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EFFECTIVE PROTECTION: A SUMMARY APPRAISAL

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In this paper, prepared at the request of the organizers of the Conference on Effective Protection (Geneva, December 18-20, 1970), the author provides a summary appraisal of effective protection. In the first part of the paper, he considers the reasons for the introduction of the concept and its advantages over that of nominal protection. He further indicates the uses of the effective protection measure and discusses the problems of its application. Finally, suggestions are made for future research on the subject.

In writing the paper, the author has drawn on his work on effective protection carried out at the Bank. Much of this work is incorporated in The Structure of Protection in Developing Countries to be published for the Bank by the Johns Hopkins University Press in June 1971.

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The literature on effective protection has mushroomed since the concept received attention only five years ago (Johnson, 1965; Balassa, 1965; and Corden, 1966). A large number of empirical studies have been undertaken while theoretical contributions have considered conceptual and methodological issues. (The bibliography prepared by David Evans provides a complete list of writings on the subject).

This Conference has brought together people working on various aspects of effective protection. A number of interesting papers have been presented and there has been much useful discussion. The differences in the views of the participants may have narrowed somewhat as a result of the discussions, but they have by no means become identical. Nevertheless, I hope that my presentation will in the main be acceptable to those present.

In the following, I will examine the reasons for the introduction of the effective protection concept and note its advantages over that of nominal protection. I will further indicate the possible uses of the concept and discuss the problems of measurement in a general as well as in a partial equilibrium framework. Finally, suggestions will be made for future research on the subject.

Nominal vs. Effective Protection

Economists traditionally directed their attention to trade in final commodities as if all stages of production were undertaken domestically, and considered the effects of tariffs (nominal rates of protection) on such trade. In the presence of trade in intermediate products, however, nominal rates will not appropriately indicate the extent of protection since decisions will be

affected by the protection of their processing activity rather than of the product itself. At the same time, trade in intermediate products accounts for the overwhelming part of international exchange; if we consider machinery as an input, four-fifths of world trade takes place in such products.

The introduction of the concept of effective protection reflected a dissatisfaction on the part of its initiators with models of international trade that do not allow for trade in intermediate products. But while this concept is relatively new to economic discussions, it has long been known to businessmen who are aware of the fact that the protection of their processing activity is affected by nominal rates on the product and on its inputs as well as by the share of the processing margin (value added) in the product price. Explanations based on nominal rates of protection on the product itself have restricted attention to the first of these three elements, to the neglect of the other two.

The question arises, however, if intercommodity differences in tariffs on material inputs and in the share of value added in the product price substantially affect the conclusions on the structure of protection or whether this is adequately represented by nominal rates on the product itself. Cohen (1969) suggests that the latter is the case on the grounds that the estimates reported in his paper generally show a high rank correlation between nominal and effective rates of individual industries in particular countries.

I do not find Cohen's conclusion acceptable for several reasons. To begin with, it appears that similarity and dissimilarity in the ranking of industries by nominal and effective rates of protection depends on the degree of aggregation of the industrial classification and on the dispersion of nominal rates of protection. In a study of effective protection in seven countries, it has been found that the Spearman rank correlation co-

efficient reaches .95 in countries with a highly aggregated input-output table (Brazil) or a small degree of dispersion of tariffs (Norway). By contrast, among countries with more disaggregated input-output tables and greater variability in tariff rates, the rank correlation coefficient was only .59 in Pakistan, .74 in Malaya, and .63 or .82 in the Philippines depending on whether tariffs or price observations were used in the calculations (Balassa, 1971, ch.3).

The intercountry variation of rank correlation coefficients indicates the usefulness of estimating effective rates of protection for each country, since without such calculations we would not know the relationship between nominal and effective rates in particular countries. And, even in countries where rank correlation coefficients are high, there are substantial differences in the rankings of several industries by nominal and effective rates and the disaggregation of the data would further increase these differences.

Nor can we predict absolute magnitudes of effective rates on the basis of information on nominal rates in a particular country, since the statistical relationship between levels of nominal and effective rates is much weaker than that between their rankings and it also varies greatly from country to country (Guisinger and Schydlowsky, 1970). Yet, information on the values taken by the effective rates of protection is necessary to evaluate the structure as well as the cost of protection. This will permit us, for example, to gauge the escalation of protective rates and to detect cases of negative value added at world market prices.

Travis takes a different tack in questioning the usefulness of the concept of effective protection. He submits that the concept is superfluous, since we can define all products as end-products -- as if each of them were produced by a single enterprise from the ground up -- in which case

nominal and effective rates will be identical (Travis, 1968). But the equality of nominal and effective rates holds only in the absence of non-competitive imports; such imports create a difference between the price of the product and the sum of direct and indirect domestic value added so that the nominal and the effective rates of protection will not be the same (Balassa, Guisinger, and Schydlowsky, 1970).

Nor can one follow Travis in arguing that noncompetitive imports should be regarded as factors of production, since one would then indiscriminately group together domestic factors and foreign products. For example, in the case of copper products, tariffs would be said to "protect" domestic fabrication as well as foreign copper producers. Such a formulation is of little interest even if the price of copper is affected by the tariff and it will have no economic meaning if foreign prices are determined exogeneously.

It should be added that the scope of noncompetitive imports depends on the extent and the structure of protection; commodities that are produced domestically under protection may be imported under free trade. More generally, in the presence of trade in intermediate products, comparative advantage should be defined in terms of productive activities rather than final products. Instead of considering the comparative advantage of a country in clothing, for example, we have to indicate separately its advantages and disadvantages with respect to the production of raw cotton, cotton cloth, and clothing manufacturing.

Under free trade conditions, a country may then import cotton cloth while exporting raw cotton and clothing. In turn, protection will interfere with the international division of the production process along the lines of comparative advantage. To indicate the effects of protection on the structure of production, we need therefore a value added concept that the theory of effective protection provides.

Uses of Effective Rates

The last statement brings me to the uses of the effective protection measure. These uses can be classified according to whether they pertain to the realm of positive or normative economics. As regards the former, one should first note the informational advantages of the effective protection measure in indicating the distribution of the subsidy provided by nominal rates of protection among various stages of fabrication. More generally, this measure provides additional information on the structure of protection in individual countries.

Next, and most appropriately for a Conference held on the premises of GATT, the effective protection measure finds uses in tariff negotiations. It enables countries better to appraise the "offers" of others, especially in cases when these involve unequal reductions of duties on products at different levels of fabrication. Thus, for example, despite a reduction in the tariff on a final product, its effective protection may increase if the tariff on its major input is reduced to a much greater extent. Such instances have in fact been observed following the Kennedy Round of tariff negotiations (Balassa, 1968).

The effective protection measure has further been used to gauge the discriminatory effects of the system of protection in developed nations on the imports of processed goods from developing countries (Johnson, 1967, ch.6; Balassa, 1967), and to explore the implications of granting tariff preferences through unequal reductions in tariff rates (Johnson, 1969). Related applications include appraising the possibilities of trade deflection in a free trade area where participating countries retain the freedom of setting tariffs on imports from non-member countries. Some of these applications have been extended to cases where nontariff barriers are employed (Baldwin, 1970).

If appropriate assumptions are made in regard to the relevant elasticities, one can also estimate changes in imports that are due to the imposition of, or reductions in, tariffs and other protective measures. The resulting changes in imports will depend on the production effects associated with effective rates and the consumption effects associated with nominal rates; they have been estimated for the case of the elimination of tariffs by industrial countries (Balassa, 1965). Similar calculations can be made for exports, and both sets of results need to be adjusted for the difference in the exchange rates under the two situations being compared (Basevi, 1968).

Under certain assumptions, the effective protection measure can be used to gauge the relative incentives protection provides to particular industries. Corden (1966) was first concerned with the resource-pull and the resource-push effects of protection which pertain to changes in net outputs while Ethier (1971) has shown the linkage between effective rates and gross outputs.

While the allocation of resources among industries is said to depend on relative effective rates, the effective rate of protection adjusted for the difference between the actual exchange rate and that obtainable under free trade will indicate the extent of net protection of a particular industry. Further interest attaches to the relative incentives provided to import substituting and export activities in protected industries. Relative incentives to these activities will depend on the prices received in domestic and in foreign markets and on the prices paid for inputs used in producing for the two markets; their joint effects can be expressed by a modified version of the effective protection measure (Balassa, 1971, ch.1).

In a similar fashion, one can analyze the relative incentives provided to domestic and to foreign investments in a particular industry and the costs and benefits of foreign investment. This last point brings me to the normative applications of the effective protection measure, of which its use in estimating the cost of protection should first be noted.

Under certain assumptions, effective rates will express the domestic cost of saving (or earning) foreign exchange through import substitution (or exporting). This formulation pertains to the direct cost of processing (Balassa and Schydlowsky, 1968). Other writers have suggested that direct and indirect costs be combined (Bruno, 1963; Krueger, 1966); this amounts to taking averages of effective rates of protection at various stages of fabrication, weighted by the contribution of direct and indirect value added to output under free trade conditions. If the former concept is adopted and we adjust for the difference between the exchange rate under protection and under free trade, effective rates can be used to measure the production cost of protection to the national economy (Bergsman, 1970; Balassa, 1971, ch.4).

Normative uses of effective rates further include the establishment of policy norms. Thus, it has been shown that if a country wants to have a manufacturing sector of a certain size or a certain proportion of its resources devoted to manufacturing, the tariff policy to be applied should be formulated in terms of effective rates of protection (Bertrand, 1970a). Effective rates have in fact been used in the World Bank in formulating guidelines for industrial policy by the developing countries (Balassa, 1970a) and these guidelines have been applied in advising several countries.

The effective protection concept has also been applied in the World Bank in appraising investment projects. This involves estimating the effective rate of protection necessary for the viability of the project and jud-

ging its desirability by reference to policy norms pertaining to the country where the investment would take place. In a similar fashion, requests for protection on the part of existing industries can be evaluated by applying the effective protection measure.

Estimation in a General Equilibrium Framework

In describing the uses of the effective protection measure, no reference has been made to the problems that beset the actual measurement of effective rates. Ideally, effective rates of protection should be estimated in a general equilibrium framework so as to take account of changes in factor prices associated with the imposition of protective measures. The only effort to estimate effective rates in a general equilibrium model has been made by Evans (1970). He found a rank correlation of .63 between the effective rates thus measured and the estimated changes in resource flows in a model without growth constraints for particular industries which is relevant for our discussion. In turn, the rank correlation coefficient between effective rates measured, respectively, in a general and in a partial equilibrium model is .52.

These results cannot be used, however, to derive conclusions on the appropriateness or inappropriateness of effective rates as an indicator of resource allocation or on the existence of substantial differences between estimates of effective rates measured in a general and in a partial equilibrium framework. To begin with, effective rates are supposed to indicate the resource-pull and resource-push effects of protection in Marshallian long-run under ceteris paribus assumptions after all adjustments in capacity have been made. By contrast, Evans has used a medium term model that permits the expansion of capacity but does not accommodate reductions in it. Correspondingly, the solution of his model gives the results that industries

which can cover variable costs under free trade would continue to operate at existing output levels. Indeed, there is no change in activity levels in nearly one-half of the industries, and this, in turn, lowers the correlation between effective protection and changes in activity levels. The correlation would presumably increase if the time-span of the model were long enough to permit the depreciation of equipment, in which case several of the industries in question would show a decline in output.

The correlation between effective rates of protection measured in a general equilibrium model and resource flows, as well as that between effective rates estimated in a general and in a partial equilibrium framework, are further affected by the assumptions on maximizing behavior, the form of the consumption and investment functions, the supply and productivity of labor, and prospective export demand. While such assumptions are necessary for the ten-year protection Evans made by the use of his medium-term model, the model does not answer the question on the effects of eliminating protection under ceteris paribus assumptions.

Estimation in a Partial Equilibrium Framework

Apart from Evans' work, effective rates of protection have been estimated in a partial equilibrium framework under the assumptions of zero substitution elasticity between material inputs and primary factors, unchanged factor prices, constant returns to scale, infinite foreign elasticities of demand (for exports) and supply (of imports), no transportation costs, and pure competition.

The critics of the concept and measurement of effective protection have raised doubts concerning the validity of these assumptions and have noted the consequences of removing some of them. Thus, it has been shown that, retaining the partial equilibrium framework, substitution between primary

factors, taken as a unit, and intermediate inputs, as well as among the intermediate inputs themselves, will lead to an overestimation of effective rates of protection calculated from domestic (post-protection) input-output coefficients and an underestimation of effective rates calculated from free-trade (pre-protection) coefficients (Leith, 1968; Grubel and Lloyd, 1971). The magnitude of this bias may vary from industry to industry, thereby affecting the ranking of industries by effective rates.

The direction of the bias due to substitution between primary factors and intermediate inputs is indeterminate if substitution elasticities differ between individual primary factors, on the one hand, and intermediate inputs, on the other. In this eventuality, the interindustry movement of resources will be affected by differences in substitution elasticities among pairs of primary factors and intermediate imports and in relative factor intensities among industries (Ramaswami and Srinivasan, 1968). By contrast, substitution among primary factors does not give rise to bias (Corden, 1969).

The importance of the substitution issue depends on the magnitude of substitution elasticities and on interindustry differences in these elasticities. Empirical studies give evidence of little substitution between primary factors and intermediate inputs in response to price changes (Theil-Tilanus, 1964), and a calculation based on French data has shown a substitution elasticity of less than 0.1 between value added and raw materials (Balassa-Guisinger-Schydlowsky, 1970). Furthermore, in the comparative study cited earlier, estimates of effective rates derived by the use of domestic and free trade coefficients do not show the existence of a bias due to substitution; nor is the ranking of industry groups by effective rates sensitive to the choice of the input-output coefficients (Balassa, 1971, ch.3).

Factor-Price and Product Price Effects

These results lead to the conclusion that, in a partial equilibrium context, input substitution is not likely to modify the results to any considerable degree. In general equilibrium, however, factor prices will also vary so that protection will affect particular activities not only through changes in product prices but also through changes in factor prices. Factor-price effects are accentuated in the presence of substitution between primary factors and intermediate inputs (Tan, 1970) and certain definitional problems will also result (Ethier, 1971). But let us first consider factor-price effects in the absence of input substitution.

It is easy to show that, in a three-commodity model, the effects of protection on particular industries may not be appropriately indicated by the effective protection measure even if substitution elasticities among inputs are zero. Thus, commodity A, having a lower effective rate than commodity B, may still enjoy greater protection if it is complementary in factor use with unprotected commodity C and hence benefits from a protection-induced decline in the prices of the primary factors it uses intensively.

The error possibilities due to the neglect of protection-induced changes in factor prices will depend on the magnitude of these changes relative to changes in the prices of products and their material inputs. The critics have conducted the discussion in the framework of a Heckscher-Ohlin model where international cost differences are explained by differences in the relative prices of the factors of production. It is in the context of such a model that Travis claimed central importance for factoral protection (1968); also, the conclusions of his latest paper (1970) crucially depend on the assumption that, apart from a scalar that applies uniformly to all industries, production functions are identical internationally.

Retaining the Heckscher-Ohlin model, the relative importance of the product-price and factor-price effects of protection will depend on inter-commodity differences in factor intensities as well as in nominal rates of protection. While the former has received much attention in the literature, the latter has been neglected, presumably because much of the discussion has been conducted in the framework of three-commodity models (Ramaswami-Srinivasan, 1968; Bertrand-Vanek, 1971). Yet, intercommodity differences in nominal rates assume importance in a multi-product world.

At one extreme, take the case when identical tariffs are levied on all importables whereas exportables are not subject to taxes or subsidies. We are then back to the traditional two-commodity model where -- assuming given world market prices, incomplete specialization, and linear homogeneous production functions -- protection-induced changes in relative factor prices are greater in magnitude than changes in relative product prices (Jones, 1965). In turn, under ceteris paribus assumptions as regards factor-price effects, the greater is the variability of tariffs, the greater will be the relative importance of the product-price effects of protection.

It may be suggested then that in countries such as Denmark or Norway where the dispersion of tariffs is small, the factor-price effects of protection can conceivably dominate the product-price effects. However, in the larger industrial nations, and especially in developing countries, where a wide variety of tariffs and other restrictions apply, it may be surmised that the effects of protection on output and input prices tend to outweigh its effects on factor prices. Thus, for example, if effective rates of protection estimated in a partial equilibrium framework are 10 percent on commodity A and 30 percent on commodity B, factor-price effects are unlikely to reverse the relative levels of protection as measured by these rates.

The conclusions regarding the importance of the product-price effects of protection are strengthened if we introduce international differences in efficiency à la Ricardo that are emphasized by practitioners of effective protection. This would mean that, rather than protecting factors of production, countries tend to protect industries which have high costs because of the use of small-scale production methods (due to differences in market size), the application of inferior technology and organization (due to differences in technical and organizational knowledge), and the prevalence of "X-inefficiencies" (due to the failure to minimize costs for the technology applied).

Empirical studies relating to the Heckscher-Ohlin theory have not been successful in explaining international specialization (Leontief, 1954 and 1956); empirical tests of the Ricardian theory generally gave better results (MacDougall, 1961; Balassa, 1963). The importance of the variability of intercountry differences in efficiency across industries has also been shown in several comparative studies (Arrow, Chenery, Minhas, and Solow, 1961; Clague, 1967). Nevertheless, further empirical research is needed to indicate the importance of the omission of factor price effects. Numerical examples are of little interest for the problem at hand, since they indicate the possibility rather than the probability of factor-price effects outweighing product price effects.

Introducing input substitution in a general equilibrium framework will, however, give rise to problems in defining value added and the effective rate of protection. Ethier (1971) suggests that in such a model one cannot derive an unambiguous measure of resource use (Corden's value-added product concept), and that the relevant definition will have to be couched in terms of marginal value added, leading to a rather complicated formula which might be difficult to measure empirically. However, Jones (1971) has shown that the value-added product concept has a meaning even with substitution and that the customary

definition can be applied. It should be added that if substitution elasticities are low, as suggested above, input substitution will not create much difficulty even if factor price effects are taken into account.

The "Linearity" Problem

The problem remains that, if all the listed assumptions were fulfilled, under free trade conditions the number of commodities produced domestically cannot exceed the number of the factors of production (the "linearity" problem). Under protection, the same condition applies to commodities that are not subject to prohibitive tariffs; i.e. the number of commodities exceeding the number of factors should become nontraded or nonproduced (Anderson, 1970).

The existence of prohibitive tariffs makes it necessary to distinguish between potential and realized protection. Potential protection, estimated from tariff observations, indicates the "cushion" available to producers, while realized protection, estimated from price comparisons, shows the extent of protection actually utilized. It should be added, however, that realized protection will also depend on domestic demand conditions.

A further consideration is that, for commodities which are produced under protection but not under free trade, the effective rate of protection will not indicate the resource-pull and resource-push effects of protection even in the absence of factor price and substitution effects. For example, in one industry a high rate of effective protection might be necessary to induce domestic production while in another low protection will be sufficient for this purpose. This will not affect, however, the usefulness of the effective rate as a measure of the cost of protection. Under the stated assumptions, effective rates will indicate the excess of domestic costs over costs on the world market.

The introduction of non-constant returns to scale or less than infinite foreign elasticities will allow for the production of commodities exceeding the number of factors under free trade. But this will entail modifying some

of the assumptions underlying the measurement of effective protection. It has been shown that, if calculations are made from domestic input-output coefficients, effective rates of protection measured at existing output levels will be overstated in increasing-cost industries, and understated in decreasing-cost industries (Corden, 1971, ch.6). The opposite conclusion holds if we use free trade coefficients; we will now overstate effective protection in decreasing-cost industries and understate it in increasing-cost industries.

An attempt has also been made to adjust effective rates of protection for less than infinite foreign elasticities (Balassa, 1971, Appendix A). This question would, however, need further study, and attention should also be given to the interaction of tariffs and other protective measures in trading countries (Travis, 1970). Estimates would further need to be made for commodities that would switch from the import to the export category or vice versa.

It should be added that, apart from the problem of input substitution, all the described difficulties in estimating effective rates of protection apply to nominal rates as well. They are found in models of protection incorporating only final goods and are in no way affected by the introduction of trade in intermediate products. At the same time, nominal rates have the additional shortcoming of not allowing for the effects of input tariffs and the share of value added in the product price on the protection of processing activities.

Moreover, although the inclusion of intermediate products in the model gives rise to the substitution issue, this seems to be a small price to pay for making the model more realistic and, at any rate, available evidence indicates that the practical importance of substitution between primary factors and intermediate inputs is rather small. It follows that the choice is not between effective and nominal rates of protection but we rather need to im-

prove the conceptual framework and estimation of effective rates. Before turning to areas of future research, however, note should be taken of possible alternative concepts of effective rates.

Alternative Concepts of Effective Rates

Effective rates of protection have originally been formulated as the percentage difference of value added per unit of output under protection and under free trade (Johnson, 1965; Balassa, 1965; Corden, 1966). Subsequently, it has been noted that, in the presence of input substitution, changes in value added per unit of output may be due to a change in the quantity of primary factors per unit of output as well as to a change in returns to primary factors. To ensure comparability with nominal rates that represent a price change rather than a quantity change, it has been suggested that the concept of the effective rate of protection be limited to the second of the two elements (Leith, 1968; Corden, 1969).

Other writers have considered the implications of removing the assumption of fixed factor supplies. Basevi (1966) has calculated the effective rate of protection with respect to labor, assuming that capital is mobile internationally. In turn, Schydlowsky (1967) has suggested that in a developing country with unlimited labor supply, the incentive effects of protection are indicated by the effective rate of protection to capital.

The choice among these measures will depend on the purpose at hand. If we use effective rates to measure the cost of protection, the relevant concept will relate to value added. If, however, we are interested in the incentive effects of protection, effective rates should pertain to the scarce factors of production. Now, if we remove the nonprofit assumptions of pure competition, we may usefully reformulate the concept of effective protection in terms of rents to the entrepreneur. While it may be assumed that there

are no such rents under free trade, by affecting the prices of the product and of purchased inputs (including labor and capital), protection will create rents and resource flows may take place in response to rent differentials among industries.

We have noted that, in estimating net effective rates and the cost of protection, there is need to adjust for the difference in the exchange rate under protection and under free trade. This amounts to taking the free trade situation as the norm and it corresponds to the maximization of economic welfare in a small country that takes world market prices as given. In turn, if foreign elasticities are less than infinite and we exclude the possibility of retaliation, the optimum tariff situation will provide the appropriate norm for estimating net effective rates and the cost of protection.

We may also extend the welfare optimization concept inherent in the determination of the optimum tariff regime to postulate an optimum that takes account of governmental preferences for industry or for public sector activities (Bertrand, 1970b) and draw up guidelines in terms of effective protection that ensure maximizing the particular objective function. More generally, the optimal structure of protection will depend on the objective function chosen.

It should be added that, in the presence of substitution between primary factors and intermediate inputs, different concepts of the effective rate of protection apply, depending on whether we are concerned with changes in primary factor use or in gross outputs (Ethier, 1971). This conclusion follows since, if elasticities of input substitution differ from one commodity to another, changes in the amount of intermediate inputs used in the production process may outweigh changes in the use of primary factors.

Directions of Future Research

Various efforts have been made to explore the implications of effective protection in a general equilibrium framework. Corden (1969) has provided a geometrical model of two products and two factors; Ruffin (1969, 1970a) and Balassa (1970b) have used an arithmetical model to deal with the three-commodity case and Ruffin (1970b) has generalized the argument to the case of n commodities. These writers assume constant input coefficients while Tan (1970) and Ethier (1970) have considered the problems related to input substitution and factor price changes in a general equilibrium model.

Further work on effective protection in a general equilibrium control is desirable, both to indicate the limitations of partial equilibrium analysis and to prepare the ground for estimation in a general equilibrium framework. Nevertheless, efforts in this direction will be constrained by the state of the art in handling general equilibrium models, so that estimation in a partial equilibrium framework cannot be foregone.

As regards the latter, attention should be focused on improving the calculations and on indicating the sensitivity of the results to the assumptions made. Questions of particular importance are averaging procedures (Basevi, 1970; Tumlir and Till, 1970), the treatment of nontraded inputs (Corden, 1971, ch.7), and the estimation of the effects of protection on the exchange rate, together with the implications of less than infinite foreign elasticities (Balassa, 1971, Appendix A; Corden, 1971, ch.5). There is further need to test the sensitivity of the results to the assumptions made in regard to substitution elasticities and to establish likely values of these elasticities.

Empirical tests are also needed to indicate the relationship between effective rates of protection and resource flows. Furthermore, one needs to

explain how the excess of domestic over world market value added shown by the estimates of effective protection is absorbed. As noted earlier, this may involve above-normal profits and wages or excess costs due to a variety of causes, including allocative inefficiencies, inferior technology and organization, the application of small-scale production methods in a protected market and "X-inefficiencies".

Finally, it appears desirable to broaden the analysis to incorporate other incentive measures that affect relative prices and the allocation of resources. In a research project under way at the World Bank, in addition to instruments of protection, consideration is given to credit, tax, and expenditure measures. This involves reformulating the effective protection concept in terms of the net incentives provided by governmental measures. Correspondingly, it is necessary to establish norms for each of the incentives.

In the case of protective measures, the relevant norm is the free trade situation or an optimum tariff regime; for credit preferences it is the interest rate obtainable on a free credit market; for taxes it is a uniform value added tax, with adjustments made for governmental preferences expressed in the tax system; for government expenditures it is a budgetary system that is neutral with effects on individual activities. Ideally, these norms should be established in conjunction with each other since e.g. a move to free trade will affect the equilibrium interest rate. In practice, however, the limitation of our knowledge in handling general equilibrium systems would make it necessary to consider them individually, at least for the time being.

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