
A About the Commission's assistance estimates

Assistance is defined in the *Productivity Commission Act 1998* as any government act that, directly or indirectly, assists a person to carry on a business or activity, or confers a pecuniary benefit on the person carrying out a business.

Quantifying industry assistance enables governments to make better informed policy decisions, potentially allowing them to improve the allocation of a community's scarce resources and, thus, improve community welfare (see box A.1).

The Commission has a statutory obligation to report on industry assistance, and its approach contains two main elements: the agricultural and manufacturing assistance measurement system (AMAMS) and budgetary assistance estimates. The Commission has measured rates of assistance to the agricultural and manufacturing sectors, on a consistent basis across industries, since the early 1970s. While providing an indication of the extent to which particular activities in these sectors are favoured by assistance relative to others, these estimates do not incorporate all forms of intervention which discriminate between industries and sectors. Since 1980, to provide a better coverage of government programs and policies not included in the agriculture and manufacturing estimates, the Commission has also measured Commonwealth budgetary assistance to industry.

Notwithstanding the usefulness of the Commission's assistance framework, a number of conceptual and practical difficulties inevitably arise in the measurement of assistance, and these mean that caution is needed when interpreting the Commission's published estimates.

In this appendix, the Commission discusses issues involved in:

- its estimation of assistance under the AMAMS;
- its measurement of Commonwealth budgetary assistance; and
- the relationship between these two areas.

**Box A.1 Assistance and the allocation of resources
– an illustration of red and green ‘widgets’**

Government assistance to a particular industry (or activity) can make investing in the industry more remunerative than it would otherwise be. In turn, this can attract economic resources away from other industries into the assisted one.

- To illustrate with a *highly simplified* example, imagine that the expected returns on investment are 10 per cent in the ‘red widget’ industry, but only 8 per cent in the ‘green widget’ industry – say because consumers prefer red widgets to green ones and are thus willing to pay more for them. In these circumstances, people would be expected to invest in red widgets rather than green widgets for as long as the gap remains. However, if the government provides a subsidy for green widgets such that the total returns (including the subsidy) rise to 12 per cent, people will be expected to invest in green rather than red widgets. As well, some existing red widget producers will probably switch to producing green ones.

In specific instances, such assistance will lead to a more efficient allocation of resources between the various industries and activities within the economy. This will be the case if: normal commercial incentives fail to reflect the real benefits and costs that people and society more broadly get from producing or consuming the goods and services in question; and the assistance provided by the government sways incentives *in the right direction*.

- For example, if red widgets when used emit far more pollution than green widgets, and environmental laws are unable to make users of red widgets pay for, or clean up, their pollution, then government assistance which increases the proportion of green widgets consumed may improve community welfare.

However, in other cases, assistance to a particular business or activity will worsen the allocation of resources.

- If the only difference between red and green widgets is their colour then assistance to the green widget industry will make society worse off, given consumers’ preference for red widgets.

A.1 The agriculture and manufacturing assistance measurement system

Governments provide assistance to the agriculture and manufacturing industries in a plethora of ways. These include tariffs on imports, tariff concessions, production bounties, domestic marketing and regulatory arrangements, anti-dumping measures, research funding, income tax concessions and rebates, adjustment assistance, export incentives, input subsidies, income equalisation schemes, excise arrangements and loan guarantees.

The Commission's AMAMS aims as far as practicable to summarise and quantify these various forms of assistance in a way that allows:

- the estimation of the total amount of assistance afforded to a particular industry;
- comparisons to be made between the assistance afforded to different industries;
- the tracking of changes in the assistance afforded to industries over time; and
- judgments to be made regarding the impact of assistance on the allocation of resources between different industries and activities within the economy.

This is no easy task. It requires an appreciation of economic relationships, substantial information and data, and inevitably some use of simplifying assumptions, theory and judgment.

In practice, the Commission makes use of several different conceptual measures under the AMAMS to help gauge different aspects of the assistance structure and its impacts. Together, these different conceptual measures allow an overall picture to be pieced together.

Further, in compiling its AMAMS estimates, the Commission has adopted the practical approach of seeking to gauge the benefits and penalties associated with mainly major government interventions which affect particular agricultural and manufacturing businesses and industries and for which reliable estimates can be made over time. The aim is to provide a reasonable guide to how the discriminatory nature of assistance provided to manufacturing and agricultural industries alters incentives to use resources in the different industries or activities.

Conceptual measures

The conceptual measures used under the AMAMS are the effective rate of assistance, and nominal rates of assistance on outputs and materials, the standard deviation in the effective rate and in the nominal rate on outputs, the net and gross subsidy equivalents, the tax equivalent on materials and the consumer tax equivalent (box A.2).

The choice of measure depends on which issue is of interest. For example, if the main concern is the extent to which assistance to an industry or activity involves a transfer of income from consumers to producers, due to the price-raising effects of assistance, the consumer tax equivalent is the appropriate measure. Alternatively, if the concern is the effect that the assistance afforded to producers in an industry has on their gross returns, the nominal rate of assistance is appropriate.

Box A.2 Definitions of assistance measures

The **nominal rate of assistance on outputs** is the percentage change in gross returns per unit of output relative to the (hypothetical) situation of no assistance. The nominal rate measures the extent to which consumers pay higher prices and taxpayers pay subsidies to support local output.

The **standard deviation in the nominal rate of assistance on outputs** measures the dispersion of the nominal rates of output assistance for the different industries in a sector around the sectoral average nominal rate. It is an indicator of the potential for distortions in production and consumption patterns within the sector resulting from the output assistance provided to the sector.

The **gross subsidy equivalent** is an estimate of the change in producers' gross returns from assistance. It is the notional amount of money, or subsidy, necessary to provide an activity with a level of assistance equivalent to the nominal rate of assistance on its output.

The **consumer tax equivalent** is the transfer from final consumers due to the price-raising effects of assistance. It is the sum of the gross subsidy equivalent of assistance, which measures the higher prices paid for domestically produced goods, and the effect of border assistance on the price of imports purchased by final consumers.

The **nominal rate of assistance on materials** (intermediate inputs) is the percentage change in the prices paid for materials used in the production process, due to government intervention.

The **tax equivalent on materials** is an estimate of the net change to user industries' input costs due to government assistance altering the prices paid for intermediate inputs. It is the notional amount of money user industries pay for intermediate inputs to provide the producers of those inputs with a level of assistance equivalent to the nominal rate of assistance on materials.

The **effective rate of assistance** is the percentage change in returns per unit of output to an activity's value-adding factors due to the assistance structure. The effective rate measures net assistance, by taking into account the costs and benefits of government intervention on inputs, direct assistance to value-adding factors and output assistance.

The **standard deviation in the effective rate** measures the dispersion of the effective rates of assistance for the different industries in a sector around the sectoral average effective rate. It is an indicator of the potential for distortions in resource allocation within the sector resulting from the overall assistance structure.

The **net subsidy equivalent** is an estimate of the change in returns to an activity's value added due to assistance. It is the notional amount of money, or subsidy, necessary to provide a level of assistance equivalent to the effective rate of assistance. It is equal to the gross subsidy equivalent plus any assistance to inputs or value-adding factors, less the tax equivalent on materials used in the production process.

Of all the measures, the *effective rate of assistance* is generally of most interest. It summarises the impact of various forms of assistance on the *net* returns to an industry's or activity's 'value-adding factors' — that is, the land, labour and capital resources used to produce an industry's or activity's output.¹ It provides a basis for assessing the extent to which assistance alters the incentives of producers to undertake particular economic activities, or, in other words, the impact that the assistance structure has on 'the allocation of resources' (box A.1). The effective rate is a particularly useful measure as it:

- can include a wide range of border assistance (eg tariffs and quotas) and non-border assistance (eg government programs and regulatory arrangements);
- takes into account both the benefits and penalties of assistance to individual industries or activities; and
- provides an indicator of the extent to which the overall structure of assistance advantages or disadvantages an industry relative to other industries.

The *nominal rate of assistance on output* provides an indication of the impact of assistance on the gross returns to an industry's or activity's output. The nominal rate is a useful indicator of the effects of assistance on incentives to produce certain commodities and, to a lesser extent, to consume those commodities.²

However, unlike the effective rate, the nominal rate of output assistance does not take into account the *net* impacts of assistance on various inputs and outputs. The nominal rate simply measures the rate of assistance to particular outputs. For example, where a local producer supplies goods to the domestic market in competition with imported goods, a tariff on those imports provides assistance to the local producer by allowing it to charge higher prices on the domestic market (than it could in the absence of the tariff). The tariff, however, penalises consumers and other producers which use the goods. The benefit which a producer receives on its outputs (nominal assistance) may therefore be offset to some extent by tariff protection on inputs used in production. But this is not reflected in lower estimates of the nominal rate of assistance on outputs.

¹ The net contribution of an activity or industry to the economy is the value that the activity or industry adds to the intermediate inputs, obtained from elsewhere, by the use of land, labour and capital resources in its production process. The 'value added' of an activity or industry can be measured directly from the returns received from the land, labour and capital used by it, or, indirectly, by deducting the value of intermediate inputs from the value of output.

² Some forms of assistance, such as tariffs, increase domestic prices and thereby affect the incentives to both produce and consume certain commodities. Other forms of assistance, such as production subsidies, encourage greater domestic production but, in many instances, have no or little impact on domestic prices and therefore consumption.

The Commission also publishes *standard deviations of effective and nominal rates* to indicate the degree of dispersion in assistance. The standard deviation measures how far an individual industry's rate is from the average for the sector, which in turn indicates how much variation there is in the distribution. Generally, the wider the variation in assistance, the greater the potential for an inefficient reallocation of resources, and associated costs for the community.

As is the case at present, where sectors such as agriculture and manufacturing have a large and increasing proportion of output which is relatively lightly assisted and a small proportion of output which is highly assisted, sectoral comparisons of assistance can be misleading. This is because they can hide far greater differences in assistance levels among activities within each sector. These differences are likely to be more important sources of loss in community welfare.

The Commission also publishes estimates of the *net and gross subsidy equivalents*, the *tax equivalent on materials* and the *consumer tax equivalent* (see box A.2). These measures express effective and nominal rates of assistance, or aspects of them, in dollar terms. They measure income transfers to producers from intermediate users, taxpayers and final consumers, through paying higher prices for goods and/or higher taxes.

While these income transfers highlight gains and losses to particular groups, they do not indicate the economic or welfare costs or benefits to the community of assistance. Such costs or benefits depend on the extent to which assistance changes production and consumption patterns. This depends on the behavioural responses of producers and consumers to the measured price distortions. Measurement of the welfare effects of assistance requires considerable data on elasticities of supply and demand, and ideally should be done within a 'general equilibrium' framework.

For the manufacturing sector in particular, care should be taken when interpreting gross subsidy equivalents or taxes on materials which have been aggregated across industries or activities where one or more of the industries produce inputs used by another industry of the group. This is because the output and material inputs of the group will be less than the sum of outputs and inputs of individual industries. Consequently, the gross subsidy equivalent and the tax on materials of the group will include the subsidy equivalent or sales to other industries or activities in the same group, and the corresponding tax equivalent on those sales.

This is less of a problem for agriculture, as outputs are used less extensively as inputs by other agricultural activities.

The problem also does not arise with the net subsidy equivalent or the consumer tax equivalent. This is because these measure assistance on a net basis at the individual

industry level, so the source of the input or destination of the output does not affect them when industries are aggregated.

Coverage

The Commission's measures of assistance to agriculture and manufacturing do not incorporate all forms of assistance to these sectors, for a range of practical as well as conceptual reasons. In general, the emphasis in the Commission's assistance estimates has been on measures:

- provided by the Commonwealth Government;
- which benefit or penalise particular agricultural and manufacturing industries;
- which allow a consistent treatment of activities, especially within sectors; and
- for which reliable estimates can be made over time.

That said, the coverage of forms of assistance has improved with each new series of estimates produced by the Commission. For agriculture, the main interventions currently included in the estimates are domestic marketing and regulatory arrangements, research funding, income tax concessions, and adjustment assistance. For manufacturing, the main interventions are tariffs, production bounties, certain export incentives, input subsidies, and commercial tariff concession orders.

General exclusions of government programs and policies from the estimates include: measures which apply generally to activities in all sectors, such as income tax; and measures which apply broadly to all activities within a sector, such as the deductibility for tax purposes of certain expenditures on research and development.

Several other measures are excluded due to data limitations or because they are particularly difficult to quantify. These measures include anti-dumping procedures, government procurement policies, offsets and partnerships for development programs, and assistance that may arise from Commonwealth or State government provision of infrastructure. The latter is excluded because of the difficulty of quantifying the level of assistance involved in activities where there is no readily identifiable alternative benchmark price. Also excluded from the estimates are adjustments made to the prices currently paid for government-provided services, such as electricity, that might result from a more competitive economic environment.

The estimates include certain Commonwealth budgetary outlays and tax expenditures, but do not attempt to cover those of State and local governments.

However, State government interventions which have an impact on the prices of agricultural commodities nationally have been included in the estimates. For example, the fresh milk sector is assisted through State governments setting farm gate prices and rationing production through quotas. Limited inter-state trade in fresh milk enables State government authorities to maintain inflated prices, at the farm gate level, relative to what would occur in a competitive market. Similarly, the rice industry, located primarily in New South Wales, is assisted through statutory marketing arrangements which allow the NSW Rice Growers Co-operative to vest and market all rice grown in the State. With little competition from other jurisdictions in Australia, the NSW Rice Growers Co-operative is able to charge higher prices for rice nationally than would be the case in the absence of regulation.

As well as including some State government programs in the agriculture estimates, the coverage of forms of assistance has traditionally been broader in agriculture than for manufacturing. The agriculture estimates include assistance to value-adding factors, such as adjustment assistance, income tax concessions and research and development incentives. These forms of assistance have tended to be less important for manufacturing industries. However, assistance to value-adding factors for the textiles, clothing and footwear industries in the form of certain capital grants and loans at concessional rates of interest is included. The inclusion of this assistance, however, has a limited impact on the effective rate estimates for these industries.

Methodology and quantification

The measurement of industry assistance under the AMAMS requires:

- detailed data on the sales and cost structure of industries, to calculate an industry's or activity's value added;
- identification of the relevant government interventions which alter output returns, intermediate input costs, or returns to value adding factors;
- measurement of each intervention on a common basis so that it can be included in the calculation of rates of assistance.

The Commission obtains its data from several sources, including the Commonwealth Budget Papers, various government departments and agencies, a wide range of annual reports and other publications, and a number of statutory agricultural marketing authorities.

Each year, the Commission uses the latest available data to calculate its AMAMS estimates. Estimates for manufacturing are calculated at various levels of aggregation within the Australian Standard Industrial Classification (ASIC). The

estimates for agriculture are by major ANZSIC commodity or commodity group.³

A number of practical issues arise when measuring assistance. These relate to:

- the type of model used to calculate assistance;
- the need for generic, simplifying assumptions;
- the selection of a benchmark price against which assistance can be measured;
- the point in the production to consumption chain at which assistance is measured; and
- the measurement of value added on a consistent basis.

The Commission's approach in relation to these matters, and its implications for the interpretation of the Commission's published estimates, are discussed below.

The static model

The Commission's AMAMS is based on a 'static' model. In effect, this means that the model looks at the impact of assistance on returns to different industries *immediately after* the assistance is provided — that is, before:

- producers and consumers alter their production and consumption patterns in response to the changes in incentives caused by assistance; and
- any flow-on changes to broader economic variables, such as exchange rates, interest rates, inflation and so on.

While this gives a good indication of the short-run effects of assistance, in the longer term there may be changes in production, consumption and other economic variables which modify the impact of the assistance provided (see Box A.3). One implication of this is that the increase in returns in the assisted industry will generally finish up being less than those indicated under a static approach. A more general implication is the need for caution when considering the implications of measured assistance for resource allocation among different industries.

However, to capture these longer-term effects would require the use of a more complex model, preferably a 'general equilibrium' model. Such an approach would require additional resources, would lose some of the (relative) simplicity and transparency of the Commission's current approach. That said, when inquiring into the assistance arrangements for particular industries, the Commission typically uses a combination of the two approaches.

³ The ABS introduced the ANZSIC system in 1993. At this stage, the agricultural estimates have been re-ordered accordingly, but the manufacturing estimates have not.

**Box A.3 Production and consumption responses to assistance:
an illustration**

To understand how assistance can change production and consumption patterns, consider a *highly simplified* situation in which some farmers in an area grow grapes and some grow oranges, and returns in these two industries are about the same – say around a 4 per cent return on investment. All oranges and grapes grown in this economy are consumed in it too, with no imports or exports.

If a subsidy is provided to producers of oranges such that returns from oranges increase, say to 12 per cent, existing orange farmers will receive the full value of this windfall gain in the short-run.

However, over time, some grape farmers are likely to start switching to growing oranges (and existing orange farmers, or other investors, may bring more land into production). This will cause the supply of oranges to increase and, to clear all their stock, producers will need to cut the price. As the price falls, consumers will start buying more oranges, but returns in the orange industry will fall too.

Meanwhile, in the grape industry, supply is declining putting upward pressure on the price. As the price increases, consumers cut back their purchases of grapes, but the returns to grape growing increase.

However, as long as the returns to orange production exceed the returns to grape growing, farmers have a continuing incentive to switch from grapes into oranges. This will go on until the returns in both industries are around the same – say at 9 per cent return on investment.

Another factor though is that, to finance the subsidy for orange producers, the government needs to raise extra revenue (through higher taxes or higher charges for services it provides), cut its spending, or incur a higher budget deficit or lower surplus. Say it raised more revenue through higher electricity charges (although either of the other options would have similar ultimate effects). This would increase orange and grape growers' power bills and further reduce, although only slightly, the returns in those industries. It would also reduce the returns to other industries which rely on electricity to produce their output, particularly energy-intensive industries. And because householders would have to pay slightly higher electricity bills, they would have slightly less left to spend on other goods and services.

With other industries facing slightly higher power bills and slightly lower demand for their products, some 'borderline' businesses in these industries may need to close or, at least, reduce their production.

Overall, the effect of providing assistance in this illustration is to cause more oranges to be produced, mainly at the expense of a cut in the production of grapes, and for production in other industries to fall slightly. Consumers finish up eating more fruit (but a different mix thereof) and consuming less of other products.

While in practice the world is far more complex than this highly simplified illustration, it nevertheless provides an indication of the nature of some of the effects that can flow from the provision of assistance to industry.

Generic assumptions

The Commission's AMAMS incorporates a number of simplifying assumptions relating to the nature or magnitude of various economic variables or relationships. The key assumptions are:

- perfect substitution between domestic and foreign goods of the same description;
- no substitution between nominally different goods;
- infinite elasticities of export demand and import supply;
- the prices of goods, services, and resources represent their opportunity cost to the community in the absence of assistance; and
- production relationships between inputs are unaltered by the assistance structure.

These assumptions are used because obtaining precise data on these variables or relationships for all industries is impractical and/or because the assistance estimates are unlikely to be sensitive to plausible real world divergences from the assumptions.

While violations of these assumptions therefore need not invalidate the Commission's assistance estimates, they do emphasise the approximate nature of the estimates and that, for policy purposes, no great significance should be attached to small differences in estimates.

Benchmark prices

The measurement of assistance requires an assessment of the price at which products would sell on the domestic market if the assistance arrangements were not in place. For an internationally traded good, the appropriate benchmark price is either the import parity price (the landed duty-free price of the imported equivalent) or the export parity price (the free-on-board value of the exported equivalent), depending on whether the good would be imported or exported if the assistance arrangements were removed.

For several agricultural commodities, such as wheat, wool, sugar, rice and dairy products, export parity has been used as the benchmark, since it is reasonable to expect that these industries would continue to export major proportions of their output if unassisted. It is assumed that exports of these agricultural commodities are sold at prices determined by world markets.

However, not all agricultural commodities are assumed to be competing mainly in export markets. Citrus fruits, currants, raisins and tobacco are treated as competing mainly with imports.

Assistance estimates for the manufacturing sector are derived using import parity as the benchmark. While manufacturing exports have increased in recent years, it is still assumed that, in the absence of assistance, a large proportion of manufactured goods would be sold in competition with imports.

Measurement points

The measurement of assistance also involves the choice of an appropriate point in the production, distribution and consumption chain at which to measure assistance.

On the output side, for agriculture, measurement has been made as far as possible at the farm gate level. Similarly for manufacturing, where possible, measurement has been made on an ex-factory basis as this is the point most comparable to the landed duty-free price of imported products.

On the input side, costs are measured on a ‘cost to manufacturer or farmer’ basis.

Many of the interventions which penalise and benefit industries, however, do not operate directly at the factory or farm level, and it is therefore necessary to translate the effect of such interventions into costs and returns.

Calculation of value added

An important component of the Commission’s assistance framework is the calculation of value added.

While the Commission is mindful of the need to define value added consistently between agricultural and manufacturing activities, the use of different data sources has precluded this in a number of areas.

For example, the treatment of traded capital items such as plant and machinery differs between the agricultural and manufacturing estimates. For agriculture, data from ABARE farm surveys are used to include depreciation of tradeable capital items as tradeable inputs to be deducted from value added. Similar data are not available for manufacturing, so the manufacturing estimates include depreciation of tradeable capital as part of an activity’s value added. This difference in the way value added is calculated for manufacturing and agriculture leads to an over-estimation of value added for manufacturing and, in turn, an underestimation of the

effective rate of assistance for manufacturing *relative* to agriculture. That said, the effect of this difference in treatment appears to be relatively minor.

Another difference driven by data availability is in the calculation of materials to output ratios. In each series⁴ for manufacturing, production patterns and materials to output ratios observed in a base year have been applied to the assistance estimates for all years included in the series. For agriculture, they are calculated using the actual production weights in each year. However, within each series, materials are assumed to constitute a fixed proportion of the value of output in assisted prices. Again, the effect of this difference in treatment is likely to be relatively minor.

More detailed information on the calculation of assistance under the AMAMS is provided in the Commission's report on *Assistance to Agricultural and Manufacturing Industries* (IC 1995a).

A.2 The budgetary assistance estimates

Budgetary measures can provide industry assistance through government spending or in the form of tax revenue that governments forgo when they provide tax concessions to business.

Budgetary assistance takes an array of forms and is provided not only to producers in all sectors of the economy but also to particular firms, or particular industries, or particular activities — such as investment, exporting and R&D — undertaken by firms in different industries.

In compiling its annual estimates of budgetary assistance, the Commission has adopted the practical approach of seeking to gauge only those budgetary measures which selectively benefit firms, industries, sectors, or particular activities. That is, its aim is to quantify those budgetary measures which provide benefits to certain businesses but not to others. The estimates thus provide a guide to how the discriminatory nature of assistance provided through the budget alters incentives to use resources in different industries or activities.

⁴ Periodically the Commission re-estimates cost structures for the agricultural and manufacturing sectors used to calculate value added. Changes in cost structures change the estimation of value added and, therefore, effective rates of assistance. This in turn gives rise to a new series of assistance estimates.

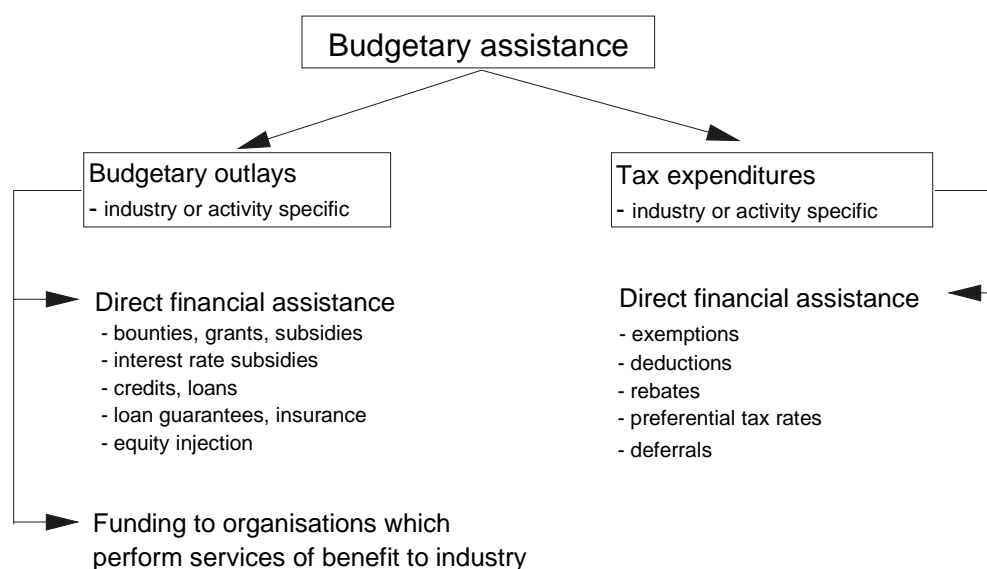
Classifications

In the first instance, budgetary assistance is classified according to:

- the *form* of assistance; and
- the *sector* to which it applies.

In sub-classifying the ‘forms’ of budgetary assistance, total budgetary assistance is categorised into *budgetary outlays* and *tax expenditures*, which are further distinguished by the type of benefits provided (figure A.1).

Figure A.1 **Forms of budgetary assistance**



In relation to ‘budgetary outlays’, a distinction is made between:

- *direct financial assistance* — which broadly comprises bounties, grants and subsidies; interest rate subsidies, loans, credits and guarantees; and government equity participation; and
- *funding of intermediary institutions which perform activities of benefit to industry* — for example, funding of CSIRO and CRC research programs, Austrade’s International Business Services and the Australian Tourist Commission. Provision of services raise producers’ returns in ways similar to direct financial assistance.

‘Tax expenditures’ provide financial benefits to industry through tax exemptions, deductions, rebates, preferential tax rates and tax deferrals. For example, tax exemptions allow income (or other parts of the tax base) to be excluded from the tax

base. Tax deductions, such as the R&D tax concession, allow certain expenditures to be eligible for deductions which normally would not be allowed in the tax system. Preferential tax rates involve the application of a lower tax rate for particular industries. The deferral of tax over a number of years also constitutes a form of assistance. Accelerated depreciation provisions are examples of tax deferrals.

To describe the ‘sectoral’ effects of budgetary assistance, estimates have been compiled for primary production (agriculture, forestry and fisheries), manufacturing, mining and service sectors. Some budgetary assistance measures are industry or sector-specific, while others assist producers in more than one sector. Accordingly, budgetary assistance is classified according to whether the measure is industry-specific, sector-specific or general. Where necessary, budgetary assistance to exports and R&D is also identified separately.

Coverage

The Commission’s annual estimates include a wide range of budgetary assistance, but do not seek to incorporate all budgetary measures which provide support for industry, for a range of practical as well as conceptual reasons. In compiling its estimates of budgetary assistance, the Commission’s emphasis has been on budgetary outlays and tax expenditures which:

- are provided by the Commonwealth;
- selectively benefit certain firms, industries, sectors, or particular activities; and
- are readily quantifiable.

Included within the coverage is an array of budgetary measures which provide assistance in all four sectors of the economy (see tables 4.2 to 4.7 in chapter 4).

As well as the more obvious forms of budgetary assistance, the estimates include funding for farm landcare activities, income tax averaging and drought assistance, as these measures are specifically available to agricultural activities but equivalents are not available in other sectors.

The support for business R&D covered in the estimates includes the R&D tax concession, targeted R&D grant schemes, funding of rural R&D corporations, and CSIRO and CRC research on primary production, manufacturing, mining and service activities.

The Commission’s estimates of budgetary assistance to exports are broader in classification and coverage than the estimates of export assistance outlays reported

in the Commonwealth Budget Papers. The outlays classified as export assistance in the budget are confined to the funding of Austrade's programs and the Export Finance and Insurance Corporation (EFIC) export credit facilities. In addition to these expenditures, the Commission has classified as export assistance those industry-specific measures that target particular stages of exporting activity, such as export marketing and promotional activities, or that directly facilitate exports. These include funding to the Australian Tourist Commission, the PMV Export Facilitation Scheme and the TCF Import Credits Scheme. Where the budgetary measures benefit the production of certain goods which are both sold domestically and exported, the share paid on exports is recorded as export assistance.

While the Commission's estimates thus cover a wide range of budgetary measures, they do not include the following.

- Budgetary measures which are generally available to all firms – for example, reductions in company tax rates applying to all firms.
- Outlays on public administration, defence, health, education, the environment and the labour market.
- Expenditures on infrastructure, except where they clearly apply to specific activities.
- The substantial budgetary assistance provided by State, Territory and local governments. These are excluded because of practical constraints in annual monitoring. In a previous inquiry (IC 1996e), the Commission estimated that budgetary assistance afforded by State and Territory governments totalled \$5.7 billion in 1994-95. This consisted of \$2.5 billion in budgetary outlays and \$3.2 billion in payroll tax exemptions. In the same year, Commonwealth budgetary assistance was \$3.9 billion.
- The revenue forgone from accelerated depreciation provisions. As these provisions allow assets to be written off over a period shorter than the effective economic life of the assets, the assistance impact of accelerated depreciation is equivalent to an interest-free loan, and can thus differ from the estimated revenue forgone. Although accelerated depreciation provisions have been important measures of assistance to manufacturing and mining, quantifying their effect is very difficult. In September 1999, the Government announced the removal of accelerated depreciation provisions (Costello 1999b).

As the coverage of budgetary assistance is confined to those budgetary measures which, among other things, are readily quantifiable, the estimates are likely to understate the overall level of budgetary assistance in Australia to some degree. The extent of this underestimation is likely to vary between sectors, industries and activities.

Quantification

The assistance impact of most budgetary measures can be readily quantified by the budgetary outlays and tax revenue forgone provided to industry in a particular year. In compiling estimates, data are drawn from Commonwealth Budget Papers, annual reports of government departments and agencies, the Treasury's Tax Expenditure Statement and Australian Taxation Office (ATO) taxation statistics.

For those budgetary measures which provide benefits to producers in more than one sector, the Commission has sought detailed information to allow it to apportion the assistance between sectors. For example, ATO taxation statistics are used to apportion the major tax concessions, such the R&D tax concession and development allowance. However, in a few cases where detailed information is not available, the full quantum of assistance is treated as if it were provided to the sector considered to receive the largest share. This has minor implications at the broad sectoral level.

The estimates incorporate only the government contribution to programs' funds. This approach is applied consistently to all programs, including those (such as rural R&D corporations) which are funded jointly by industry and governments.

Some aspects of the Commission's quantification of budgetary assistance may overstate the benefits received under certain programs or tax expenditures, although the extent to which this occurs is likely to be small relative to the overall level of estimated budgetary assistance. For example, although total outlays are reported for non-business organisations that undertake activities of benefit to industry, this will overstate the benefits to the extent that the activities are not delivered efficiently. Also, under Australia's tax imputation system, the value of tax concessions can be reduced to some degree as such concessions reduce company tax liabilities. That said, the Commission understands that the costing of tax expenditures provides some allowance for such factors. Issues in costing tax expenditures are discussed in more detail in the Treasury's Tax Expenditure Statement (Treasury 1999).

A.3 The relationship between the AMAMS estimates and the budgetary assistance estimates

The Commission has adopted a two-pronged approach to assistance measurement because its estimates of assistance under the AMAMS have not incorporated all forms of government intervention that discriminate between industries in the agricultural and manufacturing sectors; nor do they cover industries outside these

sectors. The Commission's estimates of budgetary assistance seek to allow a more comprehensive and transparent assessment of government assistance arrangements.

However, the budgetary assistance estimates and the AMAMS estimates have areas of overlap as well as differences in coverage, and there remain some aspects of government assistance to industry that are not covered by either measure.

First, the AMAMS estimates cover only a sub-set of the budgetary assistance measures to the agricultural and manufacturing sectors that are covered in the Commission's budgetary assistance estimates.

As a result of this narrower coverage, in 1997-98 budgetary measures for agriculture included in the AMAMS system amounted to \$303 million, while Commonwealth budgetary outlays and tax concessions for agriculture were in the order of \$490 million.⁵

There are a number of reasons for the narrower coverage. There is often insufficient detailed and disaggregated information on the incidence of several sectoral and cross-sectoral budgetary measures, such as tax concessions and major outlay schemes, to be included in the effective assistance framework. Some measures are particularly difficult to quantify at a sufficiently detailed level, or the assistance impact is considered too small to warrant additional resources necessary for their inclusion. Practical measurement difficulties often arise as several tax concessions and outlays are subject to frequent changes.

Second, the AMAMS estimates cover assistance provided in non-budgetary form, such as tariffs and statutory marketing arrangements, whereas the budgetary assistance estimates by their nature do not.

Third, the AMAMS estimates and budgetary assistance estimates relate to different sectoral definitions. Budgetary assistance provides estimates for the 'primary production' sector, which includes forestry and fisheries as well as agriculture, while the agriculture estimates are, as their name suggests, restricted to agricultural activities. The broader classification used in the budgetary assistance estimates result from the form in which the data are compiled. That said, agriculture accounts

⁵ Budgetary assistance for primary production is estimated at \$544 million. The Commission has not attempted to apportion this assistance precisely between the agriculture, forestry and fisheries sectors. However, agriculture accounts for around 90 percent of total primary production, with forestry and fisheries accounting for the remaining 10 per cent (ABS 1998a). Allocating budgetary assistance between the sectors on a pro-rata basis leads to an estimate of around \$490 million for agriculture and around \$55 million for forestry and fisheries combined. The Commission cautions that the use of a pro-rata allocation of assistance based on sectoral output share provides only rough estimates. They are included here for illustrative purposes only.

for almost 90 percent of total 'primary production', so the two categories are not substantially different. Nevertheless, some caution is required if making comparisons between the estimates for these sectors.

Fourth, the budgetary assistance estimates cover the mining and service sectors, sectors for which the Commission does not publish annual estimates of effective rates or related measures. The Commission has in the past published effective rates estimates for mining industries (IAC 1988), but does not ordinarily do so due to the low assistance provided to the sector and the resource requirements entailed. The nature of assistance to service sectors, which often takes the form of legislative restrictions on competition, makes it difficult to calculate effective rates and related estimates. However, as noted in chapter 2, the Commission has commenced estimating restrictiveness indexes and price impact measures for selected service sectors.

In conjunction with its current general tariff review (discussed in section 3.4), the Commission intends to begin reviewing its approach to assistance measurement. The ultimate aim of this exercise is not only to improve the consistency of treatment and coverage of the assistance estimates between the agricultural and manufacturing sectors, but also to more fully incorporate other Commission work such as its budgetary assistance estimates. With the reduction in assistance derived from tariffs in the manufacturing sector and statutory marketing and regulatory arrangements for agriculture, budgetary outlays and tax expenditures are becoming a more important source of industry assistance.