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EFFECTIVE TARIFFS, DOMESTIC COST OF FOREIGN EXCHANGE, AND THE EQUILIBRIUM EXCHANGE RATE

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Effective Tariffs, Domestic Cost of Foreign Exchange, and the Equilibrium Exchange Rate*

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I

The use of traditional two-commodity, two-country models had long restricted the theory of tariffs to a consideration of final goods. In recent years, however, attention has been given to the protective effects of tariffs on commodities at various stages of fabrication, and efforts have been made to evaluate the impact of trade policies on resource allocation.

Two major trends of thought stand out in this development: Michael Bruno (1963; 1967, pp. 88–135) and Anne Krueger (1966) have examined the domestic cost of foreign exchange, while, among others, Bela Balassa (1965), H. G. Johnson (1965), and W. M. Corden (1966) have focussed on the effective rate of protection of individual industries. The purpose of this paper is to indicate the relationship between the two measures and their relevance for the choice among individual industries in a developing country. In this connection, we will also deal with questions of comparative advantage and "equilibrium" exchange rates.

II

Bruno calculates the cost of foreign exchange saved in the case of import-competing goods and the cost of foreign exchange earned in regard to exports. The analysis of the two cases is basically the same,[1] hence we may

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[1] The only difference is that while c.i.f. prices are used in calculating the cost of foreign exchange saved, exports—but not their imported inputs—are evaluated at f.o.b. prices. This distinction reflects the assumption that freight and insurance are wholly supplied by foreign factors.

speak of "the cost of foreign exchange" irrespective of whether exchange reserves increase because the country saves or earns an additional unit of foreign exchange. For a given commodity, the cost of a unit of foreign exchange (earned or saved) is taken to equal the direct and indirect domestic resource costs incurred in supplying it domestically, divided by the difference between the foreign price of the product and the foreign exchange cost of direct and indirect imported inputs. The same measure is used, although without reference to Bruno's work, by Krueger.[2]

Let us assume a competitive economy and denote domestic resource costs (value added) at a given stage of fabrication by W, the world market price of the commodity by P, the value of imported inputs per unit of output by N, and elements of the matrix of direct and indirect input requirements by r_{ji}. The cost of a dollar earned or saved for commodity i will be

$$B_i = \frac{\sum_j W_j r_{ji}}{P_i - \sum_j N_j r_{ji}}. \tag{1}$$

For example, if the sum of direct and indirect domestic value added is 240 pesos, the c.i.f. import price ten dollars and, in the event of domestic manufacturing, there is an expenditure of six dollars on direct and indirect imported inputs, the domestic resource cost of a dollar will be 60 pesos. For the sake of comparability with the effective rate of protection, let us reinterpret this measure by expressing foreign values in terms of domestic currency. If the exchange rate is 50 pesos to the dollar, we now get 1.2, indicating that the cost of the dollar in this case exceeds the rate of exchange by 20 per cent.

According to Bruno (1967, p. 106), the cost of foreign exchange criterion "clearly measures comparative advantage," and the relative desirability of export-promoting or import-substituting projects should be evaluated by ranking them accordingly. Under the assumption of constant costs and infinite foreign demand elasticities, the formula has also been used by Krueger to estimate the cost of protection in Turkey. This cost equals the savings in domestic resources that can be obtained by expanding relatively efficient export industries and contracting relatively inefficient import-substituting activities (Krueger, 1966, p. 475).

In turn, the effective rate of protection is designed to indicate the degree of protection of value added at a given stage of the manufacturing process. It equals the excess of the remuneration of domestic factors of production (domestic value added), obtainable by reason of the imposition of tariffs and other trade barriers, as a percentage of value added in a free trade

[2] Both authors adjust for rent to capital (the rate of return exceeding a figure assumed to equal the marginal productivity of capital) and for indirect taxes. Krueger also adjusts for tariffs, but the rationale for this adjustment is not clear.

situation. Tariffs on the product itself raise the effective rate of protection, while duties on inputs have the opposite effect.

If input coefficients are constant in the relevant range and domestic prices equal the world market price plus the tariff, the effective rate of protection on commodity i can be expressed as

$$Z_i = \frac{P_i(1 + T_i) - \sum_j M_{ji}(1 + T_j) - (P_i - \sum_j M_{ji})}{P_i - \sum_j M_{ji}} = \frac{W_i - V_i}{V_i} \qquad (2)$$

where subscripts i and j refer to the product in question and its inputs, Z and T are the effective and the nominal rates of tariffs, W and V are value added in the country in question and in a free trade situation, respectively, and M the cost of material inputs per unit of output under free trade.[3]

Developing countries use various protective measures in addition to, or instead of, tariffs. Specific taxes, import surcharges, and prepayment requirements can be considered quasi-tariffs and their tariff equivalent estimated. In turn, in cases where quantitative restrictions rather than tariffs are the relevant means of protection, one should calculate implicit tariffs as the percentage difference between domestic and import prices. These implicit tariffs—the tariff equivalent of quotas—can then be used in the place of nominal tariffs in estimating the effective rate of protection.[4]

Since the effective rate of protection indicates the percentage excess of domestic value added obtainable as a result of protection over value added in a free trade situation, under certain assumptions this measure can be used to rank industries according to their relative advantages. Also, by making assumptions in regard to foreign demand and domestic supply elasticities, the cost of protection can be estimated.

III

It appears, then, that the domestic resource cost of foreign exchange and the effective rate of protection would serve similar objectives. But what is the relationship between these measures, and how can a choice be made between them? To indicate their relationship, let us rewrite equation (2) in regard to commodity j:

$$Z_j = \frac{W_j - V_j}{V_j} = \frac{W_j}{V_j} - 1. \qquad (2')$$

[3] The equation is applicable to the case where estimates are available on input-output coefficients in a free trade situation. A different formula applies if we use instead the input-output data of the country for which effective duties are to be calculated (Balassa, 1968).

[4] Direct price comparisons also need to be made in the case of prohibitive tariffs, since in this case "realized" rather than "potential" protection is relevant.

With a simple transformation, domestic value added can be expressed in terms of V_j and Z_j,

$$W_j = V_j(1 + Z_j). \tag{3}$$

Substituting (3) into (1) we have

$$B_i = \frac{\sum_j V_j(1 + Z_j)r_{ji}}{P_i - \sum_j N_j r_{ji}} = \frac{\sum_j V_j r_{ji}}{P_i - \sum_j N_j r_{ji}} + \frac{\sum_j V_j Z_j r_{ji}}{P_i - \sum_j N_j r_{ji}} \tag{4}$$

and

$$P_i = \sum_j V_j r_{ji} + \sum_j N_j r_{ji}, \tag{5}$$

hence

$$B_i = 1 + \sum_j Z_j \frac{V_j r_{ji}}{\sum_j V_j r_{ji}}. \tag{6}$$

Accordingly, the cost of a unit of foreign exchange equals unity plus a weighted average of the effective rates of protection, the weights being the contribution of direct and indirect value added to output produced under free trade conditions. It is apparent that the formulas of the cost of foreign exchange and the effective rate of protection will generally give a different ranking of domestic industries.[5] A numerical example may be helpful to indicate the causes of these differences and to appraise the relative merits of the two indicators.

Let us consider two import-competing industries: clothing manufacturing and precision equipment. Assume that, in the country in question, the manufacturing of precision equipment involves the use of steel produced under protection while the fabrics used by the clothing industry are not protected. It is further assumed that the production of precision equipment is efficient in the sense that domestic value added equals value added under free trade conditions, while this is not the case for clothing manufacturing. Technological coefficients are taken to be constant in the production of both commodities, and costs are expressed in terms of direct inputs as well as in terms of primary inputs (labor and foreign exchange), with a comparison made between domestic and foreign costs. For simplicity's sake, we take value added to equal direct labor cost and disregard non-traded inputs (see Tables 1 and 2). In terms of the domestic resource cost of foreign exchange, the clothing industry ranks ahead of precision equipment manufacturing: The cost of foreign exchange is 1.2

[5] For Turkey, effective tariffs and the (unadjusted) cost of foreign exchange are: superphosphate fertilizer, 925 and 98.1; plastic, 916 and 292.5; ammonium nitrate fertilizer, 186 and 63.6; truck tires, 170 and 97.9; electric cables, 147 and 49.2; refrigeration units, 80 and 24.7; electric motors, 66 and 20.5 (Krueger, 1966, pp. 472–73).

TABLE 1

CLOTHING: PRODUCTION COSTS IN DOMESTIC CURRENCY

	Domestic Production			Foreign Production		
	Labor	Foreign Exchange	Total	Labor	Foreign Exchange	Total
Fabrics	6	10	16	6	10	16
Direct labor	6	...	6	4	...	4
Total	12	10	22	10	10	20

$$B_c = \frac{\sum_j W_j r_{jl}}{P_l - \sum_j N_j r_{jl}} = \frac{12}{20 - 10} = 1.2.$$

$$Z_c = \frac{W_c - V_c}{V_c} = \frac{6 - 4}{4} = 0.5 \text{ (50 per cent)}; Z_f = \frac{6 - 6}{6} = 0.$$

$$B_c = 1 + \frac{\sum_j Z_j V_j r_{jl}}{\sum_j V_j r_{jl}} = 1 + \frac{0.4 \times 0.5 + 0.6 \times 0}{1} = 1.2.$$

in the first case and 1.4 in the second.[6] By contrast, the rate of effective protection is nil on precision equipment and 50 per cent on clothing (Tables 1 and 2). It follows that the cost of foreign exchange is lower in clothing manufacturing—a relatively inefficient industry—than in the production of precision equipment because the material input of the former (textile fabrics) is produced at world market prices while the latter is penalized by the protection of the domestic steel industry. Accordingly, while the effective rate of protection indicates the relative performance of processing activities, the cost of foreign exchange saved is affected by inefficiencies in the manufacturing of the product itself as well as in the production of its inputs.[7]

Expressed differently, the ranking of domestic industries according to the cost of foreign exchange reflects the implicit assumptions that (1) *all* existing industries will be maintained, and (2) the expansion of the output of any one commodity will require increased output of *all* domestic industries providing direct and indirect inputs into it (that is, the direct and indirect marginal input coefficient of domestic resources and of imports is equal to the corresponding average coefficient). Thus policy changes are assumed not to lead to the substitution of foreign for domestic inputs either in existing output or in future output. Yet one may question the usefulness of this proposition since policy recommendations should properly

[6] Since all variables are expressed in terms of domestic currency, the results are given in index number form with a base of unity. If we multiply B_l by the exchange rate, we get the saving in terms of foreign exchange.

[7] This problem is also noted in Bruno (1963, pp. 113, 167), but he fails to follow it up.

TABLE 2

PRECISION EQUIPMENT: PRODUCTION COSTS IN DOMESTIC CURRENCY

	Domestic Production			Foreign Production		
	Labor	Foreign Exchange	Total	Labor	Foreign Exchange	Total
Steel	10	10	20	6	10	16
Direct labor	4	...	4	4	...	4
Total	14	10	24	10	10	20

$$B_p = \frac{14}{20 - 10} = 1.4.$$

$$Z_p = \frac{4 - 4}{4} = 0; \; Z_s = \frac{10 - 6}{6} = 0.67 \text{ (67 per cent).}$$

$$B_p = 1 + \frac{0.4 \times 0 + 0.6 \times 0.67}{1} = 1.4.$$

cover the inefficient input-producing industries also. At the same time, it would be hardly correct if the past establishment of an inefficient steel industry would jeopardize the chances for setting up precision equipment industries if, for example, the high labor content gives a developing country comparative advantage.

But how about the case where relatively inefficient (high cost) input-producing industries are retained following a reform of the system of protection? If our aim is that ultimately all industries should become competitive on the world market, the answer is simple: The desirability of individual industries should be evaluated by the use of the effective protection measure rather than by the cost of foreign exchange, since temporary inefficiencies (high costs) in input-producing industries should not influence the choice among final products.

Alternatively, we may accept inefficiencies for the sake of non-economic or other objectives and envisage the maintenance of protection in input-producing industries for an indefinite period. This assumption would not affect the conclusions either, provided that the additional inputs necessary for the expansion of the user industries are imported, since, from the point of view of comparative advantage, the marginal rather than the average coefficients are relevant. Were we to assume, instead, that political pressures would entail the expansion of some inefficient input-producing industries *pari passu* with the user industries, the effective rate of protection should be adjusted in the way indicated below.[8]

[8] Another exception is the case where the expansion of one industry leads to cost reductions in a supplying industry. In such an event, the desirability of user and supplier industries should be evaluated jointly.

The above reasoning holds equally well if we assume that the market prices of the factors of production do not equal opportunity costs (shadow prices). The cost of foreign exchange is calculated valuing domestic resources at opportunity costs in this case, while the effective rate of protection measure is replaced by the "social effective rate" which equals the percentage difference between domestic and free trade value added (that is, the relative costs of the processing activity) measured at opportunity costs.

Neither are the conclusions affected if we introduce non-traded goods (services) that, by definition, have an infinite c.i.f. price. In calculating the effective rate of protection on tradables (actual and potential export and import goods), one may then apply the method suggested by Corden: Tradables used directly or indirectly in the production of non-traded goods are considered together with tradables employed directly in the production process, while the sum of direct and indirect domestic factor content (value added) of non-traded goods is included with the cost of processing (1966, pp. 226–28).

Now, if political pressures were to entail the expansion of the production of some of these inputs, in calculating the effective rate of protection they should be treated in the same way as non-traded goods. But such cases should be judged on their individual merits rather than equating all domestically purchased inputs with non-traded goods as Bruno does, since otherwise one would neglect the possibility that, in expanding user industries, imports rather than inefficiently produced import-competing goods could be used as inputs.[9]

These considerations point to the superiority of the effective protection measure over that of the cost of foreign exchange in evaluating the desirability of individual industries. Accordingly, we have to reject Bruno's claim that his measure ranks industries according to their comparative advantages. But, whichever measure is used for this purpose, several qualifications need to be made. These will be discussed in the following section with reference to the effective rate of protection. The conclusions apply, *ceteris paribus*, to the cost of foreign exchange also.

IV

We have seen that protection permits domestic producers to operate with an excess of domestic value added over value added in a free trade situation. Aside from higher labor and capital costs incurred in the process of

[9] After this paper had been completed, it was pointed out to us that Tinbergen (1963) and Little (1968) suggested the use of measures identical to the rate of effective protection. Tinbergen speaks of a semi-input-output method whereby direct and indirect inputs are calculated for non-traded goods (he calls them "national industries") but not for tradables, while Little also takes account of the time profile of investment.

production, this excess may be due to greater material requirements and higher efficiency wages or rate of return on capital under protection.[10]

In estimating effective tariffs the assumption is made that material input coefficients are invariant to protection. This does not give rise to problems in the case where free trade input coefficients are used in the calculations. If, instead, we use the input coefficients of the country under consideration in estimating the effective rate of protection, a bias will be introduced whenever there is a waste of materials or if the substitution elasticity between any two material inputs or between a material input and a primary factor is greater than zero.

The calculation of the effective rate of protection further assumes competitive factor and product markets. However, labor unions having monopoly power may raise wages in some protected industries. In turn, protection may give rise to excess profits which again increase domestic value added over that obtainable in a free trade situation. To adjust for this, Bruno and Krueger have excluded in their calculations of the cost of foreign exchange any profit that exceeded a "reasonable" rate of return on fixed capital investment. But the use of a uniform rate of profit in all industries is open to criticism since it does not take account of inter-industry differences in entrepreneurship and risk. Moreover, the choice of the cutoff rate is largely arbitrary. Thus, while Bruno calculates with a standard rate of return of 8 per cent in Israel (1963, p. 109), Krueger has chosen a rate of 20 per cent for Turkey (1966, p. 474).

It follows that, if free trade coefficients are used in the calculations and one adjusts for the effects of the monopoly power of unions and for "excess" profits in particular industries, the ranking of industries by effective tariffs will provide a ranking according to static comparative advantage. Comparative advantage is defined here in a broader sense to include also the effects of deficiencies in the organization of production and management in individual firms. These are inefficiencies on the "micro" level in the sense that firms produce given outputs at higher than minimum costs.[11] While the cost minimization assumptions of economic theory are not fulfilled in this case, these sources of inefficiencies should be included among the determinants of comparative advantage since their removal would involve a cost in terms of managerial and other inputs.

In turn, the appraisal of dynamic comparative advantage would require making adjustments for reductions in costs due to factors such as the exploitation of internal and external economies and learning by doing. Needless to say, it is difficult to carry out such adjustments in practice, in part because information on potential improvements is limited and in

[10] These are some of the causes for deviations from the conditions of competitive equilibrium. For an exhaustive list, see Bhagwati (1968).

[11] On this point, see Leibenstein (1966) and the literature cited therein.

part because actual improvements often fall short of potential ones by a margin difficult to estimate.

V

In Bruno's and Krueger's work, as well as in some other writings, references are often made to overvalued exchange rates in developing countries and to the need for estimating "real" or "equilibrium" exchange rates. Bruno suggests that in 1958 in Israel the "real" exchange rate was 2.5 pounds to the dollar as compared to the official rate of 1.8 pounds (1963, p. 91). In turn, in Krueger's view, the estimation of equilibrium exchange rates is an alternative procedure to calculating effective tariffs or the domestic resource cost of foreign exchange (1966, p. 469). It is suggested here that much of this discussion reflects a misconception as to the meaning of equilibrium rates. These misapprehensions, however, originated in earlier writings by Nurkse and Meade whose definitions of equilibrium exchange rates have become widely accepted.

According to Nurkse (1950, pp. 3–34), the "true" equilibrium rate of exchange is one that maintains a country's external accounts in equilibrium for a period of five to ten years without the need for wholesale unemployment at home, without additional restrictions on trade, and in the absence of temporary capital movements. Meade's definition (1951, p. 15) is similar to Nurkse's except that, instead of "additional restrictions" on trade, his conditions for an equilibrium rate include the lack of application of trade restrictions for balance of payments purposes.

In regard to Nurkse's definition, the major difficulty lies in the need for separating the restrictions that are in some sense "basic" and those that are "additional." In turn, the definition proposed by Meade is open to criticism on the grounds that trade restrictions serve a variety of purposes and are the result of a historical process. In developing countries, these have been undertaken in response to requests for protection on the part of entrepreneurs and/or in order to improve the balance of payments. The two motives are often difficult to separate, and, at any rate, for the present situation the original motivation is no longer relevant.

Nurkse and Meade pursue a chimera in attempting to define a unique equilibrium exchange rate corresponding to some "acceptable" measure of tariff protection. For one thing, the extent of protection of domestic industries is affected by the rate of exchange: a given degree of protection can be provided by different combinations of tariffs, subsidies, and exchange rate. For another, the rate of exchange that keeps the balance of payments in equilibrium will depend on the measures of trade policy applied.

If we also take account of the effects of monetary and fiscal policies on the exchange rate, we can define the equilibrium exchange rate with respect

to the economic policies actually followed.[12] Unless there is an unplanned loss of reserves and/or temporary capital movements, the equilibrium rate so defined will equal the actual exchange rate.[13] If, however, one alters the system of protection, or monetary and fiscal policies, the equilibrium rate of exchange will also change. One cannot therefore speak of overvaluation without specifying the desired changes in the system of trade barriers or in domestic policies, and an adjustment in the exchange rate as suggested by Bruno is incompatible with the observed price relationships—and balance-of-payments equilibrium.

More generally, for given demand and supply conditions, there are an infinite number of "equilibrium" exchange rates, each corresponding to a different configuration of trade, monetary, and fiscal policies. Thus, for given domestic economic policies, one may wish to inquire what the equilibrium rate of exchange would be in a free trade situation[14] or in the case of a reduction of tariffs by a certain percentage. The question is, then, how the equilibrium rate corresponding to a new set of policies can be estimated.

Some continue to believe that purchasing power parities, calculated as the ratio of consumer goods prices for a given pair of countries, would approximate the free trade equilibrium rate of exchange between their currencies.[15] One of the authors has elsewhere shown that purchasing power parity calculations are unsatisfactory for the purpose at hand, chiefly because service prices are not equalized through trade. International differences in service prices tend to reflect differences in wages, which in industrial countries roughly correspond to differences in manufacturing productivity (Balassa, 1964). It may be suggested, then, that calculations be made in regard to internationally traded goods only. But in the developing countries such a measure will not give expression to the free trade equilibrium exchange rate either. Rather, for a given exchange rate, it will

[12] We now take economic policies as predetermined and the exchange rate as the dependent variable under the constraint of balance-of-payments equilibrium. One could instead choose the exchange rate and domestic monetary and fiscal policies to be predetermined, and derive the tariff protection needed to keep the balance of payments in equilibrium.

[13] We have not included here the full employment condition, because this raises certain problems of international consistency. The depression of the thirties, with all countries operating at substantial levels of unemployment, is a case in point. Nurkse's attempt "to define an ideal system of equilibrium rates as one that maintains the accounts of all countries simultaneously in equilibrium when all countries simultaneously are free from mass unemployment on the one hand and inflation on the other" (1950, p. 12) is doomed to failure since the number of instruments considered is obviously inadequate to attain the listed objectives.

[14] Needless to say, from the point of view of efficient resource allocation in a competitive economy, this would be the only equilibrium situation. Thus, Kindleberger speaks of "'the disequilibrium system' of overvaluation and incentives to exports plus controls on imports" (1967, p. 1).

[15] Compare, for example, the recent discussion on equilibrium exchange rates in the publications of the UN Economic Commission for Latin America.

express the weighted average of nominal (implicit) tariffs and subsidies, adjusted for the cost of transportation.

Neither can we determine equilibrium exchange rates by relying on the relative interpretation of the purchasing power parity doctrine according to which, in comparison to a period where equilibrium rates prevailed, changes in relative prices would indicate the necessary adjustments in exchange rates and hence the degree of over- and undervaluation.[16] For one thing, especially in the present-day developing countries, it is difficult to choose an appropriate base period when "equilibrium" rates prevailed. For another, one can hardly assume that exchange rates would vary in a parallel fashion with domestic prices. Even if we disregard the problems due to the fact that service prices tend to rise faster than the prices of traded goods (Balassa, 1964, pp. 594–95), differential rates of increase of productivity and other factors will cause a divergence between an index of relative prices and that of the equilibrium rate of exchange.

We have to discard, therefore, the use of purchasing power parities for estimating free trade equilibrium exchange rates. This method is even less appropriate for calculating the exchange rates that would maintain balance-of-payments equilibrium under protection. Thus, if equiproportionate changes in tariffs, subsidies, and exchange rates keep domestic prices unchanged, the equilibrium exchange rate will vary but purchasing power parities will remain the same. In turn, in the absence of such compensating changes, the equilibrium exchange rate corresponding to a new set of trade, monetary, and fiscal policies can be estimated only if appropriate assumptions are made concerning the price elasticities of import demand and export supply at home and abroad. Needless to say, the difficulties of such a calculation are rather formidable.

However, one can indicate the effects of a *given* devaluation, accompanied by changes in tariffs and export subsidies, on effective rates of protection. If, for example, a devaluation is accompanied by compensating changes in tariffs and subsidies that leave domestic prices unchanged, the balance of payments and the ranking of industries by the effective rates of protection will not be affected but effective rates will uniformly decrease by the percentage of the devaluation.[17] Similar conclusions pertain to the

[16] This method is used by the United Nations Statistical Office in comparing national incomes among countries. In general, parity rates for postwar years are estimated by adjusting the official or free market exchange rates by the relative change in the implicit GDP deflator between the United States and the country concerned (*United Nations Yearbook of National Accounts*).

[17] If unprimed and primed values refer to the pre- and postdevaluation situation, respectively, the exchange rate is denoted by R, and the rate of export subsidy by S, the condition for maintaining domestic prices unchanged can be expressed as:

$$\frac{R}{R'} = \frac{1 + T_i}{1 + T_i'} = \frac{1 + S_i}{1 + S_i'} = \frac{1 + Z_i}{1 + Z_i'}.$$

The result pertaining to the effective rate of protection (Z_i) presupposes the use of the method suggested by Corden for the treatment of non-traded goods.

case where quantitative restrictions are applied to imports, except that there could be no change in tariffs; rather, devaluation would give rise to a redistribution of "quota profits" from holders of quotas to the government.[18]

It is easy to see that if some tariff rates (nominal or implicit) and export subsidies are lower than the percentage of devaluation, the above result will not be obtained unless import subsidies and export taxes are introduced. If such measures are not used, both the balance of payments and the ranking of industries by the effective rate of protection will be affected. The re-establishment of balance-of-payments equilibrium through further adjustments in the exchange rate, then, will not restore the original ranking by effective rates.

VI

In this paper a comparison has been made between two measures that have come to be used to evaluate the effects of protection on individual industries: the effective rate of protection and the cost of foreign exchange. We have shown that the cost of foreign exchange equals unity plus a weighted average of the effective rates of protection, the weights being the contribution of direct and indirect value added to output produced under free trade conditions. Further, we have provided evidence for the superiority of the effective tariff measure over the cost of foreign exchange for the purpose of indicating the desirability of individual industries.

The paper has also dealt with the relationship of the rate of effective protection on the one hand and comparative advantage on the other. It would appear that if one adjusts for excess profits and disregards the possibility that labor unions have monopoly power in some industries, the ranking of industries by the effective rate of protection will provide an indication of static comparative advantage. However, dynamic comparative advantage will also depend on the possibilities for cost reductions due to factors such as the exploitation of internal and external economies.

Finally, prevailing views on the concept of equilibrium rates have been criticized. It has been suggested that there are an infinite number of "equilibrium" rates, each corresponding to a different configuration of trade, monetary, and fiscal policies. Thus, if there is no unplanned reserve loss and/or temporary capital movements, the existing exchange rate can be taken as the equilibrium rate for the economic policies followed.

We have also noted that the balance of payments and the ranking of industries by the effective rate of protection will not be affected if a devaluation is accompanied by compensating changes in tariffs and subsidies that leave domestic prices unchanged. Should this not be the case, we face

[18] On the policy implications of "compensated" devaluations, see Schydlowsky (1967).

the problem of estimating the new equilibrium rate of exchange and the corresponding rates of effective protection. For reasons explained in the paper, the difficulties of such a calculation are rather formidable.

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