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# PSEs:

## What They Are And Their Role In Trade Negotiations

— by Nicole Ballenger —

A concept—the producer subsidy equivalent (PSE)—introduced nearly 15 years ago by agricultural economist Tim Josling may be a key to the success of the ongoing agricultural trade negotiations being conducted under the auspices of the General Agreement on Trade and Tariffs (GATT). This one measure of the level of government assistance to agricultural producers has a role in proposals for agricultural policy reform by several of the principal actors in the agricultural negotiations of the Uruguay Round — the United States, the European Community, and the Cairns Group (Australia, Argentina, Brazil, Canada, Chile, Colombia, Hungary, Indonesia, Malaysia, New Zealand, Philippines, Thailand, Uruguay).

### What is a PSE?

A PSE is an estimate of the effect of government policy on gross producer returns. A PSE can be computed for an individual product or a group of products and it can be either positive (a subsidy) or negative (a tax). It has become conventional to express PSEs as percentages, such that the estimated effect of government policy on producer returns is shown as a percent of the total revenues received by producers from production. For example, the 1985 U.S. beef PSE has been estimated by the Economic Research Service (ERS) of USDA as 10 percent. The denominator of this estimate is the \$21 billion total revenue received by U.S. beef producers in 1985. The numerator is \$2.1 billion, representing the estimated effect of government policies on this revenue. This \$2.1 billion is composed of \$647 million associated with the import limitation policies and domestic beef purchases, \$467 million with input assistance, \$204 billion with marketing assistance, and \$764 million with other

federal and state government benefits to agriculture.

### Three Roles for PSEs in Trade Negotiations

There are three potential roles for PSEs in international trade negotiations.

- They can simplify negotiations over nontariff barriers and domestic policies. PSEs assign a "common denominator" to a wide range of trade barriers, such as quotas, variable levies, and export subsidies, and domestic policies such as input subsidies and deficiency payments. Thereby they enable cross country comparisons on an aggregate basis and enable negotiators to avoid being enmeshed with the intricacies of individual policies. In this way a PSE data base can provide a sort of international tariff schedule describing the level of government intervention in agriculture.

- They can facilitate the aggregate approach to negotiations. Under the PSE approach all individual policy instruments of each participating country, except those excepted through negotiation, could be converted to their subsidy equivalents, added into a single total PSE, and negotiated as a package. Individual countries would then be expected to propose and implement a plan for reducing their PSEs to some negotiated level (the United States has proposed zero) over some negotiated time period (the United States has proposed ten years).

This approach would give countries considerable flexibility in the implementation of their policy reform. In this framework, the role of the PSE would be to fix the baseline and to gauge countries' success in meeting their obligations to a GATT agreement.

- They can serve as a monitoring device during the period over which protection is being reduced. By recalculating PSEs over time it can be determined if countries are decreasing protection for the agricultural sector according to plan or schedule. Assuming that policy activ-

ities are effectively monitored, policy makers in all countries will be provided information that shows the net effects on PSEs of changes in policies. This will help assure that countries do not develop new forms of protectionism that more than compensate for decreases of protection by other policy changes.

### Ways to Calculate PSEs

There are two general calculation techniques used to capture the effects of the various policies included in each PSE. The first uses government expenditures for particular policies or programs. For example, if a government spent \$5 billion on deficiency payments, the subsidy equivalent of the deficiency payment scheme would be this amount, \$5 billion. This approach relies on the strong assumption that a dollar expenditure in any one program has the same effect on farmer revenue as a dollar spent in any other program. This implies that \$5 billion spent on deficiency payments has the same effect as if it were spent on research and advisory services or input subsidies.

The second technique for calculating PSEs relies on the difference between prices received by farmers and a reference price—an estimate of the price farmers would receive if the country unilaterally removed the policies that affect producer returns such as import quotas and variable levies. The reference price may be a price in international markets or a price in a nearby country relatively unaffected by government intervention. For example, one way to estimate a PSE for Canadian poultry is to compare Canadian and U.S. poultry prices. The difference between the two prices is assumed to capture the price effect of Canada's controls on poultry production and imports.

The key point is that the PSE mea-

### Consumer Subsidy Equivalents

Producer subsidy equivalents have counterparts known as consumer subsidy equivalents (CSEs). CSEs measure the value to consumers of government food and agricultural programs. For example, tariffs provide price support to producers but also raise prices to consumers, implying that the effect of the policy is to subsidize producers and tax consumers.

CSEs are not explicitly discussed in this article because they are not likely to play a direct role in the trade negotiations.

### The Cairns Group

The Cairns Group consists of countries which are typically agricultural exporters and share agricultural trade interests, particularly vis-a-vis the United States and the European Community. The group is named after the city of Australia where it first met. A Cairns Group proposal for agricultural policy reform has been submitted to the GATT.

*Nicole Ballenger is Agricultural Economist, Commodity Economics Division, Economic Research Service, USDA.*



sure a country's level of protection in the context of the current world market environment—not in the context of the world market environment that would prevail in the absence of government intervention.

The price gap concept has also been applied to interest rate subsidies. Production credit, marketing credit, and credit to commodity boards offered at subsidized rates can be entered into the PSE by estimating the reduction in interest payments associated with the difference between concessional and commercial terms. A good deal of judgement must go into choosing the appropriate commercial credit rate.

PSE calculations also involve allocating government support from programs that are not commodity specific among commodities. Fuel and fertilizer subsidies are examples. In such instances a general allocation rule is usually devised. One approach is to allocate government program costs among crops in proportion to their value.

Discussions are still underway on how to measure (a) the revenue producers sacrifice when they participate in acreage reduction or supply control programs, and (b) the effects of export expansion programs, such as food aid, export credits, and export credit guarantees, on producer revenue.

## Some Issues

Admittedly there are several conceptual and empirical issues related to calculating PSEs and their use in negotiations. However, the calculation of PSEs acceptable to trade negotiators can benefit from the substantial work already completed by the Food and Agriculture Organization, the Organization for Economic Cooperation and Development, and the Economic Research Service of USDA.

In addition, PSEs can still be useful first in negotiations and second in monitoring the implementation of the commitments made by the negotiators even if some details are left unsolved. The key will be to agree on the policy instruments covered by the PSEs and that an arbitration mechanism be developed to add other instruments to the coverage if justified. This approach is important in order to discourage countries from escaping their GATT obligations by vigorously innovating new policy directions not initially covered by the PSE calculations accepted by negotiators.

Two issues, among the most difficult to resolve, relate to exchange rates and to the interaction between international prices and country PSEs. Because of

the dominant use of the U.S. dollar in international trade, PSEs rely on reference prices expressed in U.S. dollars. This means that the relationship between internal prices of other countries and international prices relies on the exchange rate. One merely needs to observe the recent changes in exchange rates to recognize that this will be a serious issue.

A related issue is how to handle fluctuations of international prices in calculating PSEs over time. The PSEs change with fluctuations in international prices.

### Sample 1985 producer subsidy equivalents for U.S. & Japanese beef

	(Units	U.S.	Japan**
Level of production	1,000 tons	11,000	555
Producer price	\$/ton	1,928	6,322
Value of production	Mil \$	21,196	3,509
Policy transfers:			
-Price support	Mil \$	647	1,720
-Input assistance	Mil \$	467	318
-Marketing assistance	Mil \$	204	--
-Other*	Mil \$	764	38
Total policy transfers	Mil \$	2,082	2,076
PSE (Transfers as percent of value of production)	Percent	10	59

\*U.S.: Pest and disease control, research and advisory services, tax policy, and state programs.  
Japan: Insurance.

\*\*Monetary values converted from yen at average annual exchange rate of 239 yen per one U.S. dollar.

Suppose Brazil maintained its current minimum producer price for wheat but the world price of wheat (Brazil's import price) declined. In this case, Brazil's wheat PSE would increase although its farmer's revenue (in Brazilian currency) from wheat sales might remain unchanged. On the other hand, Brazil could increase its wheat producer price and register a lower PSE if, simultaneously, world prices were to rise relatively more than the internal price. This example indicates that some additional guidelines may be necessary to clarify and ensure countries' commitments.

### What PSEs Don't Say

The existing work on PSEs strengthens the prospects for an agreement on agriculture in the current round of trade negotiations. Continuing work on PSEs will undoubtedly facilitate future bilateral and multilateral policy discussions. There are, however, important types of information about government intervention in agriculture that PSEs alone cannot tell us.

PSEs do not directly tell us the world market effects of nations' policies. Two

countries' PSEs can be identical but have far different effects on world markets simply because they affect production and consumption differently.

Three factors will determine these trade effects. The first is the mix of policy instruments used by the countries. For example, a variable levy will both increase production and decrease consumption; while a deficiency payment stimulates production but has no direct effect on consumption.

The second factor involves the differing ways that production and consumption respond to the same policy incentives. Producers and consumers in different countries may respond differently to the same form of government intervention due to resource constraints, technological factors, other consumption and production options, social and political factors, and market characteristics.

The third factor is the country's trade share. A country with a small PSE and a large world market share can have a bigger influence on trade and international prices than a country with a smaller market share and a larger PSE.

PSEs also do not reveal the full story of the role of the government in the farm and food sectors. For example, they can tell us whether the grain sector is receiving more or less government assistance than the livestock sector. But we need to know more about the characteristics of grain producers vis-a-vis livestock producers in order to

know if government programs are making income distribution within agriculture more equal or less equal. They can tell us which forms of government assistance are most important in, for example, the rice markets. But they cannot tell us what percent of the rice farmers receive this form of assistance or whether the farmers that do are already rich or are poor.

## For Additional Information

Three publications which include detailed PSE information are:

*National Policies and Agricultural Trade*, published by the Organization for Economic Cooperation and Development in July 1987.

*Government Intervention in Agriculture: Measurement Evaluation, and Implications for Trade Negotiations*, published by the Economic Research Service, USDA, in April 1987.

*Estimates of Producer and Consumer Subsidy Equivalents: Government Intervention in Agriculture, 1982-86*, published by the Economic Research Service, USDA, forthcoming. □