

HOW IS TRADE PROTECTIONISM TO BE MEASURED?

The launching of new multilateral trade negotiations requires protectionism by different countries to be measured as precisely as possible. However, trade policy employs complex instruments, whose nature varies strongly, and which can lead to divergent assessments, making it very difficult for overall protectionism to be measured. New forms of assessment, which seek to measure the overall economic impact of protectionism, and which are based on examining the distortions induced by trade policies, provide an interesting approach to trade analysis. They generally put more traditional measures of protectionism, such as customs duties or the frequency of non-tariff barriers, into a more relative perspective.

New multilateral trade negotiations should begin in early 2001. The representatives of Member States of the World Trade Organisation will have to tackle new issues: food safety, the principle of precaution, social policy norms etc. Should they also negotiate reductions in customs duties and tariff barriers to international trade, as has been the case in previous Rounds? At the end of the Uruguay Round, it was generally estimated that tariff barriers by the major industrialised countries had been reduced significantly. In 1997, an OECD study indicated that average customs duties¹ were around 3.7% for the United States, 6.6% for the EU and 3.5% for Japan. Rate of protection among the major trade powers will henceforth be sufficiently low so as not to constitute an important issue in trade relations. However, several actors are keen on showing that such average tariff barrier evaluations may hide strong disparities, with some sectors still being heavily protected, leading to significant market distortions. Furthermore, non-tariff barriers, which in certain cases act as substitutes for tariff protectionism, should be taken into account. According to P. Messerlin in particular, the latter raised European trade protectionism to a level of 14.3% in 1998². Clearly, such trends could modify substantially the outlook for future trade negotiations by shifting the priority back to the reduction of trade barriers.

It is thus useful to recall the various means for measuring trade barriers and to specify the limits and biases of each, in order to fully appreciate the issues at stake in the next set of negotiations³. This article begins by examining direct measures of trade barriers, based on R. Baldwin's distinction⁴, and then analyses the measures seeking to evaluate the economic impact of protectionism.

■ Direct Measures of Trade Barriers

Ad valorem customs duties are the instrument of trade policy which raises the least problems of measurement. They are based on a levy that is defined as a percentage to be applied to the value of each imported product going through customs, the percentage being fixed for every product category (customs heading). The data presented in Table 1 indicate, for example, the average customs duties of five WTO Member States, and the sectors with the highest level of protectionism.

The title of the Table highlights the conceptual or methodological choices used to present average data. These choices explain the differences between this data and other evaluations (beginning with those by the OECD mentioned above).

1. Applied and weighted customs duties on imports (see *infra*).

2. See P. Messerlin, "Measuring the costs of protection in Europe", Institute of International Economics, Washington DC, forthcoming.

3. For a complete presentation of these issues see A. Bouët, "La mesure des protections commerciales nationales", CEPII Working Paper, n°2000-15, December 2000.

4. R. Baldwin, "Measuring non-tariff trade policies", NBER Working Paper, n°2078, 1989.

Table 1 - *Ad valorem* customs duties in 5 WTO members
(MFN duties applied in 1998, simple average)

in %	Japan	United States	U.E.	India	Venezuela
	7.3	4.5	4.7	29.8	12.4
of which					
Processed agricultural products	18.6	15.3	13.9	61.1	18.7
Leather and animal skins	20.9	3.5	2.6	15.6	13.3
Textiles and clothing	9.2	10.2	9	37.6	18.7
Foot- and headware	28.5	8.9	7.9	40	19

Source: TRAINS database, authors' calculations.

The customs duties rates given in Table 1 are the rates applied by countries on imported products. They differ from the **bound** rates, which are sometimes referred to: the latter are the rates that countries have committed themselves not to exceed, either under the GATT or the WTO⁵. In some cases, these may be significantly higher than the applied tariff rates. Furthermore, these rates are those of Most Favoured Nation (MFN) rights, according to the GATT principle of non-discrimination among all members of the WTO. But this principle does not rule out preferential agreements, especially within the framework of the Generalised System of Preferences, which opens up markets more widely to the exports of developing countries, nor regional trade agreements. Average MFN rates thus over-state the level of protectionism.

A problem arises as soon as an attempt is made to average customs duties for a particular sector or for the whole of the economy. If different tariff rates are not weighted, as is the case in Table 1, then each customs heading is given the same importance⁶. Yet every weighting system introduces its own bias. If tariffs are weighted by imports (as the OECD has done for the figures quoted) the calculation leads to under-estimating protectionism: a very low, or zero tariff for a customs heading means that imports will be high and hence over-weighted. Similarly, weighting tariffs according to the share of goods in consumption or production, at the national or world level, introduces other biases and ignores the specificities of different countries.

Measuring non-tariff barriers (NTBs) is particularly difficult, whether they be import quotas or voluntary export restrictions. The restrictive nature of NTBs is most often gauged on the basis of a frequency index (the share of tariff headings subject to NTBs) and a coverage index (the share of imports affected by NTBs). The disadvantage with these indices lies in the fact that they cannot be summed with tariffs to yield an overall estimation of protectionism. To make up for this

problem, it is possible to assess the impact of NTBs for each product using the difference in price between the domestic and world markets. However, this method too has its limits: it assumes that the qualities of products whose prices are to be compared are identical; the method is very sensitive to the exchange rate used, and; lastly it assumes that no discriminatory practices exist as the world price is often estimated using the product price prevailing in the country of export, because of a lack of data.

Apart from such measurement issues, the actual definition of impediments to trade has to be examined. Should such as anti-dumping rights, for example, which allow levies to be imposed unilaterally on imported goods with a price below the "normal" price, be considered as a means of protection. Anti-dumping measures are authorised by the WTO. Theoretically, their aim is to correct for price distortions, but surveys carried out by the European Union or the United States demonstrate that they are used above all for protectionist motives. If they are considered as a trade barrier, the fact that levies are only aimed at some suppliers should be taken into account. This share is generally very small: for the 21 customs headings with anti-dumping levies in the EU, the average levy rate affected only 6.7% of imports.

These definitional and measurement problems explain why estimates of protectionism may vary significantly. Thus, the figure put forward by P. Messerlin, suggesting a level of European protection of 14.3%, is high not just because it takes into account non-tariff barriers (**ad valorem** equivalents), but also because it retains **bound** duties and applies anti-dumping duties to all imports of the customs headings concerned. By retaining **applied** customs duties and by including only anti-dumping duties on those imports on which they are raised, the average rate of tariff and non-tariff protection in the European Union falls to 8.5%.

■ Indirect Measures of Trade Barriers

The second set of measures of tariff barriers does not just look at the level of protectionism, but seeks to estimate its impact: some seek to measure the impact of protectionism on trade flows (or on the price of goods), others strive to assess the cost in terms of lost welfare.

The former refer to a theoretical situation in which the State sets up no barriers to trade. The main problem then becomes one of choosing the reference model. For

5. One of the issues of the Uruguay Round concerned the consolidation of customs headings for the LDCs, in order to ensure an upper limit to potential levies, so as to reduce uncertainties faced by exporting countries.

6. It should be noted that it is possible to obtain different, unweighted rates for a whole economy, based on the same, initial data (tariff lines per product). For example, it is possible to use highly disaggregated data for agricultural products, while aggregating data for industry into a small number of sectors, or vice-versa. When calculating the unweighted average for the whole economy, the importance of each sector is thus stressed, and not that of each customs heading.

example, it would be possible to seek to estimate the degree of protectionism by comparing bilateral trade flows actually observed with the results of a gravitational model in which trade flows are explained by the GDP levels of the two partners, their prices levels, geographic distance etc. For this method to be acceptable, the model must be correctly specified so that the divergence in observed and explained trade flows is only due to trade protectionism. This is difficult to ensure.

Distortions in trade flows (or prices) resulting from protectionism do not automatically lead to a distortion of similar scale in the welfare or wealth of an economy⁷. It is precisely this latter distortion which is at the heart of the debate between the proponents of free-trade and the defenders of protectionism. From this point of view, a new indicator has been put forward by Anderson, Bannister and Neary⁸, the "Trade Restrictiveness Index" (TRI). Based on a General Equilibrium Model, the TRI quantifies, as a single customs duty indicator (applied to all goods), the loss of welfare stemming from an existing customs structure. This approach has the merits of rendering the theoretical foundations of measuring the cost of protectionism explicit. It also provides a summary indicator, which takes the different trade policy instruments into account (customs duties on imports, subsidies and taxes on production, quotas etc.), as well as the distortions they create in all markets (the markets for traded and non-traded goods, the markets for factors of production).

For example, the authors have evaluated the TRI for the European Union and the United States, in 1995, using a simplified general equilibrium model⁹. The European Union appears to be significantly more protected than the United States, on the basis of the average, unweighted rate of protection¹⁰. But in terms of welfare loss to the population, measured by the TRI, America's protectionism would appear to be greater than Europe's (Table 2). This can be explained by the importance of American tariff peaks. Following the Uruguay Round, 4.7% of American customs duties were running at over 15%, compared to only 1.9% for the EU (and more than 10% for Canada and Japan). Taking such distortions, which result from tariff structure, into consideration could weaken the American position in future trade negotiations. This type of global approach may also be used to appreciate the protectionism prevailing in individual sectors.

Table 2 - TRI and average customs duties (in %)

	Unweighted average customs duties	Weighted average customs duties	TRI
European Union	17.2	2.2	1.4
United States	10.4	3.5	4.7

Source: GTAP, 1995; authors' calculations.

An early concept of effective protection follows from the work by W.M. Corden¹¹. The degree of protection manifest in a sector does just not depend on the apparent rate of protection of its production. For example, if a sector uses intermediate goods which are more protected than its own output, the overall tariff policy will discourage the sector's production, as it raises costs and/or reduces the availability of the intermediate goods. In contrast, when inputs are less protected than the output (a phenomenon known as tariff structure progressiveness), then the sector will have greater *de facto* protection than that indicated by the declared rate. Such incentives (or disincentives) for production in a sector are measured by the variation of the value added generated by the overall tariff structure. This indicator is known as the effective rate of protection.

Table 3 - Measures of protection based according to different notions (in %)

Sectors	Nominal protection		Effective protection (Corden's definition)		Protection according to Anderson	
	E.U.	United States	E.U.	United States	E.U.	United States
Cereals	23.7	1.4	46.3	-0.5	1.9	3.5
Fruit and vegetables	2.1	1.3	2.2	-0.3	3.7	3.4
Fats and oils	0	0	-5.7	-3.6	2.3	3.3
Sugar and derivative products	68.9	63.5	113.6	90.8	1.9	3.4
Vegetable fibres	39.6	0.1	65.3	-6.3	n.d	3.4
Animals and derivative products	5.6	1.5	3.8	-9.5	8.6	3.4
Mining and mining products	0.1	0.1	-1.1	-1.9	2	5

Source: GTAP, 1995; authors' calculations.

Nominal protection: the tariff applied to the imports of a sector; for example, cereals imported by the EU are taxed at a rate of 23.7%.

Effective protection (Corden): the variation (with respect to free-trade) of the sectoral value added resulting from the existing trade structure; for example, European value added in the cereals sector - given the existing level and structure of tariffs - runs at over 46.3% of what would occur without protection.

Protection according to Anderson: the uniform tariff equivalent for all sectors which provides the specific factor of the sector under consideration with the same return as the existing tariff structure; for example, in Europe, the same return on the specific factor used in the production of cereals can be obtained using a uniform tariff of 1.9%.

J.E. Anderson¹² has put forward a new definition of protectionism effectively provided to a specific sector. This protectionism is considered as the sacrifice borne by the whole community for the rents of the producers in the sector to be preserved. Within the framework of a general equilibrium model, this sacrifice can be assessed by a uniform tariff, applied to all goods, a tariff which attributes to the specific factor of production of this sector the same returns as in the existing tariff structure.

7. In particular, it may be noted that a customs duty minimises the impact of tariff peaks, though the latter are an important source of distortion: the cost of the protection, evaluated in terms of welfare, is a first approximation, proportional to the *square* of tariffs and not to tariffs.

8. J.E. Anderson, G.J. Bannister and J.P. Neary, "Domestic distortions and international trade", *International Economic Review*, vol. 36, n°1, pp 139-157, February 1995.

9. Cf A. Bouët, *op. cit.*

10. For more detail about the spread between these rates and those cited previous, see footnote n° 6.

11. W.M. Corden, "The Structure of Tariff Systems and the Effective Protection Rate", *Journal of Political Economy* vol. 74, n°3, pp 221-237. June 1966.

12. J.E. Anderson, "Effective protection redux", *Journal of International Economics*, n°44, 1998, p. 21-44.

Using the same, simplified general equilibrium model, the authors have estimated the rate of protection corresponding to this idea for different sectors. Table 3 provides results for the European Union and the United States, in 1995, and compares them to the rate of traditional, effective protection and to nominal tariffs. The results obtained are mainly for illustration, given the structure of the model, and especially its sectoral breakdown. They show clearly the absence of correlation among the different measures of protection and relative to the scope of traditional measures. The most striking example is provided by the "Sugar and derivative products" sector. The sector appears to be highly protected for both zones, given its nominal tariff rate of 60%, and far higher effective tariffs of 113.8% and 90.8%, using Corden's method of calculation. The new indicator, however, suggests that the costs to the whole economy are relatively small. Furthermore, the cost of agricultural protection would appear to be less important in the European Union, than in the United States, with the exception of the "Animal products and derivatives" sector. Phenomena which simple averages of protection would appear to show up can therefore be easily contradicted.

National authorities have used several different types of protection, with varying consequences, for many years. This makes evaluating protectionism at an overall level extremely complex. Methods based on general equilibrium models provide an interesting addition to such work, because they begin by thoroughly questioning the methodology of measurement. Each type of evaluation of protection should indeed employ

measurement instruments that are adapted to its objectives. Protectionism will not be judged in the same way, depending on whether the aim is to assess the distortions caused by different types of trade policy, the restrictive impact on national imports, or the sacrifices imposed on society as a whole in order to guarantee the income levels of one particular interest group.

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