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Agricultural Support: How is it Measured and What does it Mean?

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Introduction

OECD governments have a long history of pursuing agricultural policies, with objectives ranging from supporting farm incomes to securing safe food and environmental quality. Policy measures are equally varied, including instruments such as import tariffs, export subsidies and a host of different government payments to farmers. Many of these policies share the common feature that they transfer money to farmers, and thereby impact on production decisions, incomes, international trade and the environment.

Governments of OECD member countries have an interest in learning more about each others' policies, to benefit from best practice experience and minimize negative spillover effects of policies both domestically and internationally. In order to support them in these efforts, the OECD invests heavily in policy analysis. One basic ingredient into any such analysis is the ability to describe agricultural policy developments over time, in a way that is accurate and comparable across countries.

What is required is a common yardstick that can measure the "size" and "shape" of the transfers from the many disparate agricultural policy instruments, in order to assess the progress made in achieving policy goals in more effective and efficient ways. The monetary value of the transfers to agriculture through the various policy instruments is one such yardstick. Each year since the mid-1980s, the OECD has been measuring the monetary transfers associated with agricultural policies in OECD countries (and some non-OECD countries), using a standard method. The results are published annually by the OECD, and are the only available source of internationally comparable and transparent information on support levels in agriculture. They have established a sound basis for international policy dialogue on agriculture, and contributed significantly to the formulation of internationally binding commitments on domestic support in the WTO following the Agreement on Agriculture concluded in the Uruguay Round.

Over the years many questions have been asked about the way in which the OECD builds its yardstick to measure agricultural support, what the data mean, and how it is used and interpreted. This Brief is a response to those frequently asked questions, addressed primarily to the non-technical reader. For those who want to dig deeper, a selected list of publications and contact points is given at the end of this Brief. ∎

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What is meant by agricultural support?

In public discussion, words such as support, subsidy, assistance, and aid to producers are often used interchangeably to describe the transfers provided to farmers or the agricultural sector as a whole, which result from government policies that raise farmers' revenues or reduce their costs. The OECD uses the neutral term "support" to estimate the monetary value of transfers resulting from agricultural policies – whatever the intended objectives of those policies.

The OECD produces several indicators of agricultural support. The most important and central one is the **Producer Support Estimate** (PSE), which shows the annual monetary transfers to *farmers* from policy measures that:

- maintain domestic prices for farm goods at levels higher (and occasionally lower) than those at the country's border (*market price support*);

- provide payments to farmers, based on criteria such as the quantity of a commodity produced, the amount of inputs used, the number of animals kept, the area farmed, or the revenue or income received by farmers (*budgetary payments*).

The key point is that contrary to popular opinion, support not only comprises *budgetary* payments that appear in government accounts, but also the *price gap* for farm goods between domestic and world markets, as measured at a country's border. In fact, the latter constitutes the lion's share of support in most countries. The OECD indicators of support are described in Box 1, while Box 2 briefly compares the OECD's PSE with the World Trade Organization's Aggregate Measurement of Support (AMS) used in multilateral trade negotiations. The focus of this Brief is the PSE. ■

How is farm support expressed?

PSEs are calculated and shown by OECD country (the European Union with its Common Agricultural Policy is treated as one country) and by commodity. Increasingly PSE calculations are also produced for selected countries outside the OECD area. Market Price Support, the largest component of the PSE, is based on calculations for commodities accounting for around 70% of overall commodity production in the OECD area, with some differences in shares across countries. The PSE indicators are expressed in both absolute monetary terms, such as billions of dollars, and in relative terms – as a percentage of the value of gross

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Box 1. Other OECD Indicators of Support

Consumer Support Estimate (CSE) is the annual monetary transfers to consumers from policy measures that:

– maintain domestic prices paid by first consumers (measured at the farm gate) at levels higher (and sometimes lower) than those on world markets at the country's border, which is an implicit tax on consumers as it is the mirror image of market price support to farmers; and

– provide subsidies to keep prices of commodities consumed by certain groups in the economy lower than would otherwise be the case, such as cheap food for poor people, public institutions and some processors.

In general the CSE is negative because the implicit tax on consumers from market price support more than offsets consumer food subsidies.

General Services Support Estimate (GSSE) is the annual monetary transfers to agriculture but not to individual producers that:

– provide budgetary-financed expenditures for the provision of such services as research, development, training, inspection, marketing and promotion.

Total Support Estimate (TSE) is the overall monetary cost of the transfers in a country from policy measures calculated by:

– adding the PSE, the taxpayer cost of consumption subsidies and the provision of general services, and subtracting import tariff receipts.

Nominal Protection Coefficient (NPC) is the ratio between producer and border prices.

Nominal Assistance Coefficient (NAC) is the ratio between farm receipts (including support) and those generated in the market without support.

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Box 2. PSE and AMS

The purpose of the PSE is to monitor and evaluate progress in agricultural policy reform, whereas the AMS is the basis for a legal commitment to reduce domestic support in the WTO Agreement on Agriculture. The PSE and AMS are closely related, but there are important differences.

The PSE covers all transfers to farmers from agricultural policies, whereas the AMS covers only domestic policies deemed to have the greatest production and trade effects (amber box), and excludes trade policies that are covered under the WTO market access and export subsidy disciplines. The AMS also excludes production-limiting policies (blue box), those policies deemed non or least trade distorting (green box) and certain trade distorting policies (e.g. input subsidies) when the level of domestic support is smaller than a specified de minimis level.

Market price support in the PSE is measured at the farm gate level using actual producer and reference (border) prices for commodities in a given year, whereas in the AMS market price support is calculated by the difference between annual prices fixed by policy makers (administered prices) and world prices in the base period (1986-88).

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farm receipts (%PSE), per hectare of farmland and per full time farmer equivalents.

The monetary value of the PSE is influenced by the size and structure of the country's agricultural sector, as well as the country's rate of inflation. The PSE expressed per farmer or hectare is also influenced by differences in farm structures across countries. Support expressed as a percentage of gross farm receipts shows the amount of support to farmers irrespective of the sectoral structure and inflation rate of a country, making the %PSE the most widely acceptable and useful indicator for comparisons of support across countries, commodities and time.

This Brief concentrates on the measurement and interpretation of support, rather than on the actual results. But, by way of illustration, Figure 1 shows the trend in OECD agricultural support in current monetary terms and as a percentage of farm receipts. It is clear that while there has been little change in the value of support at *current prices* since the mid-1980s – with producer support in the aggregate of the 30 OECD countries currently amounting to about 240 billion US$ per year – there has been a modest reduction in the %PSE. Even so, a PSE of 31% means that only 69 cents of every dollar of farmers' gross receipts for the average OECD farmer comes from sales of products valued at world market prices. ■

How is farm support measured?

Farm support is measured by adding up two elements: the difference between domestic and world prices for commodities multiplied by the amount produced, and budgetary transfers. Budgetary transfers include payments to farmers and budgetary revenue foregone through lowering the cost of farm inputs. Tariffs, quotas and other restrictions on imports as well as subsidies on exports, together with government intervention to boost domestic prices through for example stock-building, create a gap between domestic market prices and world prices for commodities at the border. Multiplying that price gap by the amount of domestic production gives the *market price support* to producers in the PSE. At the same time that domestic producers receive higher prices for commodities, consumers also have to pay those higher prices. In other words, market price support channels transfers from consumers to farmers.

Figure 1. **Producer support has only marginally declined since mid-1980s**

Source: OECD Secretariat.

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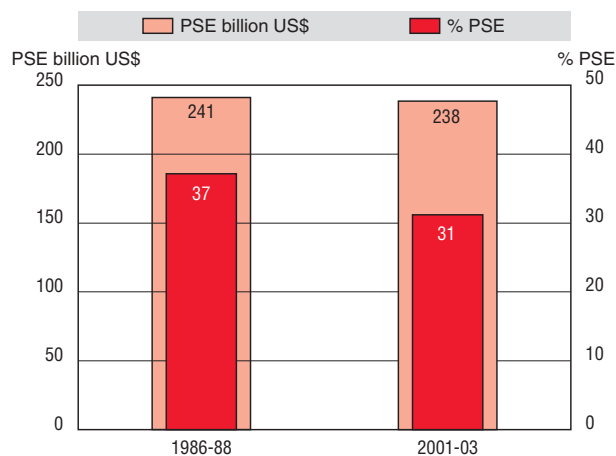
Figure 2. **Payments per tonne and tariffs have equivalent effect on producer price**
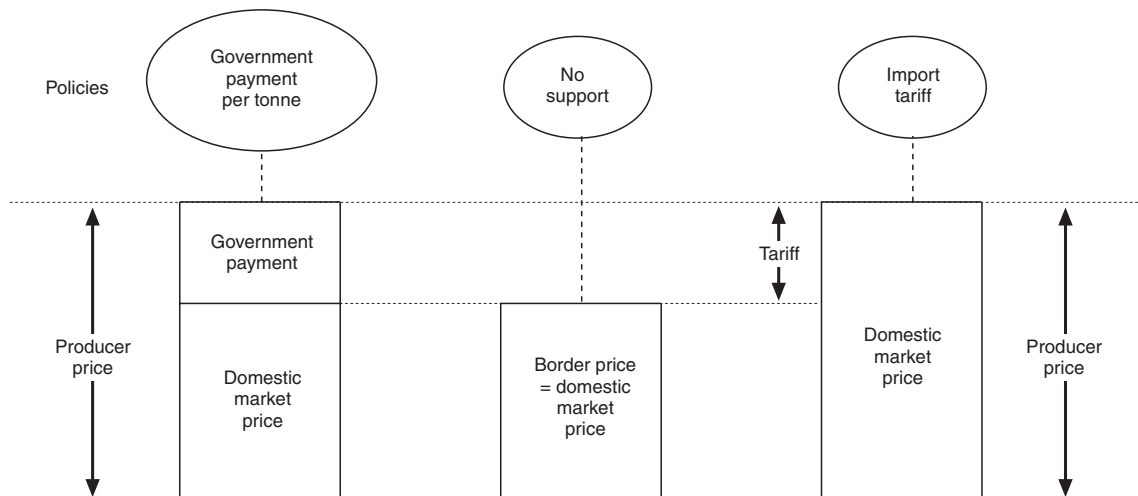
N.B. For simplicity, marketing margins are not considered in this graph.
Source: OECD Secretariat.

Budgetary payments may be granted to farmers, based on such factors as what they produce or the area of land farmed, or to input suppliers to compensate them for charging lower prices to farmers. These are taken from published budgets in OECD countries and included in the PSE. However, some countries make payments to farmers to hold stocks of farm goods on their farms or to public purchasing agencies to accumulate such stocks. The operational costs of acquiring, holding and disposing of public stocks are a budgetary cost to implement market price support policy but do not provide support to farmers over and above market price support, and so are not included in the PSE, but in the TSE.

Energy tax rebates, subsidised irrigation water and interest concessions are examples of potential *revenue foregone* by the government. These are measured by the gap between the tax, water charge or interest rates paid by farmers and those paid by others in the domestic market. ■

Why are transfers to farmers from consumers through higher prices added to taxpayer transfers?

Policies come in many different forms, but often have much the same effect. For example, the US is a net exporter of wheat and support to wheat farmers is delivered by (among other ways) a government *payment* for each tonne of wheat produced, which raises the price farmers receive but not the price paid by consumers. Japan, by contrast, is a net importer of wheat and applies import tariffs (*market price support*) which raise both the price paid by consumers and received by farmers. In both cases, the result for farmers is that they receive prices higher than the market would generate. Whether provided through a government payment or a border measure, a given price increase delivers the same amount of support and has the same effect on domestic production and farm income. This is illustrated in Figure 2.
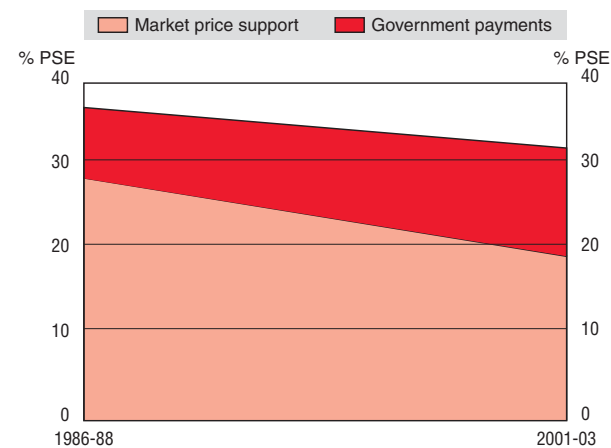
As both payments per tonne and market price support raise farm commodity prices by the same amount and both affect production, trade and income, the PSE as a yardstick would do a poor job if only payments were included. After all, as Figure 3 shows, market price support still remains the largest part of overall support, accounting for nearly two thirds of the PSE in the OECD area. ■

Are actual border prices appropriate benchmarks to measure price support?

In calculating market price support, the OECD estimates the gap between domestic and world prices at each

Figure 3. **A large part of farm support comes through price support**

Market price support   Government payments

% PSE
40

30

20

10

0
1986-88   2001-03

% PSE
40

30

20

10

0

Source: OECD Secretariat.

country's border. However, it is sometimes argued that actual world prices are not the appropriate benchmarks because they are distorted through production-enhancing policies, import barriers and export subsidies. Therefore, world prices that might prevail in the absence of all such policies should be used as the benchmarks. Which is the correct approach to adopt here? As in so many cases it depends on what we want to measure. If the aim is to provide an overall picture of the global state of affairs in world agriculture, then calculating world prices in the absence of all policies may have merit. But that is not the purpose of OECD's evaluation of agricultural policies, which is to compare the interventions governments make in pursuit of their policy objectives. How much effort a government makes to ensure its farmers obtain a particular level of domestic price obviously depends on the actual world price. After all, this is the basis on which governments choose tariff levels and other price support instruments.

More specifically, the focus of OECD analysis is to monitor progress in policy reform and to assess whether current policies are best serving countries in achieving their objectives. Therefore, the OECD calculation of support must be an indicator able to say something about the efforts made to support its farmers and progress in the reform of current policies. The market price support element of the PSE would not be able to do this and would therefore provide the

wrong guidance to policy makers, were it to be based on world prices that do not exist in reality.

Governments and stakeholders are, however, interested in knowing what might happen to domestic and world prices in the process of agricultural policy reform. The OECD, as well as others, has examined this issue, but the analysis must start from the actual prices that exist in domestic and world markets. Thus the measured price gap is a crucial input into modelling what might happen under different assumptions about policy reform. What these models show is that reforming policies and removing trade barriers changes both domestic and world prices, narrowing the price gap. But the extent of changes in world prices will depend on whether such reform occurs in one or several or all countries. Moreover, not only will reforming policies have effects on market price support, but also on budgetary payments that bridge the gap between world prices and those that governments consider farmers should receive. ■

Isn't the gap between domestic and world prices caused by factors other than farm policies?

The PSE provides a snapshot of support provided in a given time period due to agricultural policies, in the context of given macro-economic conditions and economy-wide policies. The benchmark is the absence of agricultural policies of the country concerned, *i.e.* a situation where farm receipts are entirely generated in the market. In that case, prices received by farmers would reflect changes in world market conditions and exchange rates. When world prices decline, domestic producer prices in a well functioning market follow, and vice versa.

In many cases the PSE tends to fluctuate with changing world market conditions. This is typically the case where governments pursue policies that insulate domestic producer prices against swings in world market prices. Under these conditions, when world market prices decline, say because of abundant world supplies, then the PSE tends to rise. Is this therefore a non-policy effect, which should be excluded from PSE calculations?

Where a government deliberately shields domestic producer prices from such changes in world markets, it effectively alters market signals, even though seemingly only through doing nothing, *i.e.* by keeping the domestic support price constant behind trade barriers. In a situation like that, the relative stability of the

domestic price is clearly an effect of farm policy. The government provides more support to domestic farmers the further the world market price declines, and vice versa. The PSE should pick this up – and it does.

Similarly, even if world prices do not change, a country's exchange rate might appreciate or depreciate. In a well functioning market without government interference, this would result in a decrease or increase in domestic prices in national currency. As in the previous example, if a government blocks this price adjustment through its policies, this results in a change in the value of market price support, even though the only "visible" change that has occurred is in the exchange rate.

These simple examples serve to demonstrate that when there are border measures that impede the transmission of world prices to domestic markets, changes in market price support that result from a change in world prices at the border can legitimately be assigned to policy measures that are in place. In evaluating policy developments the OECD deals with this by identifying and measuring the contribution of the various factors included in the measured price gap, and thereby provides information that helps policy makers in interpreting year-on-year changes in the PSE. ■

What do farm support indicators tell about agricultural policy reform?

Countries pursue a variety of goals with their policies. Although they use different mixes of policy measures to do so, it is the way in which the measures are implemented in the context of the conditions in each country that determines the impacts on production, consumption, income, trade and the environment. In order to provide a basis for more in-depth policy analysis, the OECD not only calculates overall support levels, but also reports their composition using different categories of policy measures that reflect how the policies are implemented. The implementation criteria tell us something about how different policies may affect farmers' decisions to produce farm goods.

Some policy measures deliver support directly related to the amount of a specific commodity produced (market price support and payments based on commodity production) or inputs used. These policy measures are the ones that have the strongest influence on production incentives, although this incentive can be weakened in those countries that place constraints on output produced or inputs used. Policy measures that deliver support based on the current area planted or

animal numbers, but are not dependant on the amount of a specific commodity produced have somewhat less influence on production incentives. Other policy measures provide support based on criteria such as past production history, the overall farm area, the income situation of the farmer, or for the provision of environmental services, for example. Such measures have the least influence on production incentives.

This classification of policy measures highlights the different production and trade incentives of various policy categories. In assessing policy developments, the OECD takes care to highlight the trends in the policy mix, with particular emphasis on the most production and trade distorting measures – market price support, and output and input payments. It is thus possible to assess policy reform in terms of the trends in the level of support and the shift towards less production and trade distorting policies.
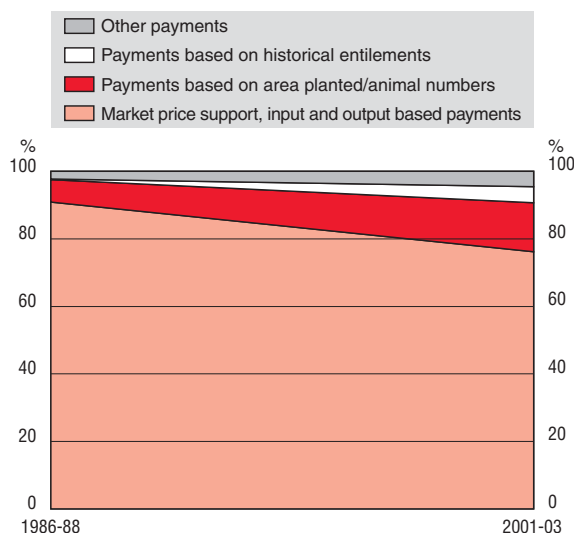
Agricultural policy measures in many OECD countries have become more diverse and complex. Policies not only influence production through their effects on prices but also on their effects on wealth and risks facing farmers. At present the OECD is in the process of revising the PSE classification to accommodate these developments. This mainly involves better classifying policy measures that provide support based on a mixture of current and past production variables and those that deliver support not based on farm commodity production – which will help to evaluate progress in policy reform.

So what do the support indicators say about the extent of policy reform? Figure 4 shows that some reform has occurred in the shift away from the most distorting policy measures (market price support, input and output based payments), which have fallen since the mid-1980s. Nevertheless, such measures still account for about three quarters of support to farmers. ■

How much does support increase farm incomes?

The PSE measures transfers from taxpayers and consumers that raise farm receipts. This transfer does not mean that farmers' incomes change by the same amount. In order to receive a transfer, farmers usually have to produce a commodity or service, or use an input, and thus they incur extra costs. The transfer is greater than the farm income generated by the amount of these extra costs. Other work in the OECD calculates the "transfer efficiency" of a policy measure, which is the

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Figure 4. **Progress towards reform of farm policies is slow**

- Other payments
- Payments based on historical entilements
- Payments based on area planted/animal numbers
- Market price support, input and output based payments

Source: OECD Secretariat.

share of support that translates into extra farm income. In fact, one extra dollar of market price support actually results in a rise in farm incomes of no more than 25 cents, while the share for payments based on historical entitlements is about one-half. Only in the case of a transfer that does not require the farmer to incur any extra costs (such as a lump sum payment) is support translated entirely into extra farm income.

It would also be wrong to assume that the amount of support provided to farmers in the rich countries is an indicator of the extra income that developing country farmers might gain if agricultural policies in the OECD countries were eliminated. Certainly, farmers in many developing countries would be better of if OECD countries no longer pursued policies that distort trade and depress world market prices. But the current level of OECD farm support would not necessarily translate into extra income for farmers in poor countries. ■

Should payments for environmental services provided by farmers be included in farm support?

Some farmers provide environmental services for which markets are lacking. For example they may plant trees or change tillage practices in a way that can contribute to alleviating climate change or flood risk. A farmer may cut a meadow later than usual in order to allow rare birds to nest, thus making a contribution to preserving biodiversity. But farmers also generate harmful environmental effects, such as off-farm water pollution. The objectives of some agricultural policies are to provide environmental services or reduce pollution, through granting payments to farmers. Should payments made under such policies be included in a support estimate such as the PSE?

The PSE does not measure the effects of policy measures, including those on the environment, but can be the basis of such measurement. The intended objectives (environmental services) and unintended effects (externalities) of policy measures depend not only on the characteristics of the measure itself, but also on the overall policy mix. In order to form the basis for policy evaluation, the PSE needs to include all policy measures, including those that address externalities and public goods.

If different policy instruments have different objectives and effects, does it make sense to add up the associated transfers to a single number, as does the PSE for each country? The answer is "yes" because the total value of transfers provided by a set of policy measures to the agricultural sector is a good indicator of the overall intervention of governments to shape developments in that sector. The accuracy of the PSE as a yardstick of support depends not only on the care with which it is constructed, but also on how it is used. For this reason, a great effort is made to complement the measurement of transfers provided by the PSE with the analysis necessary to provide a comprehensive evaluation of policies with respect to how effective and efficient they are at meeting their goals. ■

For further information:

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For further reading

More information on measuring support to agriculture and support data can be found in the following publications on the OECD website *www.oecd.org/agr/support* or *www.oecd.org/agr/policy*

- **Agricultural Policies At a Glance**
- **Methodology for the Measurement of Support and Use in Policy Evaluation**
- **Is the Concept of the Producer Support Estimate in Need of Revision?**
- **Agricultural Policies in China after WTO Accession** (Measurement of Agricultural Support)
- **Agricultural Policies in OECD Countries : A Positive Reform Agenda**

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