

QUANTITATIVE MEASUREMENT OF SUPPORT: THE PSE

Note by the Secretariat

Introduction

1. This paper is intended to provide a basis for informal discussion of the Producer Subsidy Equivalent (PSE) approach to quantifying levels of protection and budgetary support in the agricultural sector. As well as explaining the basic concepts involved, its objective is to highlight some of the relevant issues that would need to be addressed if it were decided to use the PSE, or some variant thereof, in negotiations.

PART I: A Global Approach

Basic concept

2. Governments intervene in a variety of ways to protect and support their agricultural producers. Although tariffs are an important form of protection in trade in agricultural products, non-tariff measures associated with domestic price and income support arrangements tend to predominate in many, if not most, areas of agricultural trade. The complexity and diversity of the measures employed to protect the operation of domestic price and income support arrangements have been a major impediment in previous negotiations to the development of a comprehensive and balanced approach to liberalizing trade in agriculture. As a broad measure of support to producers' incomes resulting from governmental interventions in production and trade the PSE can be regarded as providing a basis for a global approach to the negotiation of commitments on both the level and form of support in agriculture. The PSE could also offer a way of minimizing the problem of evaluating the substance and balance of concessions.

3. The PSE represents an attempt to combine the different forms of government intervention in agriculture into a quantifiable single figure for each major product, the entire agricultural sector, or both. The PSE could be used to compare the levels of government intervention in agriculture across countries, across agricultural commodities or over time.

¹A number of alternative methods for quantifying the level of protection and/or of support to the agricultural sector have been considered in the past. The principal examples are described briefly in Annex I.

4. The central concept in the PSE approach is that government interventions in agricultural markets affect farmers' incomes. The Producer Subsidy Equivalent is the payment that would have to be made in each country to compensate farmers for the loss of income resulting from the removal of a given set of domestic agricultural policy measures.

The evolution of the concept

5. The origin of the PSE concept goes back to the "Standard Method" which was developed in the pre-Kennedy Round GATT Committee II (COM.II/103, 29 November 1960, paragraph 13) as a follow-up to the recommendations of a GATT-appointed panel of experts. The panel recommended that there should be gradual moderation of the level of agricultural protection and that a study should be undertaken on methods for measuring levels of protection. The concept was subsequently developed in work undertaken by the FAO as the Producer and Consumer Subsidy Equivalents (see paragraph 51 below for a discussion of CSEs). The FAO publishes regularly updated estimates of PSEs for selected commodities. In the recent OECD Study "National Policies and Agricultural Trade", PSEs were calculated for a number of products in a number of countries, covering the period 1979-1981.¹ This work is currently being updated (to 1986) and extended in terms both of its country and product coverage.

6. PSEs (and CSEs) are key parameters in the OECD econometric model that is used to measure the production and trade effects of reducing levels of support in a multi-commodity, multi-country context. The model's results generally confirm that the broader the scope of a concerted reduction in support levels in terms of country and product coverage, the greater are the benefits in terms of more realistic world market prices and of minimizing adjustment costs. It should be noted that the results given by the OECD model are based on the assumption that reductions in the level of internal support are accompanied by reductions in protection at the border.

Calculation of PSEs

7. Government intervention in agriculture can result in income transfers between the government and farmers, or between consumers and farmers:

- Transfers between the government and farmers include all expenditures from the public budget in favour of agriculture including tax concessions for farmers, as well as elements of government revenue, such as the EC's producer levies.
- Policy-related transfers from consumers to farmers that result from domestically supported prices, import restrictions, or both.

¹The products are wheat, corn, barley, sorghum, rice, sugar, soybeans, rapeseed, dairy, beef and veal, pigmeat, poultry meat, sheepmeat, wool and high fructose corn sweetener. Besides the EC (10), the study covered the policies of Australia, Austria, Canada, Japan, New Zealand and the United States.

8. As a measurement of the overall level of support or assistance to producers of a given product, the PSE concept requires in principle that all transfers from whatever source be included.¹ Whether the explicit or implicit transfer/subsidy accrues from a deficiency payment programme, from border measures, from tax concessions or from government services provided at less than cost is a matter of indifference, in the economic sense, in calculating PSEs. Thus an income transfer of one dollar in export subsidies stands on the same footing as a one-dollar income transfer from a government-financed research programme. In practice, however, there are limitations as to how comprehensive the coverage of the PSE can be in a negotiating context.

9. Within the overall PSE concept, there are essentially two steps involved in the calculation, the choice depending in each case on the nature and particularities of support measures to be quantified. The first step consists of calculating budgetary transfers to producers. The second involves quantifying the difference between an internal price and a world price. The first step is generally used when support originates in a transfer of public money to a given product or sector. The second step is generally used whenever the support arises from the maintenance of an internal price that is higher than the world price. In either case, a reasonably comprehensive knowledge of the measures and programmes applied by governments for each product area, and of how these policies and measures interact, is required.

10. First step. Programmes or measures involving direct or indirect income support that are a charge on budgetary resources are usually calculated on the basis of governmental financial accounts. The accuracy of these estimates depends on various factors. These include:

- a reasonably accurate knowledge of the budgetary cost of these measures; this requires not only information on budgeted funds (which furthermore presupposes that these are identifiable in the budget), but also the revenue foregone by governments (tax concessions) or costs not fully recovered (for example, interest subsidies); and
- an agreement on how to apportion government outlays that are not commodity specific, such as a tax reduction on agricultural fuel or research costs funded by the government.

This first step would normally be employed in calculating the effects of measures in sections 2, 3 and 4 of the classification of measures set out in Annex II.

¹The list of measures used by the OECD in calculating PSEs is provided in Annex II.

11. Second step. The second step in quantifying income transfers to producers involves a calculation of the difference between a supported internal price and a world market reference price (which may need to be agreed where a single market price is not evident). This price difference on a per unit basis is then applied to total domestic production, with the resultant aggregate amount being considered as a measurement of the nominal transfer effect of the measure or measures in question. This internal/external price differential is used to quantify the income transfer effects of market price supports (border measures such as tariffs, levies, quotas, etc., as well as the operations of marketing boards). This method would normally be employed for the measures included under item 1 of the classification of measures set out in Annex II. Where the internal price is less than the world price, the resultant PSE may be negative, although imports could still be subject to restrictions.

12. In the present circumstances, characterized by extensive government intervention, there is often not a single world price. For some major products, however, (for example, wheat, coarse grains, soyabeans, sugar, vegetable oils) price ranges which are not too divergent exist at any given time. For others - in particular products of second-stage or third-stage processing - the methodology will probably have to be based on agreed reference prices.

13. In addition, world and internal prices should be calculated at the same stage (farmgate or wholesale), which means that the calculations must include ocean freight and internal transport costs, handling, mark-ups and quality adjustments.

14. The use of the internal/external price differential usually involves a number of measures being quantified jointly. In a particular case a tariff, variable levy or quota (or even all three measures) may be applied at the border, with the internal market price also being supported internally by other measures (e.g., stocking arrangements). In this situation what is explicitly measured is the difference between internal and external prices. The related border or internal measures are regarded as being measured implicitly. Thus, where this technique is used it is not possible explicitly to measure the nominal income transfer effects of each individual border or other related measure. Of course, some of the related measures could be identified through the method of budgetary outlays. In addition, the more extensive the use that is made of this two-price method of measurement, the greater is the inherent variability of the resultant PSE over time (see paragraphs 36 to 41 below).

15. Where budgetary expenditures are used to quantify the income transfer effect of particular measures the calculation involved is relatively straightforward, although problems can arise where governmental expenditures are not commodity specific. Where the internal/external price differential is employed, border measures, internal measures and any export

assistance programmes are generally measured jointly. This is based on the premise that measures that take effect jointly should be measured jointly, notwithstanding the fact that readily ascertainable budgetary outlays are associated with some of these measures (expenditures on export subsidies and storage arrangements, for example). To include such outlays would involve an element of double counting since they are deemed to be covered by the internal/external price differential. By the same token, the result of using the internal/external price method could tend to understate the real situation. A combination of the two measurement techniques could be employed to overcome this double counting/understatement problem.

16. Once the policy-related income transfers are calculated, the results of the two steps can be added together and expressed as a global sum which is called the aggregate monetary PSE.¹ Producer Subsidy Equivalents are initially calculated for individual products but they can be combined to produce an overall PSE for the agricultural sector as a whole.

17. The aggregate monetary PSE is an absolute figure. However, for comparisons across commodities, across countries or over time the aggregate monetary PSE can be expressed as a ratio, for example:

- as a percentage of the value of domestic production measured at world market prices;
- as a percentage of the value of domestic production measured at domestic prices;
- per unit of output of the product in question;
- per farmer; or
- per farm.

In the first case, which is the most commonly used, the PSE ratio corresponds to the concept of an ad valorem tariff. However, as noted above, the PSE ratio is much more comprehensive in that it includes all kinds of non-tariff government interventions in agricultural markets. Specific examples of the calculation of aggregate monetary PSEs and PSE ratios for wheat in the United States and the EC are shown in Annex III.

Specific measurement issues

18. A number of other technical questions concerning the measurement of PSEs might usefully be addressed at this point. They arise whatever use is made of the PSE, and their discussion will serve as a background for the subsequent considerations concerning some possible options for its use in negotiations.

¹Of course, there may be cases where the income transfers are based only on budgetary support or only on protection at the border.

19. Quantitative restrictions: a key issue would be the treatment of quantitative restrictions on imports. The PSE technique as developed so far generally includes them as part of the panoply of measures whose effects are summed up in the internal/external price differential. This raises straight away the problem of disaggregation. The change in a PSE resulting from a reduction in QRs would be hard to estimate in advance. It would also be difficult to gauge how much a PSE would have to be decreased to reduce or eliminate QRs for a particular country or commodity.

20. Voluntary Export Restraints: insofar as the effects of these measures are captured by the internal/external price differential, the above comments on QRs apply to VERs also. However their price effects may be such as to cast doubt on whether they are in fact correctly reflected in the PSE on this basis. Voluntary Export Restraints (as well as "orderly marketing agreements" and other such market-sharing agreements) lead to higher c.i.f. prices in the importing country because of the existence of "quota rents". Where the c.i.f. import price is used as the external reference price, the internal/external price differential - and hence the PSE - could in fact remain roughly constant. This could encourage increased use of VERs to substitute for other import restrictions. It may therefore be desirable to correct for this case in PSE calculations, possibly by using any one of several available reference prices to gauge distortions involving VERs.

21. Stocks: as with a number of other policy measures affecting trade, assistance provided by government stockholding is measured, in the PSE calculations made thus far, in different ways depending on whether internal/external price differences exist. For the case of grain in one country, for example, inventory costs are added in as part of the aggregate PSE because no price differential is deemed to exist. In another case, stocking costs are assumed to be implicitly captured in a calculation that measures the level of market support for the total volume of production irrespective of its destination.¹ The latter case is an instance of a more general disaggregation problem, covered in more depth elsewhere in this paper, which arises if it is desired to isolate or compare specific policies and their contribution to aggregate PSE. Furthermore, the PSE as presently understood, even if regularly updated, cannot identify the effects on trade of changes in stockholding policies among other influences on world market prices (cf. "large country" case, paragraph 43 below).

¹ In other words, though they may have an identifiable budgetary cost, stockholding policies are assumed in this case to be captured implicitly by the internal/external price calculation, along with other measures of assistance. To do otherwise would raise the double counting problem discussed with reference to export subsidies in paragraph 15 above.

22. Concessional trade: recent work on PSE calculations by international and national agencies has generally excluded bona fide concessional trade and food aid from the policy coverage. (Though it could be argued that since, as noted above, a PSE calculation based on the price differential approach does not distinguish among destinations of the production assisted there is implicit coverage in some cases.) The question of what is bona fide food aid for these purposes may call for further examination. However, if it were thought desirable to include concessional trade in the PSE calculation on a thoroughgoing basis, a number of further conceptual and measurement difficulties would arise. For one thing, the trade effects of food aid are by no means clear (it can supplant or encourage commercial demand, or - in line with the FAO U.M.R. standard - be roughly trade neutral). And even if the nature of the effects could be identified, it would be difficult to calculate their impact on the world price element in the PSE.

23. Health and sanitary restrictions: budgetary expenditure on inspection services has been included in some calculations, but this apart, no attempt has been made thus far to include health, sanitary and phytosanitary measures explicitly in the PSE. (It may be that their effects are captured implicitly in the internal/external price gap in some limited cases.) The problems of doing so include the difficulty of distinguishing between policies which are genuinely designed to protect health from those which are more economically protective in intent or effect. It is not clear at present whether the PSE measure could be refined to take account of these policies in a useful way.

PART II: Use of the PSE in the Multilateral Negotiations

24. Agreement to use the PSE in one form or another in the MTN would require negotiations on the precise way in which the PSE concept would be applied. In this respect, agreement is necessary on coverage, the base period, and on certain issues related to the implementation of the PSE. There is also the issue of an agreed interpretation of changes in the PSE. It should be noted that several of the issues discussed below would also arise if a decision were made to use concepts involving quantification of the levels of protection or support other than the PSE (see Annex I).

Policy coverage

25. A first question which must be settled concerns the policy coverage of the PSE. Annex II contains a list, drawn up by the OECD, of measures which could be included in the calculations of the aggregate monetary PSE.

26. One basic issue is whether the PSE basket should include all policy measures which affect trade, however indirectly, or whether only the most trade-impacting measures should be included. The provisions of the Uruguay Declaration relate to "... all direct and indirect subsidies and other measures affecting directly or indirectly agricultural trade ..." and would appear to call for a wider rather than a narrower coverage of measures.

27. If particular measures are to be excluded from the PSE basket, it may be necessary to develop criteria or safeguards to ensure that commitments were not nullified by switching support from trade-distorting measures which are in the basket to trade-distorting measures which are not included in the PSE. A closely related issue concerns which policies could be regarded as "trade neutral" or "decoupled support". (The term decoupled support refers to policy-related income transfers to farmers that have little or no impact on their future investment, production or trade decisions regarding agricultural products.) Thus the nature of the policies to be counted against the PSE would influence the future direction of agricultural policies and the scope for introducing a more market-oriented framework for trade in agriculture.

28. The inclusion or exclusion of particular measures is not the only option. There could be a grey area in particular cases. Whereas measures with the most direct impact on production and trade should be included in the PSE basket and thus be subject to phased reduction, other measures could be subject to complementary commitments.

Product coverage

29. The product coverage should be as broad as possible. If negotiations were confined to a few major commodities, there could be a self-defeating tendency to switch resources into protecting and subsidizing products that are not subject to negotiated PSE constraints. Moreover, the general thesis is that the broader the product coverage and the greater the number of participating countries, the greater are the overall benefits. What would appear to be important, therefore, is that the product coverage should be wide enough to cover a large proportion of agricultural production and trade, as well as the main interests of the participating countries. A further aspect of the product coverage is the question of how to define the products. For example, should there be one PSE for the cereals sector, or individual PSEs for wheat, rice, corn and so forth?

30. The applicability of the PSE technique to processed products is a matter that would require particular attention. Manufacturers of processed products are not necessarily the beneficiaries of the sort of assistance measures from which producers of primary commodities benefit and which the PSE by definition is intended to measure. Given the range and variety of processed products, the measurement of external/internal price comparisons (where relevant) would present particular problems. It may be, therefore, that some other approach would need to be considered.

Country coverage

31. It is clear that if the PSE approach is used, it should apply to the largest possible number of countries so as to cover a substantial proportion of the production and trade of a given product. It would be contradictory for some producers to be trying to reduce agricultural

support while others were taking advantage of the situation gradually to increase theirs. A major practical consideration in all this would be the feasibility of developing PSEs for a large number of countries and products on any basis which went much beyond measures for which prices and government financial data are readily available.

32. One issue is the need to agree on how to deal with situations in which different agricultural policies are implemented by different levels of government. On the one hand, there are economic unions, in which some policies cover all the members and other policies are applied at the national level in certain members. On the other hand, in some countries some agricultural policies are under the jurisdiction of provinces, states or cantons. (It should be noted that this issue is not unique to the PSE or to agriculture.)

Base period

33. The base period for calculating the PSEs should satisfy two conditions. One is that the base period should be recent enough that it represents a good approximation of current levels of government intervention in agricultural markets. The second is that the base period should be long enough to give a representative picture of the levels of government intervention, that is a picture which excludes purely short-term influences on the magnitude of the measured PSEs - such as a bad harvest or a temporary over- or under-valuation of the exchange rate. To a degree these conditions are at cross-purpose.

34. A pragmatic solution would be to assess PSEs on the basis of annual averages, say of the two or three most recent years for which the necessary data are available. For the purpose of monitoring policies or commitments, calculations would then be made annually on a moving average basis.

35. One point to be noted in this context is that the availability of data for making the PSE calculations will differ among countries. A situation may well arise in which for some countries the most recent period for which relevant data are available lies well in the past. The choice then is between (a) agreeing on a common reference period which may poorly reflect current policies, or (b) accepting that the negotiations are based on PSE calculations which refer to different reference periods among countries but which, in the case of each country, mirror the most recent information available.

Issues related to the functioning of PSEs

36. The PSE is a snapshot of the income transfer effects of government interventions at a given time. Without any changes in government policies, PSEs, whether on an aggregate or per unit basis, will automatically fluctuate in response to movements in world prices or exchange rates.

37. Therefore, changes in the level of PSEs over time will not only reflect policy-induced changes but will also reflect changes in areas over which governments have little or no control. Disentangling the effects of

one category of change from another would not be an easy matter, particularly in a situation in which commitments are expressed in PSE terms. This is a problem which is likely to be more pronounced in the case of PSEs that are calculated largely on the basis of the internal/external price differential. However, this problem could be alleviated by the choice of criteria or provisos designed to minimize the impact of exogenous changes.

38. Even if government policies do not change in the course of a fiscal or calendar year, for example, it is clear that a good or a bad harvest would automatically alter the amount of the aggregate monetary PSE. This may even switch from being positive to negative for some product areas.

39. Of course, this shortcoming may be mitigated at the outset by the selection of a judicious initial base, drawing on average PSEs during a period of several years. But while the system is in operation, fluctuations in PSEs may raise sensitive problems in the interpretation of commitments.

40. The issues of exchange rate fluctuations and world market prices, and their impact on PSE commitments, will undoubtedly need to be addressed under any approach involving commitments on PSEs. Essentially, the problem is one that can be minimized but not fully resolved. One possible approach would be to agree on a regular review of changes in exchange rates and world market prices with a view to adjusting the PSE estimates for individual countries under specified conditions. An agreed set of parameters might be established within which corrective action would be required. This procedure would require discussions of, and agreements on, the causes of changes in world market prices and exchange rates and their effects on the PSE at the product level, a process which is likely to meet with the same difficulties which, at present, burden dispute settlement under Article XVI. Another possibility would be to employ a two or three-year moving average PSE in order to flatten out exchange rate and world price fluctuations. The PSE measured in this way could be acceptable as an approximation of economic reality though it could not distinguish between policy-induced and exogenous changes.

41. At the other extreme, world prices and exchange rates from the base period could be held constant for the purpose of monitoring policies or commitments. However, PSEs calculated on such a basis could become increasingly out of line with economic reality.

42. In the case of policy-induced changes, the separability of a complex set of causes and effects would be an aspect that is probably more related to the issue of "credits and debits" in the negotiations. Two instances of this are the "large country" case and the issue of supply control.

The "large country" case

43. The policies of "large countries", that is countries which account for a large share of world trade in a given commodity, often have a relatively greater impact on world prices for that commodity. Such effects are

inherent in the initial PSE calculation. Subsequent policy changes could, for example, reduce the large country's exports and increase world prices. This would reduce the PSE of other traders without any action on their part. It could be argued that the large country should be compensated in some way for this. However, any attempt to provide such compensation would run into the major problems of distinguishing among the numerous effects on world prices over time, and apportioning responsibility for price movements to specific policy changes. It may not be possible, therefore, to adjust explicitly for large country effects. Large countries whose PSE is mainly budgetary may in any case receive some eventual PSE benefit from their policy changes, for example, through lower deficiency payment costs. More generally, it should be kept in mind that large countries - along with medium and small countries - benefit from the more efficient use of their own resources.

Supply control

44. The question of PSE 'credit' for policy changes and the associated measurement problems are perhaps most evident in the case of supply control measures, such as acreage limitation, diversification payments or production quotas, which many countries have implemented. These policies may be captured by the PSE calculation in ways which the countries implementing them could find perverse. For example, the budgetary costs of supply control measures may increase the aggregate PSE of the country using them - at least in the short term¹ - while possibly conferring PSE benefits on others through increases in the world price. (These same world price effects may to some extent "reward" the large country for its supply controls. But a "small" country taking supply control measures which may be important in domestic terms, and whose costs may increase its PSE, would not receive much by way of world price PSE benefit because of the country's minor impact on world trade in the commodity concerned.)

45. This effect could perhaps be seen as an incentive to ensure that supply control measures lead to reductions in other sections of the budget, those concerned with support for the quantity of production foregone, sufficient to balance or outweigh their intrinsic cost and hence their PSE contribution. This would require, first of all, that the measures should be effective in controlling supply. However, it could be argued that the positive contribution of supply control programmes to improving trade might still be undervalued in PSE terms if, for example, a country introducing an effective set of controls found its PSE more or less unchanged.

¹This distortion can be more pronounced when the PSE is expressed as the ratio of the monetary PSE to production; in this case, supply controls could reduce the denominator, while at the same time increasing the numerator, thereby causing the PSE to rise.

Options for using the PSE in the MTN

46. There are many different ways in which PSEs could be used in the negotiations. The more important or the more central the rôle of PSEs, the more challenging will be the task of dealing with the issues outlined above.

47. Thus, at least four possible rôles may be imagined for the PSE, and they may of course be combined. A first possibility is that the ceiling of the PSE itself would be bound and a transitional period for its gradual reduction would be negotiated. Each participant in the agreement could then carry out an annual reduction of its PSE by reducing various direct and indirect support measures. These specific measures would be notified annually, and would be subject to monitoring by the other participants in the agreement to check that they actually brought about the annual reduction.

48. A second possibility would be to use the PSE only to measure the value of concessions proposed or exchanged following a request and offer procedure. In contrast with the first case, the instruments and timing of the gradual reduction in support and protection would be covered by an agreement and subject to binding. As pointed out in paragraphs 14, 19 and 20, in this rôle of "unit of account" of traded concessions the PSE has clear drawbacks in measuring reductions of certain non-tariff border measures, such as "voluntary export restraint" agreements and quantitative restrictions.

49. A somewhat similar option is the possibility of using the PSE as a device for monitoring commitments. As such, PSEs would have to be updated at regular intervals in multilateral review procedures. It may be added that because the PSE is an estimate of the situation at a particular time, the review process would necessarily be working with data that referred to the situation at an earlier date. Just how far the process might run behind the current situation would depend, inter alia, on time lags in the availability of government financial accounts and on the efficiency of the review process itself. Of course, this is not to say that more recent or prospective governmental policy changes would not be a matter for consideration in review procedures.

50. Finally, a fourth possible use of the PSE in negotiations concerns the strengthening and more effective functioning of GATT rules. The interpretation of some concepts in Articles XI or XVI, for example, which suffer from a lack of precision, could be made much clearer and more authoritative with the addition of suitable references to the PSE.

Consumer Subsidy Equivalent

51. It is doubtful whether the CSE could play a useful role in the MTN. Any applied use of the CSE would encounter not only the problems discussed above with reference to the PSE, but also a number of limitations peculiar to this measurement. In general, the CSE only captures the market price

support element of the PSE - that is, those measures which directly influence consumer prices. It does not measure indirect support or direct payments, such as deficiency payments, all of which may affect trade directly or indirectly in terms of the Punta del Este Declaration. Furthermore, the OECD in its work on CSEs found that data limitations did not always permit consumption to be valued at the same marketing stage - i.e., wholesale or retail - between countries and commodities. And a measurement of support taken at the consumer end of the supply chain is obviously more severely affected than the PSE by the lack of homogeneity among commodities as well as by their higher degree of processing. More importantly, in a sense the CSE is more remote from the MTN than the PSE because the CSE addresses less directly the impact of government policies on agricultural production and, hence, international trade in agricultural commodities. Finally, a concerted reduction of PSEs would also tend to lower CSEs while keeping the focus on measures affecting the level of agricultural output rather than on consumer taxation.

Final points

52. It may seem somewhat premature to advance any findings at this juncture. However two points may be made. First it appears that it is not possible to avoid the methodological and data issues inherent in the PSE concept if the MTNs on agriculture are to be based on concepts involving quantification. Secondly, the foregoing analysis does suggest that a perfectly accurate and unchallengeable quantification of the whole set of support and price measures affecting agricultural trade is not within the realm of possibility at present. Neither, it must be added, are 100 per cent accurate estimates an essential pre-requisite for finding a rôle for PSEs in the negotiation of meaningful commitments aimed at bringing about a reduction in protection.

53. Reliance on a "quantification-based" approach to reducing protection would represent only one part of the needed effort in the agricultural area. In particular, it must be accompanied by negotiations to strengthen GATT rules and disciplines as provided for in the Punta del Este Declaration.

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ANNEX I

Methods of Quantifying the Level of
Agricultural Protection and/or Support

1. A number of methods for quantifying the level of protection and/or of support to the agricultural sector have been considered in the past. The principal ones among these are the nominal rate of protection, the effective rate of protection, governmental budgetary outlays, and the "montant de soutien".
2. The nominal rate of protection (NRP), is usually taken as the difference between the domestic producer price and the corresponding world price (converted into local currency at a given exchange rate) for any particular commodity. The NRP can be refined to include marketing, processing and transport costs, so that it measures the difference between the actual farmgate price and the farmgate equivalent of the border price. Although it is a relatively straightforward method, a number of difficulties arise regarding its calculation and use. Most importantly, it does not capture input and marketing subsidies, nor any governmental budgetary outlays which do not affect prices. In addition, there are a number of other problems, including those associated with selecting the appropriate exchange rate and the "representative world price".
3. A more comprehensive measure is the effective rate of protection of value added (ERP), which attempts to quantify the effect of border measures on domestic value added in the activity of producing a certain good. The ERP figure represents the percentage excess of value added per unit of output in the protected activity relative to value added per unit of output under free trade (the ERP may be negative, for example, when inputs are subjected to higher tariffs than the product itself). In other words, not only is the nominal rate of protection of the finished product taken into account, but also the tariffs (and perhaps subsidies) affecting the inputs into that final product. In addition to questions related to exchange rates, international prices, and non-traded inputs, the ERP is actually more demanding than the PSE in terms of the needed data and the complexity of the calculations (among other things, it requires a detailed input-output table for each country).
4. Measurements of government budgetary outlays clearly pick up most direct support to producers, but take no account of transfers from consumers arising from artificially high domestic prices for agricultural products.
5. The proposed "montant de soutien" or support margin measurement discussed during the Kennedy Round negotiations was to be calculated as the difference between an agreed international reference price (either an average of actual prices, or a "negotiated" price) and the remuneration received by producers. The latter would be calculated as the annual

average price received at the farm, with the possible addition of any direct subsidies. The proposal was that this margin of support would be bound and periodically reviewed. The bound margin would have to be adjusted whenever exchange rates changed and whenever prices on the world market fell below the reference price. Within the limits of the bound "montant de soutien", countries were free to select the particular policies used. Major concerns with this proposal were that it did not include indirect aids [needs clarification] to farmers, as well as the difficulty of establishing agreed reference prices. It was, furthermore, argued that the binding of the "montant de soutien" was not sufficient without accompanying commitments on maximum self-sufficiency ratios. The inability to reach agreement on self-sufficiency ratios effectively undermined the use of the "montant de soutien" in a negotiating context.

6. In comparing the PSE with other quantitative methods, two points are worth noting. First, other approaches, such as nominal and effective rates of protection or the "montant de soutien", involve finding solutions to methodological and data difficulties similar to those involved in the PSE. Second, none of these approaches handles such issues as supply control policies, and all are much less complete than the PSE, which includes elements of both budgetary outlays and protection at the border.

ANNEX II

PSE Classification by Type of Measure

1. Market Price Support

- two-price systems
- price premiums
- import quotas/voluntary export restraints
- tariffs/import levies
- export refunds/credits
- home consumption schemes
- supply management (production/acreage quotas)
- monopoly organizations (marketing boards, import control organizations)

2. Direct Income Support

- direct payments (disaster, deficiency, headage/acreage, direct storage payments, etc.)
- embargo compensation
- levies paid by producers (negative support)

3. Indirect Income Support

- capital grants
- concessional credit (interest subsidies)
- input subsidies (fuel, fertilizer, transport, etc.)
- insurance
- storage

4. Other Support

- research, advisory, training
- inspection
- rationalization and structures
- processing and marketing
- transport concessions
- taxation concessions
- provincial/State measures

ANNEX III

Examples of PSEs Calculation

The following are PSE estimates for wheat in the United States and the EC as calculated by the OECD Secretariat as part of the analytical work undertaken in the context of the OECD report "National Policies and Agricultural Trade".

A. Total PSE

The total PSE measures overall policy transfers to producers in a given country, for a given commodity and in a given year.

I. US - Wheat - Years: 1979 to 1981

<u>Policy transfers to producers</u> ^{1/}	<u>1979</u>	<u>1980</u> (US\$ million)	<u>1981</u>
(i) <u>Price and income support:</u>			
(a) <u>direct government payments:</u>			
- disaster	79.0	228.1	220.6
- deficiency	0.0	0.0	414.4
- diversion	0.0	0.0	0.0
- storage	64.1	59.9	111.3
(b) <u>government inventory costs</u>	156.2	859.9	208.5
(c) <u>interest subsidy:</u>			
- CCC (regular loans)	82.7	100.1	167.1
- farm storage facility	14.9	17.2	18.3
- farm credit system	24.9	32.6	36.3
- farmer home administration	28.3	45.7	83.4
(d) <u>crop insurance</u>	-0.4	85.0	4.1
(e) <u>fuel subsidy</u>	67.2	77.5	85.8

^{1/} Budgetary expenditures and USDA estimates are not generally commodity specific. They have been allocated on the basis of the commodity's share in total value of production or subsets thereof.

US - Wheat - Years: 1979 to 1981: (cont'd)

<u>Policy transfers to producers</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
(ii) <u>Research and advisory:</u>			
(a) research	37.9	50.0	53.3
(b) advisory	15.3	17.9	20.0
(iii) <u>Inspection, pest control:</u>			
(a) inspection	6.1	9.1	10.6
(b) pest control	15.0	18.2	20.7
(iv) <u>Land improvements</u>	102.2	108.0	121.3
(v) <u>Processing and marketing</u>	3.7	4.3	4.9
(vi) <u>General:</u>			
(a) taxation	69.8	81.8	97.0
(b) transport	103.8	114.7	190.1
(vii) <u>State programmes</u>	76.7	104.1	116.7
(viii) <u>Other</u>	0.0	0.0	0.0
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TOTAL PSE	947.4	2,014.1	1,984.4
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Thus the average total PSE (1979-1981) for wheat in the United States was:

US\$ 1,648.6 million

II. EC - Wheat (Common Wheat) - Years: 1979 to 1981:

<u>Policy Transfers to Producers</u>	<u>1979</u>	<u>1980</u> (Million ECU)	<u>1981</u>
(i) <u>EEC market policy:</u>			
(a) Trade measures ^{1/}	1,821.3	1,522.0	1,656.0
(b) Direct payments	0.0	0.0	0.0
(c) Other	0.0	0.0	0.0
(ii) <u>EEC structural policy</u>	17.0	15.0	19.0
(iii) <u>National policies: member States:</u>			(571.0)
(a) improvement of structures	306.0	329.0	..
(b) natural disaster payments	26.0	18.0	..
(c) rural development	20.0	22.0	..
(d) processing and marketing	55.0	82.0	..
(e) market support	15.0	19.0	..
(f) financial aid	2.0	7.0	..
(g) other income aid to producers	3.0	5.0	..
(h) research, training and advice	74.0	82.0	..
(i) other	7.0	7.0	..
<hr/> TOTAL PSE	2,346.3	2,108.0	2,246.0

Thus the average total PSE (1979-1981) for wheat in the EC was:

ECU 2,233.4 million

^{1/} (Producer Price - World Reference Price) x Level of Production. In the case of common wheat, given the net exporting position of the EC in this product, an export (f.o.b.) price was used as the reference price, and notably the f.o.b. Rouen price - Standard Wheat (which refers to various destinations as determined under the system of export tenders July/June years). It was estimated as follows: (ECU/t) 1979: 122.2; 1980: 134.1; 1981: 177.6. The level of production and producer price are given below (cf. page 27).

B. PSE ratio

In order to make inter-country comparisons, the total PSE has to be expressed on a percentage or per unit basis. The OECD uses the PSE ratio to express the total value of assistance given as a percentage of the adjusted producer value. The total value of assistance is equivalent to the total PSE. The adjusted producer value is the value of output plus any direct net payment (i.e., plus deficiency payments, minus producer levies).

I. US - Wheat:

		<u>1979</u>	<u>1980</u>	<u>1981</u>
(i) <u>level of production</u> (million tons)		58.1	64.6	76.2
	multiplied by:			
(ii) <u>producer price</u> (US\$/ton)		138.9	143.6	134.2
	equals:			
(iii) <u>value to producers</u> (US\$ million)		8,070.1	9,276.6	10,226.0
	plus:			
(iv) <u>direct payments</u> (US\$ million)		143.1	228.0	746.3
	equals:			
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ADJUSTED PRODUCER VALUE	(US\$ million)	8,213.2	9,504.6	10,972.3
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Thus the PSE ratios for wheat in the United States were:

<u>Total PSE</u>	x 100	<u>947.4</u>	x 100	<u>2,014.1</u>	x 100	<u>1,984.4</u>	x
100 Adjusted producer value		8,213.2		9,504.6		10,972.3	

OR:

11.5%

21.2%

18.1%

Thus the average total PSE ratio (1979-1981) for wheat in the United States was:

17.2%

II. EC - Wheat (Common Wheat)

		<u>1979</u>	<u>1980</u>	<u>1981</u>
(i) <u>level of production</u>	(million m.t.)	44.64	50.23	49.73
	multiplied by:			
(ii) <u>producer price</u>	(ECU/t)	163.0	164.4	177.6
	equals:			
(iii) <u>producer value</u>	(million ECU)	7,276.3	8,257.8	8,832.1
	plus:			
(iv) <u>direct payments</u>	(million ECU)	0.0	0.0	0.0
	equals:			
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ADJUSTED PRODUCER VALUE	(million ECU)	7,276.3	8,257.8	8,832.1
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Thus the PSE ratios (1979-1981) for wheat in the EC were:

<u>Total PSE</u>	x 100	<u>2,346.3</u>	x 100	<u>2,108.0</u>	x 100	<u>2,246.0</u>	x
100 Adjusted producer value		7,276.3		8,257.8		8,832.1	

OR:

32.2%

25.5%

25.4%

The average PSE ratio (1979-1981) for wheat in the EC, therefore, was:

27.7%

NOTE: A detailed analysis of methods and sources used can be found in OECD documents: DAA/1948 and DAA/1949.