AGRICULTURAL SUPPORT:
HOW IS IT MEASURED AND WHAT DOES IT MEAN?

OECD governments have a long history of implementing agricultural policies, with objectives ranging from increasing farm incomes to securing safe food and improving the environment. Policy measures used to pursue these objectives are equally varied, including trade instruments such as tariffs and export subsidies, payments to farmers, subsidies for the purchase of inputs, preferential lending and tax arrangements and the provision of advisory services. Many of these policy measures share the common feature that they transfer resources (e.g. money, goods and services) to farmers, either individually or as a group. Increasingly, this support is made on condition that farmers respect various environmental, food safety or animal welfare conditions.

Governments of OECD countries have an interest to learn more about each others’ policies, to benefit from best practice experience and to minimise negative spill-over effects of their policies on other sectors or other countries. In order to assist them, OECD invests heavily in policy analysis. A basic requirement of any such analysis with respect to agricultural policy is the ability to monitor and evaluate developments of support to farmers over time in a way that is accurate and comparable across countries. A common yardstick that can measure the “size” and “shape” of the transfers from the many disparate agricultural policy measures is thus needed. Measuring the monetary value of transfers to agriculture through various and diverse policy measures is one such yardstick.

Since the mid-1980s, the OECD has been estimating, on a yearly basis, the monetary value of transfers associated with agricultural policies in OECD countries. Using a common approach, these estimations produce a set of indicators which provide a comprehensive picture of the level and composition of agricultural support. While applied initially to OECD countries, the method has subsequently been adopted to estimate support in a number of non-OECD countries, such as Brazil, Chile, China, Russia, South Africa and Ukraine. At present, estimates of support are made for more than 40 countries, covering more than 20 years of policy developments. As an important source of internationally comparable and transparent information on support to agriculture, the indicators establish a sound basis for international policy dialogue. They also serve as a valuable input into further analysis of the effectiveness and efficiency of policies, and their effects on production, trade, income and the environment.

Agricultural support is a sensitive issue, and many questions are asked regarding how the OECD estimates it, what the indicators mean, and how they are used and interpreted. This paper seeks to answer these frequently asked questions. For those who wish to delve further, a selected list of publications and contact points are given at the end of this brief.
What is meant by agricultural support?

In public discussions, words such as “support”, “subsidy”, “assistance” or “aid to producers” are often used interchangeably. OECD uses the term “support” to describe the monetary value of transfers resulting from agricultural policies, which raise farmers’ revenues or reduce their costs, whatever the intended objective or impact of those policies. A policy measure is included in the estimation only if farmers — either individually or collectively — are the only or the principal group benefiting from the support.

The OECD produces several indicators of agricultural support. The most important is the **Producer Support Estimate (PSE)**. It is the basis for several related indicators. This Brief will focus on these indicators that are derived from the PSE, such as the %PSE, the Nominal Protection Coefficient and the Nominal Assistance Coefficient (other OECD indicators of support are described in Box 1). The PSE is an accounting of the monetary value of the support arising from many different types of policy measures, broadly grouped as follows:

- **Budgetary transfers** — policy measures that 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; payments to input suppliers to compensate them for charging lower prices to farmers; or to subsidise the provision of on-farm services.
- **Market Price Support (MPS)** — policy measures that maintain domestic prices for farm commodities at levels higher (and occasionally lower) than those at the country’s border.
- **Revenue forgone** — policy measures that provide implicit transfers through tax concessions or fee reductions that lower farm input costs (for example, for credit, energy and water).

The key point is that the estimates of support not only comprise budgetary payments that appear in government accounts (which is often the popular understanding of support), but also other sources of transfers that may be less obvious.

### Box 1. Other OECD Indicators of Support

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

- maintain domestic prices paid for 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.

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

**General Services Support Estimate (GSSE)** is the annual monetary value of transfers arising from policy measures which support producers collectively. It comprises budgetary financed expenditures for the provision of services such as research and development, training, inspection, infrastructure, public stockholding, and marketing and promotion.

**Total Support Estimate (TSE)** is the overall annual monetary value of transfers arising from all policy measures that support agriculture. It is calculated by adding together the PSE, the GSSE and the taxpayer cost of consumption subsidies.

How are farm support levels expressed and what do these numbers mean?

Support is expressed in both monetary terms (in national currencies, in US dollars and in Euros) and relative terms (in percentages or ratios). For example, the PSE is the monetary value of transfers from consumers and taxpayers to producers. The %PSE expresses this value as a percentage of the value of gross farm receipts (including support) thereby showing how much of gross farm receipts comes from government support. Another derived indicator, the producer Nominal Assistance Coefficient (producer NAC), is the ratio between the value of gross farm receipts (including the PSE value) and the gross farm receipts valued at border prices (excluding the PSE value) and shows the extent to which policy induced transfers increase gross farm receipts. The producer Nominal Protection Coefficient (producer NPC) shows the extent to which policies increase prices farmers receive by measuring the per cent that domestic market prices exceed border prices.

As a nominal monetary value, the PSE is influenced by the size and structure of the country’s agricultural sector, as well as inflation and exchange rates. Relative indicators, such as the %PSE or NAC, which relate policy transfers to some other monetary base, are much better at showing how support changes over time and how it compares across countries. This is why the %PSE is the most widely used indicator for comparing the level of support across countries and time.

© OECD 2009
When expressed in nominal US dollars, the aggregate OECD PSE has increased by 9% since the mid-1980s, from USD 240 billion to just over USD 260 billion in 2005-07 (Figure 1). When expressed in nominal Euros, it has decreased by 12%. This difference arises because the euro has appreciated against the US dollar. The %PSE provides a clearer picture, showing there has been a modest reduction in the level of producer support as a share of receipts over time. A %PSE of 23% means that around one-quarter of gross receipts for the average OECD farmer comes from policy induced transfers, and the remaining three-quarters come from the value of sales measured at border prices (that is, not including price support).

**Figure 1. The level of producer support has declined since mid-1980s**

*Nominal and percentage OECD PSE*

<table>
<thead>
<tr>
<th>Year</th>
<th>%PSE</th>
<th>Billion USD</th>
<th>Billion EUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986-88</td>
<td>240</td>
<td>218</td>
<td>192</td>
</tr>
<tr>
<td>1996-98</td>
<td>247</td>
<td>211</td>
<td>192</td>
</tr>
<tr>
<td>2006-08</td>
<td>261</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Box 2. PSE and AMS**

The PSE is frequently compared with the Aggregate Measurement of Support (AMS) used in the World Trade Organization. While the two indicators are in some ways similar, there are important differences between them.

The AMS was developed for the WTO Uruguay Round Agreement on Agriculture (URAA) to serve as a basis on which domestic support could be disciplined and monitored. Its utility derives from the fact that trade barriers mainly exist to facilitate domestic support policies. It was therefore impossible to negotiate reductions in trade barriers without considering also reductions in domestic support levels.

The AMS is based on the theoretical concept of the PSE — the two indicators are closely related and are constructed in a similar way. Both include MPS, budgetary transfers and revenue foregone and are measured on an annual basis. However, because they were developed for different purposes (the PSE to monitor and evaluate progress of agricultural policy reform, the AMS to form the basis for a legal commitment within the WTO Agreement on Agriculture to reduce domestic support), there are important differences in terms of policy coverage and the economic value of measured support.

The AMS has a narrower policy coverage than the PSE, and includes only domestic policies deemed to have the greatest production and trade effects (classified to the so-called Amber Box). Unlike the PSE, it excludes trade policies covered under the WTO market access and export subsidisation disciplines, 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.

The PSE is a measure of the actual “current” value of transfers from consumers and taxpayers to producers while the AMS is not. In the PSE, MPS is calculated using actual producer and border prices for commodities in a given year while in the AMS, the MPS is calculated using the difference between annual administered prices fixed by policy makers and world prices according to a base period (generally the three-year 1986-88 average). This results in an MPS value that is very different from what is actually being transferred from consumers to producers.

So why report nominal monetary indicators at all? The answer is that they are useful in analysing the composition of support, i.e. the different forms by which support is provided. This has become increasingly important with the development of new policy measures, including reform efforts to “decouple” agricultural support from the production of specific commodities and “re-couple” it to other criteria, such as land or environmental services.
How is producer support measured?

Producer support as measured by the PSE is estimated by adding together market price support (MPS), budgetary transfers and revenue forgone.

Market price support exists when a gap between domestic market and border prices for a commodity is created by tariffs, quotas and other restrictions on imports or other market interventions. Multiplying the price gap at the farm gate level by the quantity of domestic production gives the estimate of MPS. This captures in one number the value of transfers that arise from a range of policy measures affecting prices received by farmers. At the same time that domestic producers receive higher prices for commodities, consumers have to pay those higher prices. In other words, MPS channels transfers from consumers to farmers. MPS is estimated for a certain number of commodities in each country, and an effort is made to ensure that these commodities account for 70% or more of the value of total agricultural commodity output. Results for these individual commodities are added together and then extrapolated across the remaining value of commodity output to derive a total country MPS.

The values for budgetary transfers are taken from officially published budgets in countries. This includes most but not all payments made by governments directly to producers. One exception is when countries make payments to farmers to hold stocks of farm goods on their farms or to public purchasing agencies to accumulate such stocks. These payments are a budgetary cost to implement market price support policy, but do not provide support additional to MPS and so are not included in the PSE but in another indicator, the General Services Support Estimate (as expenditures for stockholding).

Fuel tax rebates and reduced charges for irrigation water are examples of potential revenue foregone by the government. These are estimated by the difference between the tax or water charge paid by farmers and those paid by others.

Why are transfers to farmers from consumers included in the PSE?

Market price support results from policies that raise market prices, and so may be considered by some to be outside the definition of government-provided transfers. Market price support leads to consumers having to pay higher prices for farm commodities, and so the transfer is from consumers to producers. Importantly, market price support policies can have much the same effect as budgetary policies. For example, one country which is net exporter of wheat can deliver support to wheat famers by a government payment for each tonne of wheat produced. This policy raises the price farmers receive, but not the price paid by consumers. In contrast, another country is a net importer of wheat and applies import tariffs, 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 (an MPS policy), a given price increase delivers the same amount of support and has the same effect on domestic production and farm income (Figure 2).

Figure 2. Payments per tonne and tariffs have equivalent effect on producer price

<table>
<thead>
<tr>
<th>Policies</th>
<th>Government payment per tonne</th>
<th>No support</th>
<th>Import tariff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producer price</td>
<td>Domestic market price</td>
<td>Border price = domestic market price</td>
<td>Domestic market price</td>
</tr>
<tr>
<td>Government payment</td>
<td>Tariff</td>
<td></td>
<td>Producer price</td>
</tr>
</tbody>
</table>

N.B. For simplicity, marketing margins are not considered in this graph.
As both payments-per-tonne and market price support policies raise farm commodity prices and affect production, trade and income, the PSE as a measure of support to farmers would be incomplete if only budgetary payments were included. Indeed, market price support accounts for half of the PSE in the OECD area, forming the largest part of overall support (Figure 3).

**Figure 3. The majority of farm support comes through Market Price Support**

*Composition of the OECD percentage PSE*

---

**Box 3. Are actual border prices appropriate benchmarks to measure MPS?**

In calculating market price support, the OECD estimates the gap between domestic market and border prices for each country. However, border prices are distorted by the production-enhancing policies, import barriers and export subsidies applied by countries. Therefore, some argue that equilibrium world prices that might prevail in the absence of all such policies would be a better benchmark. Which is correct?

As in so many cases, it depends on what we want to measure. If the aim is to calculate and compare the effects of all agricultural policies globally with the effects of global industrial, energy or transport policies, then using equilibrium world prices in the absence of all policies may have merit. That is not the purpose of the OECD’s evaluation of agricultural policies, however, 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 prices depends on actual border prices and not hypothetical world prices. After all, this is the basis upon which governments choose tariff levels and other farm price support instruments.

More specifically, the focus of OECD analysis is to monitor progress in policy reform and to assess whether current policies help countries to achieve their objectives. The indicators must be able to say something about the efforts made to support farmers and the progress made in reforming current policies. Governments and the wider community are interested in knowing what might happen to domestic and world prices in the process of agricultural policy reform. Any analysis of this issue 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. 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 an effect on market price support, but also on payments that bridge the gap between world prices and those that governments consider farmers should receive.

---

**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 risks. A farmer may cut a meadow later than usual in order to allow rare birds to nest, thus making a contribution to preserving biodiversity. However, 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 by granting payments to farmers. Should payments made under such policies be included in a support estimate such as the PSE?
The answer is “yes” because the purpose of the PSE is to measure the value of transfers arising from policy measures that support agricultural producers regardless of their nature, objective or impact. The stated objectives, or perceived economic impacts of a policy measure, are not used as alternative or additional criteria to determine the inclusion or exclusion of a policy measure from the estimation of agricultural support. The word “support” recognises that some transfers are given for the provision of environmental services rather than to subsidise the production of agricultural commodities.

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 the whole 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 measure of support depends not only on the care with which it is constructed, but also on how it is used. For this reason, analysis providing a comprehensive evaluation of how policies are implemented and how effective and efficient they are at meeting their goals is a necessary complement to the PSE.

Support levels as measured using the PSE methodology tend to fluctuate over time, a large part of which can be attributed to fluctuations in market price support. As the calculation of market price support is based on the gap between domestic and border prices, changes in world markets and exchange rates can cause fluctuations in market price support and hence in the PSE. Is it appropriate for the PSE to change when these factors have caused the change?

The PSE indicator reflects the nature of policy and the changes in support due to policy. It is tempting to think that the indicators should remain constant if policies have not changed. However, by allowing the variability of world markets and exchange rates to affect the estimate of support, the PSE rightly reflects those policy design characteristics that lead to a dependence of support levels on market developments.

In the absence of price support policies, and with rapid adjustments in markets, the domestic price would normally be aligned with the border price and would therefore move up or down according to changes in world markets and exchange rates. When policy measures prevent such adjustment, this leads to a change in MPS. While the policy does not seem to have changed, the level of support it provides does. In fact, this is often the intention of such policies— to provide a more stable domestic price and not simply one that is above the border price.

For example, if an importing country has only a tariff set as fixed nominal value, e.g. 30 US dollars per tonne of product imported, then its domestic price moves up and down with the border price (although domestic prices remain higher than those on the world market). Consequently, the gap between border and domestic prices remains constant. Alternatively, if an importing country’s policies keep domestic prices constant, say with a fixed intervention price, then the gap between border and domestic prices will fall when prices rise on the world market, and vice versa. Equally, the price gap will squeeze when the exchange rate depreciates and increase when the exchange rate appreciates. The fact that market price support in these examples behaves differently over time is an appropriate reflection of differences in the policy measures used.

In brief, the PSE is an indicator of the transfers associated with agricultural policies, including those which keep producer prices in the domestic market relatively stable while world markets and exchange rates fluctuate. In evaluating policy developments, the OECD identifies and measures the factors that cause the changes in the measured price gap and thereby provides information that helps policy makers in interpreting year-on-year changes in the PSE. Additionally, use is made of three-year averages that are less affected by year-to-year variability in support levels that arise due to fluctuations in world market prices and exchange rates.

In the process of policy reform, many OECD countries have been moving — to different degrees and at different speeds — in the direction of reducing the total amount of support to producers and redirecting support from specific commodity production toward criteria such as land, animal numbers, income, or non-commodity outputs such as ecosystem services and cultural landscapes. While the level of support is captured by changes in overall indicators such as the %PSE, to understand the impact of changes in how policies are delivered requires a deeper look. The classification system of policies included in the PSE is a key means by which changes in policy implementation can be followed. Analysis
using the PSE classification system has shown that the way policy measures are implemented and the context of the conditions in each country can be more important than the amount of support in determining the impact on production, trade, income, employment and the environment.

The composition of producer support is measured using a system of policy categories that identifies the most economically significant implementation criteria on which transfers are based. Implementation criteria tell us something about how different policies may affect farmers’ decisions to produce commodities and non-commodity outputs. The categories reveal the transfer basis for support (based on commodity output, input, area/animal numbers/receipts/income or non-commodity output), whether the support is based on a current or historical (fixed) basis and whether production is required in order to receive support. Each policy measure is taken through a defined sequence of questions in order to be consistently classified into the appropriate category. Each policy measure is also labelled with supplementary implementation details. For example, whether the policy measure is provided with or without production limits, with or without constraints on inputs or practices used by farmers, or whether payments are fixed or variable in nature.

Some policy measures deliver support directly related to the volume of a specific commodity produced (market price support and payments based on output) or variable inputs used. These policy measures are the ones that potentially (ex ante) have the strongest influence on production incentives, although this effect can be weakened by constraints placed on output produced (e.g. by a production quota), inputs used or farm practices applied. Policy measures that deliver support based on current area planted or animal numbers have a potentially weaker influence on production incentives. Policy measures delivering support based on historical parameters, such as overall farm area or income level of the farmer have potentially even less. Other policy measures such as for the provision of environmental services have potentially little influence on production incentives but may have the most impact on the environment.

The classification of policy measures highlights economically-important differences in how policies are delivered, with particular attention to the production and trade incentives generated by policies. In assessing policy developments, the trends in the form of producer support must be taken together with the trend in the level of support in order to have a complete view.

**Figure 4. Progress towards reform of farm support is occurring**

So what do the support indicators say about the extent of policy reform? There has been a shift away from the most distorting policy measures, whose share in PSE has fallen from 85% in the mid-1980s to 56% in 2006-08 (Figure 4). There has also been an increase in payments based on non-current (i.e. historical or fixed) parameters, which allow but do not require production of any commodity. This type of support accounted for 22% of the PSE in 2006-08, whereas in mid-1980s this share hardly reached 2%. Although farmers in OECD countries are being given more freedom in their production choices, this progress, however, has been uneven across sectors and between countries.
To what extent does support increase farm income?

The PSE measures the value of transfers from taxpayers and consumers to producers, raising gross farm receipts. While this surely benefits farmers, their income almost never increases by the full amount of these transfers. This is because when policy measures provoke increased production the result may be higher costs and lower prices for farmers.

Transfer efficiency measures the ratio of the change in farmers’ income to the size of the transfer. Past OECD analysis suggests that the transfer efficiency of market price support or payments based on variable input use is relatively low compared to other categories of producer support. For example, for each dollar (or euro) transferred through market price support, the amount retained by the farmer in the form of increased income can be as low as 25 cents. A policy like MPS leads producers to increase their production levels, with the result that much of the value of the transfer goes to input suppliers in the form of higher costs for farm inputs or results in higher land values, thus benefiting the landowner and not the farm operator. The proportion of support that is retained as farmer’s income tends to be higher when support is provided in ways that do not greatly change production.

Transfer efficiency is an important measure of the efficiency and effectiveness of policies designed to enhance farm income. It is also useful in helping policy-makers to understand the potential impact of policy reform on farm income and how to mitigate that impact.

* The 27 European Union members are treated as a single entity because of the Common Agricultural Policy. The EU total therefore includes eight non-OECD countries.

For more information
Information on the OECD’s work on estimating agricultural support, including the indicator database and The PSE Manual, can be found at www.oecd.org/agriculture/pse.

For more information on this subject, contact
Wilfrid Legg, e-mail: wilfrid.legg@oecd.org
Olga Melyukhina, e-mail: olga.melyukhina@oecd.org.
Roger Martini, e-mail: roger.martini@oecd.org.

For further reading
OECD (2009), Agricultural Policies in OECD Countries: Monitoring and Evaluation, Paris,
www.sourceoecd.org/agriculture/9789264061729.

OECD (2009), Agricultural Policies in Emerging Economies: Monitoring and Evaluation, Paris
www.sourceoecd.org/agriculture/9789264059276.


