of a prohibitive tariff prevented country 1 from importing commodity *C*; the formation of a union with country 2, which is the most efficient in producing *C*, brings about a better allocation of resources, as country 1 now imports this commodity from country 2 (trade creation).

This analysis considers only the *production* effects of the union, but [Johnson \(1960\)](#) and others have rightly observed that, to evaluate the consequences of the formation of a customs union, one must also consider the *consumption* effects and, more precisely, the effects on consumers' surplus. Thus we also have *trade creation* and *diversion* from the point of view of *consumption*. The former derives from the fact that consumers substitute cheaper foreign goods (imported from a member country) for more expensive domestic goods, and so benefit from an increase in consumers' surplus. The latter derives from the fact that consumers' surplus decreases as a consequence of consumers having to substitute more expensive foreign goods (imported from a member country) for formerly cheaper goods (previously imported from a country remaining outside the union) which are now non-competitive because the union has decided to raise tariff rates with respect to non-member countries.

If we add the effects on production and consumption together, we have trade creation and diversion in the *broad sense*. These broader concepts of trade creation and diversion can be illustrated in a partial equilibrium framework by using a diagram. In [Fig. 11.7a](#) we have drawn country 2's domestic demand and supply

curves for a certain commodity whilst Fig. 11.7b depicts country 1's domestic demand and supply curves for the same commodity. We then calculate, for any given price, the excess supply  $S_2 - D_2$ , that is, country 2's supply of exports which, in the case where countries 1 and 2 contemplate the formation of a customs union, has to be added to country 1's domestic supply, giving rise to the curve  $S_1 + M_{1,2}$  in Fig. 11.7b. This curve originates from  $S_1$  at the point corresponding to country 2's domestic equilibrium price,  $OL_2$ .

For simplicity's sake the supply price of the commodity by the rest of the world is assumed constant and is—in the absence of tariffs—equal to  $OW$ .

Let us now consider various cases, following Robson (1998).

- (a) If before the union both country 1 and country 2 levied a prohibitive tariff, the domestic prices were  $OL_1$  and  $OL_2$  respectively. After the union both countries levy a tariff at the same rate (for example an average of the pre-union rates) against the rest of the world, so that the domestic price in both countries is established at a common level, intermediate between  $OL_1$  and  $OL_2$  for example  $OT$ . This, however, is not an equilibrium price, as country 2's excess supply is greater than country 1's excess demand; the price, therefore, decreases to  $OT'$ , where  $X'_2X''_2 = FH$ , i.e. the combined supply  $S_1 + M_{1,2}$  is equal to the demand  $D_1$ .

To examine the effects of the customs union we can use the concepts of producers' and consumers' surplus employed in Sect. 10.3. In country 1, as a consequence of the decrease in the domestic price from  $OL_1$  to  $OT'$ , consumers' surplus increases by the area  $T'L_1E_1H$  whilst producers' surplus decreases by the area  $T'L_1E_1F$  (domestic producers have had to reduce output from  $Oq_E$  to  $Oq_u$  as a consequence of the decrease in the domestic price). The net benefit is given by the area  $FE_1H$ , which can be divided in two parts. Area  $FE_1F'$  represents the production effect, that is the decrease in costs due to the fact that the quantity  $q_uq_E$  is imported at a cost (that of country 2) lower than that of producing it at home; this is the *production part of the trade creation effect*. Area  $F'E_1H$  represents the *consumption part of the trade creation effect*. The sum of the two constitutes the trade creation effect of the union.

Country 2's domestic price increases from  $OL_2$  to  $OT'$ , so that there is a decrease in consumer's surplus equal to area  $L_2T'X'_2E_2$ . But the increase in producers' surplus (area  $L_2T'X''_2E_2$ ) is greater, so that the union's net effect is favourable to country 2 as well.

As regards the rest of the world, the situation is unaltered, as its trade with countries 1 and 2 was nil both before and after the union between these two countries.

We can therefore conclude that in the case examined the formation of the union is unequivocally beneficial.

- (b) A second case occurs when before the union only country 2, and not country 1, levied a prohibitive tariff. Let us then assume that in country 1 the pre-union tariff rate was such as to give an absolute unit amount equal to  $WT$ , so that

domestic output was  $Oq_h$  and imports (coming from the rest of the world) were  $W'W''$ . Tariff revenue was  $W'T \times W'W''$ , that is, equal to area  $W'ABW''$ .

A customs union is now formed between countries 1 and 2, and the common tariff rate against the rest of the world will be intermediate between the pre-union tariff rates of the two countries, for example such as to give an absolute unit amount equal to  $WT'$ , so that the domestic price in both countries changes to  $OT'$ . Country 1 now imports  $FH$  of the commodity under consideration from country 2 and produces  $Oq_u$  of it domestically. Consumers' surplus increases by area  $T'TW''H$ , producers' surplus decreases by area  $T'TW'F$ , the government's tariff revenue disappears, that is, decreases by the whole area  $W'ABW''$ . This last area can be divided into two parts, as  $W'ABW'' = W'NSW'' + NABS$ . The balance between benefits and costs can then be reduced graphically to the comparison between areas  $FW'N$  and  $SW''H$  on the one hand, and area  $NABS$  on the other.

Area  $FW'N$  represents the production part of the trade creation effect, due to the saving on production cost that derives from the fact that the quantity  $q_uq_h = FN$ , instead of being produced at home, is imported at a lower cost (that of country 2). Area  $SW''H$  represents the consumption part of the trade creation effect. Area  $NABS$ , on the contrary, represents a trade diversion on the side of production, due to the fact that the quantity of imports  $W'W'' = AB$ , which prior to the union came from the rest of the world, now comes from country 2, with an additional cost in terms of resources equal to the difference between  $OT'$  (the supply price, i.e. the marginal cost, of the commodity in country 2) and  $OW$  (the supply price, i.e. the marginal cost, in the rest of the world); this difference is  $T'W = NA$ .

The diagram shows that in the case under examination the balance between country 1's benefits and costs is unfavourable, but of course, in general, the opposite outcome is possible.

As regards country 2, the effects are the same as in case (a), so that this country gains from the union. Therefore, if we were willing to accept the inter-country comparability of the monetary measures of the various effects (expressed in a common unit), we could calculate the algebraic sum  $FW'N + SW''H - NABS + X'_2X''_2E_2$  and ascertain whether the union is on the whole beneficial or harmful. Note that we have not included in this calculation the effects on the rest of the world, which sees its net exports drop by  $W'W''$ . However, as we have assumed that the supply curve of the rest of the world is perfectly elastic, for a first approximation these effects can be ignored.

Those illustrated are only two out of practically unlimited possibilities: the reader can construct other examples *ad lib* and analyse them by way of the same graphical technique. The fact that it is not possible to demonstrate general propositions (except the purely negative one that it is impossible to state any precise result, as anything can happen) is by now obvious if one refers to the theory of second best.

Since it would not be possible to reach definite general conclusions even if one examined the effects of a customs union in a general equilibrium setting, for the same motives related to the theory of second best, we omit the general equilibrium analysis of customs unions (for which see, e.g., [Kemp, 1969a](#); [Lipsey, 1970](#); [Lloyd,](#)

1982). It is however possible to give some indications of a probabilistic type (thus likely to be sometimes wrong, sometimes correct). These indications are that a customs union will be more likely to produce beneficial effects:

- (i) The greater is the degree of competitiveness among member countries, i.e. the greater the number of similar goods they produce. In such a case, in fact, due to the differences in productive efficiency, each country will expand its comparatively more efficient industries and contract the comparatively less efficient ones; thus there will be more scope for trade creation without much trade diversion from other countries;
- (ii) The higher are the initial tariffs between the countries forming the customs union: in fact, the gain deriving from the elimination of these tariffs will be larger;
- (iii) The lower are the tariffs with the outside world: trade diversion, in fact, will be less likely;
- (iv) The wider is the union, as this increases the probability that trade creation effects will override trade diversion effects (in the extreme case, if the union includes all the world, we have free trade and no trade diversion can occur).

So far the analysis has been of a (comparative) *static* type; in addition to this, the theory of customs unions also examines the *dynamic* benefits of a union; the main benefits are:

1. The increase in the size of the market made possible by the union allows the industries producing traded goods to enjoy the fruits of economies of scale;
2. The elimination of protection with respect to member countries brings about an increase in competition;
3. The fact that the member countries together negotiate the tariffs with the rest of the world, gives them greater bargaining power.

In addition to the possible economic gains so far examined, there are gains of a political nature, which are outside the scope of this treatment, but which, like the non economic motives for protection, may warrant the formation of a union (or the entry into an existing one) even if the strictly economic benefits are not positive.

### 11.7.3 *Empirical Problems*

In concluding this treatment it is as well briefly to mention the methods used for the empirical estimation of the effects of economic integration.

A first distinction is between *ex ante* and *ex post* estimates. *Ex ante* estimates aim to evaluate the future effects of a prospective economic union (in what follows we use the term economic union to indicate any one of the five categories of economic integration listed at the beginning) or of the entry of new members into an already existing economic union. In this case the data concerning the existing pre-union situation is known and one has to estimate the hypothetical result of the prospective

integration, on which, naturally, no data is available. *Ex post* estimates aim to evaluate the effects of an already existing economic union. Although in this case the problem might seem simpler, as the post-integration data is known, it should be pointed out that the problem is to ascertain to what extent the events *observed* are due to the union and to what extent they would have come about (even) in its absence. One must, in other words, compare a known situation (the events observed) with an unknown and hypothetical one (what would have happened if the union had not been formed). This is the usual problem that derives from the impossibility, in economics, of carrying out experiments under controlled conditions.

A second distinction is based on the methods used for estimating the hypothetical alternative, which are principally three. The *direct* method consists in using a precise analytical model, the parameters of which are estimated econometrically; simulation procedures are then used to produce the alternatives. The *survey* (or *delphic*) method consists in assessing the views of the experts, for example by asking the managements of the firms how they expect the sales in the domestic market and in the markets of the partner countries to change as a consequence of the modification in the trade barriers. The *indirect* method consists in projecting the pre-integration trade flows into the post-integration period, then calculating the effects of the economic union as the difference between actual and projected flows (so-called residual imputation).

Many empirical studies were carried out as regards the EEC (European Economic Community, now transformed into the European Union); the reader interested in these can consult, for example, [Robson \(1998, chap. 12\)](#), [Grinols \(1984\)](#), and [Winters \(1989\)](#). The results of different studies are often themselves different: for instance, various studies carried out around 1970 on the effects of UK entrance in the EEC yielded *ex ante* estimates all indicating a net cost, but varying from 453 to 1,144 million pounds (1969 prices). *Ex post* estimates ([Grinols, 1984](#)), for the UK and for the period 1972–1980, indicated, again, a net cost amounting to about 1.5 % of GDP.

For estimates concerning the United States and NAFTA (North American Free Trade Agreement) see [Bhagwati and Panagariya \(1996\)](#) and [Krueger \(2000\)](#).

## 11.8 The Main Cases of Preferential Trading Cooperation

### 11.8.1 *The European Common Market (Now European Union)*

The European Economic Community (EEC) was founded with the Treaty of Rome signed in 1957. The founding countries were West Germany, France, Italy, Holland, Belgium, Luxembourg. At the beginning it contemplated a common external tariff; the complete liberalization of trade in industrial goods among the members took place only in 1968. The still existing non-tariff barriers were eliminated in 1986, thus realizing a true customs union. Free factor mobility among the members was realized subsequently, first that of capital and then (1993) that of labour, thus giving rise to a true common market.

Over the years other countries joined the initial 6, reaching the number of 27 (Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Holland, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovenia, Slovakia, Spain, Sweden, United Kingdom), and negotiations are under way with other countries (Croatia, Iceland, Macedonia, Turkey) for their admission. In the meantime the name was changed, from EEC to EU (European Union).

The European Union is something more than a common market, because it contemplates various measures of coordination of the members' policies (the best known is the common agricultural policy) and other interventions to homogenize the economies of the member countries. Details can be found in the EU's site, <http://europa.eu.int>

### 11.8.2 NAFTA

The North Atlantic Free Trade Association is a free trade area formed in 1993 among the United States, Mexico, and Canada, aimed at the elimination not only of tariffs, but also of non-tariff barriers to the circulation of commodities and services. The possibility is also contemplated for each member country to invest capital in any other member, hence NAFTA is something more than a mere free trade association. The official site is <http://www.nafta-sec-alena.org>

#### Box 11.1 European Economic Integration

The European Internal Market became a reality in 1993. Since then the EU countries have experienced convergence in terms of consumer prices though significant differentials remain in some areas. There was a period of widening prices in the mid-1990s, but overall the tendency is clear, and with the price transparency, and with the elimination (thanks to the euro) of currency conversion costs and exchange rate risk, the trend can be expected to continue. However, other costs of trading (such as transport) remain, so significant variations in prices can be expected to remain within the euro area, especially in sectors which are less exposed to trade. The wide wage discrepancies prevailing among EU countries at the start of the integration have considerably decreased. As regards the prices of capital (interest rates), convergence has been observed thanks to the creation of EMU.

To evaluate the economic effect of a regional trade agreement such as the EU on the partners and third countries, theory—as we know—focuses on the concepts of trade creation (switching of imports from a high-cost origin to a low-cost origin) and trade diversion (switching of imports from a low-cost source to a high-cost source) that can be measured by the share of intra-union versus extra-union trade. As a general rule, the greater the absolute growth of extra-union trade, the less the danger of trade diversion. In the EU's case, the share of intra-EU trade in total trade has risen from 42% in 1961 to 64% in 2010. The increase in the intra-EU trade share was accompanied by a rapid absolute growth of extra-EU trade. This indicated that trade creation dominated trade diversion. Tsoukalis (1997) argued that overall trade creation dominated in manufactured goods and overall trade diversion in agricultural goods. The latter is the result of the Common Agricultural Policy, which has protected EU agriculture from foreign competition.

### 11.8.3 *MERCOSUR*

MERCOSUR (acronym from the Spanish Mercado Común del Sur, Common Market of the South; or MERCOSUL, acronym from the portuguese Mercado Comum do Sul) is an agreement signed in 1991 by some Latin-American countries, originally Argentina, Brazil, Paraguay, Uruguay, which in 1996 were joined by Bolivia and Chile. This agreement aims at the formation of a common market among these countries. The official site is <http://www.mercosur.org.uy>

### 11.8.4 *ASEAN*

The Association of Southeast Asian Nations was formed in 1967 for political reasons, to defend the member countries against the then communist Indochina; the original members were Thailand, Malaysia, Singapore, Indonesia, the Philippines. ASEAN was subsequently transformed into a preferential trading association with the intention of moving on to a customs union and then to a common market. The founding countries have been joined over the years by Brunei Darussalam, Cambodia, Laos, Myanmar, Vietnam. The official site is <http://www.aseansec.org>

### 11.8.5 *FTAA*

The Free Trade Association of the Americas (or ALCA, from the Spanish Área de Libre Comercio de las Américas) was proposed in the Miami conference held in 1994 among 34 countries of the Americas. It aims at giving rise to a free trade area that will eliminate all barriers to trade and investment flows. This area will not be in competition with other existing agreements (such as NAFTA). The official site is <http://www.ftaa-alca.org>

## References

- Baldwin, Richard E. (1994). Towards an integrated Europe.
- Bhagwati, J. N. (1982a). Directly unproductive, profit-seeking (DUP) activities.
- Bhagwati, J. N. (1995). U.S. trade policy: The infatuation with free trade agreements.
- Bhagwati, J. N., & Panagariya, A. (Eds.), (1996). *The economics of preferential trade agreements*.
- Bhagwati, J. N., Panagariya, A., & Srinivasan, T. N. (1998). *Lectures on international trade* (Pt. III).
- Chacholiades, M. (1978). *International trade theory and policy* (Pt. VII).
- Corden, W. M. (1971a). *The theory of protection*.
- Corden, W. M. (1974). Trade policy and economic welfare.
- Corden, W. M. (1984b). The normative theory of international trade.

- Deardoff, A., & Stern, R. M. (1984). The effects of the Tokyo round on the structure of protection.
- El-Agraa, A. M. (1984). *Trade theory and policy*.
- Ethier, W. J., & Horn, H. (1984). A new look at economic integration.
- Greenaway, D. (1983). *International trade policy: From tariffs to the new protectionism*.
- Grinols, E. L. (1984). A thorn in the Lion's Paw: Has Britain paid too much for common market membership?
- Hicks, J. R. (1981). *Wealth and welfare* (pp. 100–132).
- Johnson, H. G. (1953). Optimum tariffs and retaliation.
- Johnson, H. G. (1960). The economic theory of customs union.
- Jones, A. J. (1979). The theory of economic integration.
- Kemp, M. C. (1969a). *A contribution to the general equilibrium theory of preferential trading*.
- Kemp, M. C. (1976). *Three topics in the theory of international trade: Distribution, welfare and uncertainty* (Pts. I and III).
- Kowalczyk, C., & Wonnacott, R. J. (1992). Hubs and spokes, and free trade in the Americas.
- Krauss, M. B. (1972). Recent developments in customs union theory: An interpretive survey.
- Krueger, A. O. (1974). The political economy of the rent-seeking society.
- Krueger, A. O. (2000). NAFTA's effects: A preliminary assessment.
- Krugman, P. R. (1993b). The hub effect: or, threeness in interregional trade.
- Lipsey, R. G. (1960). The theory of customs unions: A general survey.
- Lipsey, R. G. (1970). *The theory of customs unions: A general equilibrium analysis*.
- Lloyd, P. J. (1974). A more general theory of price distortions in open economies.
- Lloyd, P. J. (1982).  $3 \times 3$  theory of customs unions.
- Markusen, J. R., Melvin, J. R., Kaempfer, W. H., & Maskus, K. E. (1995). *International trade: Theory and evidence*.
- McMillan, J. (1989). *Game theory in international economics*.
- Meade, J. E. (1952). *A geometry of international trade* (chap. VI).
- Meade, J. E. (1955). *The theory of international economic policy* (Vol. 2).
- Pearce, I. F. (1970). *International trade* (Book I, chaps. 7 and 9).
- Puga, D., & Venables, A. J. (1997). Preferential trading arrangements and industrial location.
- Robson, P. (1998). *The economics of international integration*.
- Swann, D. (2000). *The economics of Europe: From common market to European union*.
- Takayama, A. (1972). *International trade: An approach to the theory* (Pt. V).
- Tsoulakis, L. (1997). *The new European economy revisited*.
- Viner, J. (1950). *The customs union issue*.
- Vousden, N. (1990). *The economics of trade protection*.
- Winters, L. A. (1989). Britain in Europe: A survey of quantitative trade studies.