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EFFECTIVE RATE OF ASSISTANCE AND RELATED METHODS

Information Document by the Secretariat

Introduction

1. At the meeting of the Negotiating Group which was held on 21 October 1988, the secretariat was requested to prepare an information document on the Effective Rate of Assistance (ERA) and related methods drawing, as appropriate, on GATT sources and other international organizations, on the understanding that it will not prejudge the applicability of the work in the context of the Group (MTN.GNG/NG2/9, paragraph 11).

2. The present paper contains background information on the effective rate of assistance concept, its origin, purpose and method of calculation; similar background information on related methods of assistance evaluation; and a brief overview of work carried out on these questions in the GATT and in other international organizations.

Background

3. The concept of the effective rate of assistance is an extension of work done in the 1960s on the concept of the effective rate of protection of value added. The major insight of the latter concept is that

> ...ordinary nominal tariffs apply to commodities, but resources move between economic activities. Therefore, to discover the resource-allocation effects of a tariff structure one must calculate the protective rate for each activity, that is, the effective protective rate (W.M. Corden, "The structure of a tariff system and the effective protective rate", the Journal of Political Economy, June 1966).

The work on effective rates of protection thus emphasized that protection affecting all elements of production, including inputs, should be taken into account. For example, a tariff on a product assists the local manufacturer by increasing its price on the domestic market, but penalizes industries which use the product as an input. More generally, nominal tariffs apply to products, whereas effective rates apply to industries - that is, to value added activities.

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4. Value added, it will be recalled, is defined as the difference between the value of gross output and the value of inputs purchased from other producers - in terms of factors of production, the payments to the land, labour and capital which the industry in question uses to produce its output. In practice, the relative importance of value added in each activity, as well as the relative importance of each of the major material inputs, are described in input-output tables.

5. Other things remaining equal, protection raises (at least temporarily) the return to value added in the activity in question above the level that would prevail in the absence of such intervention.[1] At higher relative rates of return, producers are encouraged to produce more and resources which might have been used more productively elsewhere are drawn into the branch of production which benefits from the protection. The flow of resources out of inefficient activities is also delayed. The costs to the economy can take the form of distorted consumption patterns and a misallocation of resources which together will tend to reduce the potential for economic growth. These economic costs to the community are usually associated with large income transfers from domestic consumers and tax-payers to producers. In general, the wider the disparities in measured rates of protection to individual activities, the more distorted is the pattern of resource allocation across activities, and the lower the growth rate.

Effective rate of assistance

6. The effective rate of assistance (ERA) is closely related to the effective rate of protection, insofar as it is a measure of net incentives facing activities in the tradeable goods sector. The principal difference between the two is that the ERA includes non-border measures in the assistance afforded to industry. That is, assistance to an industry is defined to include all border and internal policy measures affecting a particular industry. A list of internal measures may include, for example, direct government payments to the industry, corporate tax incentives including depreciation allowances, special credit facilities, industry-specific infrastructure projects and subsidized energy inputs. Other types of internal measures such as taxes on inputs can have a negative impact on assistance.

7. Interest in effective rates of assistance, as distinct from effective rates of protection, has been stimulated by two related factors. One is a desire for a more comprehensive analysis of the impact of government

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[1] If the higher rate of return attracts additional resources into the industry, the resulting rise in output can put downward pressure on the rate of return. At the limit, the rate of return could decline to the pre-protection level, in which case protection would have increased the size of the industry but not its profitability.

intervention on the pattern of relative incentives across activities. The other is the growing awareness of the importance of non-border measures for domestic resource allocation and international trade.

8. Motivations to carry out the measurement of assistance include a desire to obtain information necessary to assess various government policies, their effects on the economy, and possible distortions which can be attributable to them. In certain countries calculations are made with a view to keeping public opinion informed of the effects and costs of government policy. Because trading partners can experience a decline in their exports of the assisted products to the protecting country, analysts are also likely to have an interest in such measurements for other countries. More generally, the theory of effective assistance has the following policy implications:

(a) When applied systematically in the tradeable goods sector, the resulting ERAs describe the relative pattern of incentives across activities in that sector. In general, industries with relatively high ERAs benefit from the assistance regime;

(b) As such, the calculation of ERAs is often the first step in a process of domestic economic reform;

(c) ERA measurements taken at different points in time can be used to monitor progress in reducing distortions through economic reforms.

9. The calculation of an ERA for a production activity is an attempt to quantify the effects of assistance on its value added, in order to compare the value added by that activity with the value that it would have added without assistance. A key assumption usually made is that the economy in question is "small", insofar that the assistance it affords production activities does not affect world prices of the products in question. In addition, it is assumed that exports, imports and domestic production of the product in question are interchangeable in demand (perfectly substitutable), and that the unassisted state is described by value added at world market prices. While this assumption of perfect substitutability between foreign and domestic products is not unreasonable for most primary commodities and many semi-manufactures, it is less realistic for many more highly processed manufactured goods. In the latter group, product differentiation can be an important characteristic of product groups, typified by brand-name and other distinctions between products. Additional assumptions usually made in the measurement of an ERA include:

(a) Different goods are assumed not to be substitutable for each other since assistance for one product would otherwise affect the supply and demand conditions (and thus the prices) of other goods.

(b) The input-output coefficients for a production activity are assumed to be fixed and unaffected by changes in assistance. In theory, this assumption is valid as long as assistance levels are not "too" high. That is, as long as the change in the tariff regime required to reach the unassisted state is not so great that production relationships are substantially altered.[1]

(c) The pattern and extent of assistance does not affect the country's exchange rate, so that the exchange rate can be assumed to be the same in the assisted and unassisted states.

10. The ERA is referred to as a partial equilibrium measure, insofar as it focuses on the effects of assistance on value-added at the individual industry level, without taking into account possible repercussions to other industries. When a domestic reform program is undertaken that is limited to the industry in question, the ERA provides a reliable and consistent measure of assistance to value-added. When an economy-wide reform program is undertaken, however, relative prices of inputs and outputs generally change, affecting production relationships and resource allocation across industries, and making several of the assumptions listed above less tenable (assumptions (a) and (b) in particular). In this case, a general equilibrium analysis of protection and liberalization is preferable.

11. While the international comparison of ERAs may be possible under certain very limited conditions, it is generally not a fruitful exercise. These conditions include: (i) exchange rates at equilibrium levels; (ii) identical input-output mixes in both countries for the identically defined industry; and of course, (iii) identical methods of computing an ERA, including the conversion of NTMs to tariff or subsidy equivalents. It is the relative and not absolute levels of assistance that affect the incentive structure across industries within an economy. That is, the important consideration in determining the extent to which government policies are distorting net incentives (and distorting the pattern of international trade) is whether an ERA for an activity is high or low relative to ERAs for other activities in the same country, rather than whether it is higher or lower than the ERA of the corresponding activity in another country.

Method of calculation

12. The effective rate of assistance is the percentage change (increase or decrease) in the value added in a production process attributable to the assistance provided to that branch of production. Calculations of effective rates therefore require that the largest possible number of measures which affect value added be covered, including tariffs and non-tariff measures. The formula normally used for calculating the effective rate of assistance is as follows:

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[1] See A.D. Woodland "Joint Outputs, Intermediate Inputs and International Trade Theory" International Economic Review, October 1977.

$$g = \frac{VA-VA'}{VA'} \times 100$$

where g = effective rate of assistance
VA = value added with assistance
VA' = value added without assistance

There exist alternative formulas for calculating effective rates of assistance which are derived from nominal rates or subsidy equivalents. However, in principle they should all lead to the same result.

13. Measurement of an ERA is usually conducted at the industry, sector and subsector levels of industrial activity (one-, two-, and three-digit levels of the International Standard Industrial Classification (ISIC)). In theory, the appropriate degree of aggregation for an ERA measurement is determined by the requirement that the protection afforded to the activity in question does not influence and is not influenced by other activities that may also be subject to protection. This implies that very disaggregated studies are not feasible. In addition, an economy-wide ERA is not appropriate. In practice, the ERAs are aggregated to higher levels of industrial aggregation by use of a weighting scheme, and the weights attached to various activities may create problems of interpretation at a higher level of aggregation.

14. The data required for ERA measurements include input-output tables, correct and quantifiable information about the various forms of border and non-border assistance, and - in practice - data on world prices for traded products (taking into account transportation costs). Technical requirements are software programs, computing facilities, and trained staff.

15. ERA-type measurements require that all possible forms of assistance, including non-tariff measures, be converted to ad valorem tariff or subsidy equivalents. While there is an extensive accumulated experience in methods of conversion in academic and applied policy circles for many types of NTMs, this is not true of all possible forms of assistance. In addition, each method of conversion is subject to methodological shortcomings of a more or less serious nature.

16. Estimating tariff equivalents of quantitative restrictions is particularly troublesome. In the few cases in which a quota is auctioned, estimates of the tariff equivalent can be based on the sale price of the quota. However, where quotas are not tendered or auctioned, comparisons between domestic and world market prices have to be carried out in order to reach an assessment of the level of assistance provided to domestic production. For quotas, difficulties will arise because of the tendency of exporters to upgrade their products and/or raise their prices to increase returns within set quantities. Capturing this element for quantification purposes may pose a problem. In the case of agricultural products the

effects on prices of transitory phenomena such as bad harvests are also difficult to measure separately and they may therefore distort calculations if these are based on data collected over short periods.

17. Price comparisons will have to be used for all other types of non-tariff measures which cannot be quantified otherwise.

18. Since the protection provided to the inputs will adversely affect the assistance provided to the output, similar calculations have to be made for inputs. Such calculations need to take into consideration any subsidies or duty drawbacks provided to imported inputs. While tariffs on imported inputs are equivalent to a tax on the domestic processing industry using these inputs, subsidies on imported inputs will raise the assistance provided to the output. Export subsidies on domestically produced inputs will act as a tax on the processing or user industry since they can be expected to raise local prices of the input and therefore the cost to the processing industry.

19. Another issue encountered in measurements of ERAs is the treatment of non-tradeable inputs. Unlike traded inputs, it cannot be assumed that the domestic prices of these non-traded inputs are equal to their world prices plus the applicable tariffs. On the other hand, these inputs are themselves produced using traded and non-traded inputs and the production process generates value-added. As a result, a theoretically appealing method is to decompose the value of the non-traded input into value-added and cost of traded and non-traded inputs, further decomposing the non-traded input at each earlier stage of manufacturing. After completion of this process of decomposition, the cost of the non-traded input consists only of value-added and the tradeable input costs. In practice, a complete decomposition of this kind can be a fairly lengthy and time-consuming process, and experts often truncate the decomposition. Alternatively, an assumption can be made that the production costs of non-traded inputs and their prices are unaffected by changes in the trade regime and that they are constant. Depending on which of these two methods is selected, somewhat different results can be obtained. However, it is only in the rare cases in which non-traded inputs play an important part in the production process that these alternative approaches will lead to substantially different effective rates of assistance. Electricity used in an aluminium smelting industry is an often quoted example of such a case, but it should be remembered that even electricity is increasingly traded across borders.

20. A major problem with the measurement of effective rates of assistance is that not all forms of assistance are equally transparent. Some quantitative restrictions and local content requirements, for example, are difficult to identify or assess. Equally, the effects of voluntary export restraints, industry-to-industry arrangements, and similar discriminatory barriers are also difficult to measure.

Related methods of assessing the effects of barriers to trade

21. In addition to the effective rate of protection of value added and effective rate of assistance, three other approaches to assessing protection should be mentioned.

A. Producer subsidy equivalent (PSE)

22. The concept of producer subsidy equivalent has been developed as a method of assessing the effects of a wide and often differing range of domestic policies on international trade. Applied thus far primarily in the agricultural sector, it measures the amount of compensation that would be required to maintain producers' revenues when all forms of assistance are removed. The Negotiating Group on Agriculture has set up a Technical Group on Aggregate Measurement of Support which has concentrated on the PSE methodology. As explained in the Secretariat's note on "Quantitative Measurement of Support: the PSE" (Spec(87)37), prepared for the Uruguay Round Negotiating Group on Agriculture, the concept evolved in the 1960's out of a desire to measure levels of protection in agriculture. PSEs are calculated in two steps, first by summing budgetary transfers to producers, and second by quantifying the difference between internal prices and world prices. Once the policy-related income transfers have been calculated, the results of the two steps can be added together and expressed as a global sum, called the aggregate monetary PSE. The primary differences between the PSE and the ERA are that the latter (i) explicitly takes into account the impact of the trade regime on inputs as well as output, and (ii) relates the net protection to value added. For other documentation of this Technical Group, see the MTN.GNG/NG5/TG/- series. Discussions are continuing in the Negotiating Group on Agriculture on the way in which a PSE type of methodology might be used in the negotiations.

B. Consumer subsidy equivalent (CSE)

23. The consumer subsidy equivalent is the implicit tax on or subsidy to consumption resulting from a set of policy measures. It has been developed as a method of assessing the effects of protection on consumers, to the extent that these measures affect prices paid by them. This concept is less relevant to the analysis of trade issues than the PSE, because it does not assess the impact of income support measures which may have an effect on trade but not on consumer prices.

C. Trade-distortion equivalent (TDE)

24. The trade distortion equivalent (TDE) is a concept similar to the PSE, except that it aims to deal with measures which have the most distorting effect on trade. Use of the TDE, therefore, requires judgements to be made

as to whether measures directly distort trade. Programs like research, resource conservation, and infrastructure development which require budgetary payments but do not directly affect trade are excluded from the calculations.

GATT activities on the ERA and other quantitative methods of assessing trade policies

A. ERA

25. In the Negotiating Group on Non-Tariff Measures, a proposal has been made that the Effective Rate of Assistance (ERA) be used as a yardstick to assess the outcome of the Uruguay Round negotiations because it could measure the impact of protection and also contribute to transparency. In putting forward this proposal, the Australian delegation was of the view that the achievement of the objectives of the Uruguay Round should be assessed in terms of the reduction in direct industry assistance for which the ERA provided a useful methodology (MTN.GNG/NG2/5). This delegation later circulated a communication on the subject of ERA (MTN.GNG/NG2/W/24).

26. However, other delegations expressed doubts as to whether it was possible to assess precisely the effective rate of assistance to industry. They pointed out that the ERA concept was a familiar tool for national administrations but they were doubtful about its applicability in the GATT context. They also pointed out that the ERA did not make a distinction between GATT consistent and inconsistent measures, and therefore would be contrary to the clear understanding of the negotiating mandate of the Punta del Este Declaration (MTN.GNG/NG2/5-6).

B. Other methods for quantitatively assessing trade policies

(i) Measurement of tariff concessions

27. At the review session of 1955, a suggestion was put forward by the delegation of Brazil for rules to be drawn up for the conduct of tariff negotiations and, in particular, for the measurement of concessions. The Working Party which examined this suggestion, considered that governments participating in negotiations should retain complete freedom to adopt any method which they might feel most appropriate for estimating the value of duty reductions and bindings. The representative of Brazil pointed out that the recommendation proposed for adoption by the CONTRACTING PARTIES merely asked for recognition that the measurement of concessions in monetary terms might not be equitable when the economic effects of customs duties were unequal because of differences in the economic structures of the countries concerned; therefore, whenever statistical data were

available, governments participating in negotiations for tariff concessions, or in renegotiations of bound duties, should be free to use, if they should so desire, the formula proposed by the Brazilian delegation in determining the equivalence of compensatory concessions. The Working Party noted that there was nothing in the Agreement, or in the rules for tariff negotiations which had been used in the past, to prevent governments from adopting any formula they might choose, and therefore considered that there was no need for the CONTRACTING PARTIES to make any recommendation in this matter. The CONTRACTING PARTIES adopted the report (BISD.3S/219).

(ii) Assessment of agricultural protectionism in industrial countries

28. The Panel of Experts set up at the Twelfth Session of the CONTRACTING PARTIES in 1957, under the chairmanship of Professor G. Haberler, to examine trends in international trade, addressed the question of agricultural protectionism in industrial countries. In so doing, it analysed the various forms of agricultural protectionism and considered that the best way of measuring the degree of total protection given to any line of agricultural production in any country by the combination of protective devices used in that country, would be to measure the percentage by which the price (including any subsidy) received by the domestic producer exceeded the price at which the product was available from foreign suppliers or could be sold to foreign consumers. In view of practical difficulties in carrying out such comparisons, the Panel recommended that the GATT and the FAO should be asked to make a detailed joint study to establish such measurements of the degrees of agricultural protectionism whenever this would be reasonably practicable. The PSE concept has its origins in work undertaken as a result of this recommendation. ("Trends in International Trade", a Report by a Panel of Experts, GATT, October 1958, paragraph 239-240).

(iii) Measurement of tariff escalation

29. Work has also been carried out in the GATT on the measurement of tariff escalation which was identified by many developing countries as an area of priority interest to them. A pilot study on copper was submitted to Committee III in the early 1960s. At the request of the Committee on Trade and Development, the secretariat prepared in 1980 a study covering eight industrial markets which contained pre- and post-Tokyo Round tariff escalation data with respect to a number of industrial sectors and sub-sectors of interest to developing countries (COM.TD/W/315). The study recalled that as indicated in the Director-General's Supplementary Report on the Tokyo Round (Geneva, January 1980), Tokyo Round m.f.n. concessions on industrial products substantially reduced the tariff differential between processing stages. At a meeting of the Committee on Tariff Concessions held in November 1980, the secretariat was requested to prepare a document on the question of methodology for the measurement of tariff

escalation (TAR/W/18). This note describes possible approaches, some of which are relevant for the purpose of assessing effective rates of protection, the difficulties involved in collecting appropriate statistics, the problems of comparability of the results and suggests how an examination of problems relating to the escalation of tariffs might be carried out. In particular, the document suggested that case studies be undertaken with a view to measuring the tariff escalation facing particular products. Such a case study, dealing with copper-producing and -consuming industries was circulated as COM.TD/W/361-TAR/W/26. A document which elaborated on the methodological and practical difficulties encountered in attempting to measure tariff escalation in the copper industry was circulated as COM.TD/W/369-TAR/W/29. These studies were discussed by the Tariff Committee in July 1982.

30. The problem of tariff escalation was raised in the Working Party on Trade in Certain Natural Resource Products set up in March 1984 under the Ministerial Work Programme adopted in 1982. The secretariat provided a number of background studies to this Working Party. The delegation of Canada also supplied some material relating to the problem of tariff escalation in natural resource-based products (MDF/W/1 and 3). Further discussion on the subject of tariff escalation was also held in the Committee on Trade and Development in 1984.

(iv) Protection Balance Sheet

31. The seven eminent persons requested by the Director-General of GATT in November 1983 to study and report on problems facing the international trading system, recommended inter alia that at the international level, trade policy and the functioning of the trading system should be made more open. At the request of the Group, the secretariat prepared explanatory notes for the preparation of "Protection Balance Sheets", the purpose of which would be to provide the public, legislatures and policy makers with the best available information on, and analysis of, the (i) level of, (ii) nature of, and (iii) rationale for, the public support being given to each industry. These balance sheets would cover all trade measures, including import controls, export subsidies and industry-specific production subsidies and could include tables which would present in summary form the "net cost/benefit" position of the individual industries ("Trade Policies for a Better Future", Proposals for Action, GATT, March 1985).

Activities of other international organizations on the ERA and related methods

32. The following section is based on information received from the OECD, the IMF, the IBRD, and UNCTAD on their work on the quantitative assessment of the protective effect of trade policies, including tariffs and non-tariff measures in general, and the ERA in particular:

(a) OECD: In December 1987, the OECD Council launched an exploratory study in two phases under the general heading of Labour Market Policies and Trade Adjustment. The first phase, which has been completed, was essentially of a methodological and analytical character. It included inter alia, an examination of the methods for quantifying the effects of protection, particularly on employment, and an assessment of the effectiveness of labour adjustment policies for displaced workers. In the course of this first phase, carried out by the OECD Secretariat with the assistance of independent experts, the ERA concepts and methodology as well as various other methods have been considered from several standpoints, including that of feasibility. The results of the first phase, in the form of a report, were submitted to the OECD Council in May 1989. The Council, on taking note of the report, agreed in principle that the Secretary-General would proceed to Phase II and invited him to make proposals to the Council on the case studies to be undertaken. In the meantime, the report has been sent to the Trade Committee, the Economic Policy Committee and the Manpower and Social Affairs Committee, for comments. The Council will be informed of these Committees' comments and the Secretary-General will probably thereafter make his proposals to the Council for the case studies.

Though the study, in line with its mandate, covers mainly the tariff equivalence of non-tariff measures, attention is also given to the effective rate of assistance as a closely-related and derivative measurement. Concerning the tariff equivalent, the report concludes that direct price comparisons would seem to be the most appropriate and practical method. Significant problems are involved, but given available expertise in the industries and markets concerned, and active cooperation among governments, the OECD Secretariat considers that these problems can probably be resolved.

The OECD Secretariat feels that calculating the effective rate of assistance will be a relatively easy step once tariff and subsidy equivalents have been estimated. It considers that this is especially so if a standardised input-output table is used to determine the shares of various intermediate inputs used in production. According to the OECD Secretariat, modifying the assumptions of the simple model by introducing, for example, less than perfectly elastic supply curves and imperfect substitution between imports and domestic production makes the calculation of effective rates of assistance considerably more difficult, just as it would make the calculation of tariff and subsidy equivalents more difficult.

Mention should also be made of the major OECD project for estimating PSEs for a range of agricultural products in many OECD countries. The initial results of this project - which had to deal with many of the practical computation problems described above under the ERA - were reported in National Policies and Agricultural Trade (OECD 1987).

(b) IMF: The IMF has not made systematic estimates of the protective effect of trade policies or of ERAs, though some calculations of the trade effect of possible liberalization measures have been included in IMF papers and articles.

(c) IBRD: The World Bank has been using the effective protection (EP) and related concepts in its operational work for at least 15 years. In particular, it frequently uses these concepts in lending operations which support trade policy reforms in borrowing countries, and in analysing the trade policy environment of industrial and agricultural projects supported by the Bank. The basic advantage of the effective protection concept is that it recognizes that the incentive to produce a product which can be exported or imported depends not only on the tariffs, subsidies or quantitative controls which affect the selling price but also on the tariffs, subsidies, foreign exchange rate distortions and other measures which affect the cost of its material inputs. These combined effects are measured by comparing the actual value added with what that value added would be in the absence of interventions which create differences between the prices actually received and paid, and world prices. The effective subsidy (ES) concept extends the effective protection concept by also allowing for subsidies and taxes which affect the cost of the factors of production, e.g., preferential credit, tax holidays, etc. Subsidies to non-tradeable inputs are often also incorporated at this stage. These subsidies and taxes are defined with respect to some norm or average. The effective subsidy concept approximately corresponds to the "effective rate of assistance" (ERA) which has been proposed as a technique to be used in the Uruguay Round of trade negotiations. However, there are differences in the ways in which these concepts are defined and used in practice, including differences in the treatment of inputs which are generally not traded internationally, e.g., electricity, water, domestic transport services, etc.

A number of empirical studies on effective protection rates in some 50 developing countries have been prepared in, or collected by, the Bank. A list of 142 titles covering the period until June 1984 is available in the secretariat. The list does not include Bank economic and project reports in which EP/ES concepts were used and empirical estimates provided but were not the main focus of such reports.

The Bank has recently commissioned a study by private consultants on the use of effective protection concepts in its negotiations with developing countries. This study describes the uses to which effective protection concepts have been put in the Bank which include internal uses of these concepts, the requirement that an effective protection study be completed as an explicit loan condition or even the achievement of specified effective protection levels as part of the conditionality framework. Many country or sector studies have been commissioned or supported by the Bank although the Bank does not always use them as conditions in trade reform programmes, partly because major trade policy distortions and their remedies are considered to be fairly obvious and little is expected to be gained by attempts to quantify them, and also because of some data problems. Estimates of nominal and effective protection can give useful information on the relative incentives for different activities within a given country. However, they cannot be directly used to compare the protection levels of given industries in different countries, since the overall level of protection affects the exchange rate. Nevertheless, studies of effective protection have been employed in the process of trade policy formulation for, inter alia, the following purposes:

- revealing how systems of protection may be favouring import-competing activities to the detriment of exports and how, within the import-competing sector, the structure of effective protection to value-added may be different from the structure of tariffs on finished products;

- exploring how policies such as domestic taxes can have a hidden protective impact, by further distorting the overall pattern of resource use;

- monitoring the progress of trade policy reforms towards their stated objectives.

Bank staff have advised the GATT secretariat that good effective protection studies in developing countries have been rich in analytical and other insights. Compared with the economic costs of the major trade distortions which they help elucidate, the costs of undertaking them have been small. Nevertheless, they have often been time-consuming and expensive in terms of the resources available to develop and administer the Bank's lending programme. The Bank's experience suggests that there are large potential economies if such work were undertaken on a regular basis by national organizations with the required power to obtain information. There may also be further economies from

the exchange of information (for example on world prices) between national bodies. However, few developing countries have effectively institutionalized this work despite the Bank's encouragement for them to do so. Bank staff also indicate that, in negotiating and monitoring trade reform programmes, the trade policy instruments themselves (e.g. nominal tariffs) and indicators such as the production coverage of import controls have proved more feasible and useful than measurements of the resulting levels of effective protection or effective subsidy.

(d) UNCTAD

The Trade Policy Simulation Model is used by UNCTAD to estimate various effects of commercial policy changes, including changes in tariff rates and the incidence of non-tariff distortion of international trade. The model contains estimates of the ad valorem tariff equivalents of non-tariff barriers for a certain number of products; mainly products which have been defined as being of special export interest to developing countries.

UNCTAD also maintains a Trade Control Measures Information System (TCMIS) which includes non-tariff measures applied at the border in over 100 countries. For developed market-economy countries, information on non-tariff measures can be matched, at the tariff-line level, with information from the GATT trade and tariff computer tapes; for developing countries, at the CCCN-level, with corresponding trade statistics from the UN Statistical Office.

TCMIS provides important inputs for the periodic review of world trading conditions. It is extensively used in the documentation, prepared by the UNCTAD Secretariat, for the annual review of the problem of protectionism and structural adjustment by the Trade and Development Board.

UNCTAD has, in several documents, based its assessment of the extent of the application of non-tariff measures on two indicators: the trade coverage ratio and the frequency index.[1]

The first indicator measures the value of imports affected by selected non-tariff measures as a share of all imports. The second indicator expresses the number of trade flows covered by non-tariff measures as a share of the total number of trade

[1]The assessment of the extent of the application of non-tariff measures in developing countries has been based only on frequency indices.

flows.[1] The profile of non-tariff measures has been analysed by computing these indicators for selected non-tariff measures and for specific groups of products. The trends in trade intervention have been analysed by calculating these indicators for a number of years, using the trade flows of a fixed base year. The indicators have also been used to assess the incidence of non-tariff measures in the exports of different trading partners or groups thereof.

UNCTAD continues to refine its methodology and to examine the comparability of data with a view to improving its assessment of non-tariff measures.[2]

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[1]The number of trade flows is the number of national tariff lines times the number of trading partners in which imports originate in each tariff line in the base year.

[2]For an extensive examination of the structure and the uses of TCMIS, see "Introductory note on methodology employed and the problem of definition", UNCTAD/TD/B/AC.42.5, Geneva, March 1988. Non-tariff measures in trade between developing countries have been addressed in "Trade Control Measures and Developing Country Trade. An Analysis using the UNCTAD Trade Information System (TIS) Data Base", a study prepared by Professor O. Havrylyshyn, UNCTAD/ECDC/TA/21, Geneva, March 1988, and in R. Erzan, H. Kuwahara, S. Marchese and R. Vossenaar, "The Profile of Protection in Developing Countries", UNCTAD Discussion Paper No. 21. Other relevant literature: Alan V. Deardorff and Robert M. Stern, "Methods of Measurement of Nontariff Barriers", UNCTAD/ST/MD/28, Geneva, January 1985.

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