

Trade and Assistance Review: Methodological annex

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About this annex

This annex provides an overview of the Productivity Commission’s industry assistance measurement framework and information about how the Commission produces annual assistance estimates. From 2020‑21, this annex replaces the annual annexes, published since 2000, which are reported on the Commission’s website.[[1]](#footnote-2) (A full list of the Commission’s annual *Trade and Assistance Reviews* (TARs) can be found at www.pc.gov.au/research/ongoing/trade-assistance.)

The methods, scope and data sources for assistance estimates have changed over time. For example, early estimates by the Commission’s predecessors reflected the importance of the costs of protecting the manufacturing sector against imports, and of domestic marketing arrangements for the agricultural sector. Subsequent estimates have expanded to include budgetary outlays and tax concessions.

The Commission’s estimates have been derived in several ‘series’, each spanning a number of consecutive years. The data sources and methodologies used to produce the assistance estimates are consistent for years within a series. The estimates published in the TAR each year are re‑benchmarked to a particular ‘series’ to reflect the underlying Australian Bureau of Statistics (ABS) input‑output data used to benchmark the estimates. The Methodological Annex to the *Trade and Assistance Review 2018‑19* explains the re‑benchmarking process that underlies the 2016‑17 series.

# Overview of the Commission’s assistance measurement framework

Assistance measures covered

Section 10(3) of the *Productivity Commission Act 1998* (Cwlth) defines assistance to industry as:

… any act that, directly or indirectly: (a) assists a person to carry on a business or activity; or (b) confers a pecuniary benefit on, or results in a pecuniary benefit accruing to, a person in respect of carrying on a business or activity.

Reflecting this broad definition, measures that assist industry include:

* tariffs, quotas, anti‑dumping duties and regulatory restrictions on imported goods and services, such as local design rules and quarantine requirements
* policies that lower the effective price of goods and services below their supply price (the price that producers need to supply that good or service)
* grants and subsidies that are selectively available for domestic producers
* grants and subsidies that are selectively available for specific industries
* tax expenditures and offsets that are selectively available for domestic producers
* tax expenditures and offsets that are selectively available for specific industries
* ‘in kind’ assistance provided by publicly funded intermediaries, such as certain research undertaken by the Commonwealth Scientific and Industrial Research Organisation (CSIRO)
* regulatory restrictions on domestic competition, such as those provided by some statutory marketing arrangements and legislation that reserves markets for particular groups (for example, pharmacies)
* services provided by government agencies at concessional prices
* preferences for domestic producers under government procurement policies.

It is not practicable to cover all forms of government assistance to industry in the estimates. Rather, the estimates focus on the main forms of assistance for particular businesses, activities or industries that *can be quantified* on an annual basis given the practical constraints of measurement and data availability. Some examples of the types of assistance that are not included in the estimates are in box 1.1.

| Box 1.1 – What is not included in the Commission’s assistance estimates |
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| The Commission’s assistance estimates cover measures that are available to particular firms, industries or activities, and that can be quantified given practical constraints in measurement and data availability. Some significant government measures that selectively confer industry assistance are not included in assistance estimates because they cannot be adequately or easily quantified. Examples include:   * regulatory restrictions on competition such as those relating to pharmacies, air services, media and broadcasting, and importing books and second hand cars * government purchasing preferences and local content arrangements, such as defence procurement * concessional debt and equity finance * State, Territory and local government support to businesses * anti‑dumping and countervailing duties * access to and pricing of resources (for example, mineral, forestry, fishery or water resources), on favourable economic terms * support for professional sport (such as tax concessions for international tournaments in Australia and support for sporting venue redevelopment).   Some arrangements have been examined in Commission inquiries, reports and previous TARs. While certain businesses benefit significantly from some government measures, the benefit is not classified as industry assistance, because it is not preferential, or more generally because the purpose of the measure is to promote a broader public objective. Examples include:   * superannuation tax concessions and mandatory contributions * private health insurance rebates * government funding of non‑government community service providers * support for businesses owned or operated by Aboriginal and Torres Strait Islander people * employment incentives for businesses * remote housing concessions in mining regions * expenditure on improved transport infrastructure, for example, an upgraded road in a concentrated beef producing area would be expected to lower logistics costs for beef producers, but the road is not for the sole use of beef producers.   The Commission recognises the role that government plays in managing fluctuations in the business cycle and mitigating the fallout from acute shocks. As a result, the Commission does not regard emergency policy measures designed to protect employment and business viability during economic crises, and that are broadly available, as industry assistance. This treatment differs from emergency measures that selectively favour an industry or that prove more enduring over time.  In practice, the above criteria mean that the *Trade and Assistance Review 2022‑23* estimates exclude those COVID‑19‑related programs that were broad‑based, short in duration, and designed to support a large part of the economy, (despite excluding some sectors). Examples include JobKeeper, Boosting Cashflow for Employers, Backing Business Investment, and Instant Asset Write‑Off . Conversely, measures that were more selective and enduring were included as industry assistance and accounted for a notable proportion of the $4 billion increase in industry assistance included in the estimates of total industry assistance that occurred in 2020‑21. |
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The estimates in the TAR cover industry assistance provided by the Australian Government through budgetary assistance, assistance provided through concessional finance, and the cost of complying with tariffs.

Budgetary assistance is further categorised into outlays and tax concessions that advantage recipient businesses and industries over those not receiving them.

The estimates rely on several simplifying assumptions (box 1.2).

| Box 1.2 – Assistance framework: key simplifying assumptions |
| --- |
| The Commission uses a partial equilibrium and static analytical framework to estimate assistance. The simplifying assumptions underlying the framework are:   * perfect substitution between domestic and foreign goods of the same description * the ‘small country’ assumption, whereby Australia does not influence the world price of its imports or exports (that is, the terms of trade are assumed to be exogenous) * no substitution between nominally different goods * infinite elasticities of export demand and import supply * the prices of goods, services and resources in the absence of assistance represent their opportunity cost to the community * the direction of trade in the absence of assistance can be assessed, with import‑parity prices forming the benchmark for goods assessed to be import‑competing and export‑parity prices for export goods * production relationships between inputs are unaltered by the assistance structure * constant returns to scale.   A detailed discussion of the framework is provided in the Industry Commission’s Information Paper on *Assistance to Agricultural and Manufacturing Industries*(IC 1995). |
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Data sources

Annual information about budgetary assistance programs comes from:

* the Treasury’s *Tax Benchmarks and Variations Statement*
* various departmental annual reports
* various media releases and program documentation
* information provided by relevant government departments on newly implemented assistance programs.

Information about the compliance cost of tariffs comes from:

* ABS International Trade Imports and Import Clearances data collection
* The Commission’s previous work on estimating the share of compliance costs (PC 2022)

Information about concessional finance comes from annual reports of the relevant agencies and departments, as well as the RBA statistical table F3 (aggregate measures of Australian corporate bond yields).

Industry groupings

The industry classification has changed over time. The initial focus was on assistance within the traded‑goods sectors — particularly manufacturing and agriculture — where levels of assistance were high. Over time, trade protection measures assisting these sectors have declined, while budgetary assistance to both the goods and services producing sectors has increased. The Commission has included estimates of assistance to the services sector since the 2001‑02 TAR, and has integrated these, as far as practicable, with estimates of assistance for other sectors.

The TARestimates combined assistance for four sectors, which comprise 38 ‘industry groupings’[[2]](#footnote-3) based on the classification of industries in the 2006 edition of the Australian and New Zealand Standard Industrial Classification (ANZSIC). The fours sectors are:

* the primary production sector (nine industry groupings)
* the mining sector
* the manufacturing sector (12 industry groupings)
* the services sector (15 industry groupings).

There is also an ‘unallocated other’ sector. Each sector (other than mining) includes an ‘unallocated’ grouping (table 1.1).

Table 1.1 – Industry groupings used for reporting assistance in the *Trade and Assistance Review*

| Sector/industry grouping | ANZSIC 2006 codes |
| --- | --- |
| Primary production | A |
| Horticulture and fruit growing | 011, 012, 013 |
| Sheep, beef cattle and grain farming | 014 |
| Other crop growing | 015 |
| Dairy cattle farming | 016 |
| Other livestock farming | 017, 018, 019 |
| Aquaculture and fishing | 02, 04 |
| Forestry and logging | 03 |
| Primary production support services | 05 |
| Unallocated primary production | — |
| Mining | B |
| Manufacturing | C |
| Food, beverages and tobacco | 11, 12 |
| Textile, leather, clothing and footwear | 13 |
| Wood and paper products | 14, 15 |
| Printing and recorded media | 16 |
| Petroleum, coal, chemical and rubber products | 17, 18, 19 |
| Non‑metallic mineral products | 20 |
| Metal and fabricated metal products | 21, 22 |
| Motor vehicles and parts | 231 |
| Other transport equipment | 239 |
| Machinery and equipment manufacturing | 24 |
| Furniture and other manufacturing | 25 |
| Unallocated manufacturing | — |
| Services | D‑S |
| Electricity, gas, water and waste services | D |
| Construction | E |
| Wholesale trade | F |
| *(continued next page)* |  |
| Retail trade | G |
| Accommodation and food services | H |
| Transport, postal and warehousing | I |
| Information, media and telecommunications | J |
| Financial and insurance services | K |
| Property, professional and insurance services | L, M, N |
| Public administration and safety | O |
| Education and training | P |
| Health care and social assistance | Q |
| Arts and recreation services | R |
| Other services | S |
| Unallocated services | — |
| Unallocated other | — |

Source: Commission derived industry groupings based on ABS (*Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006 (Revision 2.0)*, Cat. no. 1292.0).

# How the assistance estimates are calculated

The Commission’s approach to estimating assistance varies depending on the instruments used to provide support.

* Where governments provide grants and subsidies directly to firms, the assistance is the value of the outlay. This excludes the cost of policy advice and general administration for the agencies that administer grants and other assistance programs.
  + Where governments fund services that indirectly assist an industry, the full funding (excluding any industry contributions) is deemed to be assistance. For the assistance provided to industry through the CSIRO, the Commission excludes appropriations for certain public research functions such as environmental research and development (R&D), some renewable energy R&D and general research towards expanding knowledge in various fields.
* Where governments provide tax concessions on a selective basis — such as exemptions, deductions, offsets, rebates, lower tax rates or tax liability deferrals — the value of the assistance provided is estimated as the amount of tax revenue forgone.
* Where governments impose tariffs on imports, and businesses need to apply to have the tariff removed or reduced, the assistance is assumed to be the cost of complying with the tariff system. Compliance costs that importers incur when accessing preferences increase the relative cost of imports, and therefore act as a form of assistance by protecting import‑competing domestic producers.
* Where governments provide finance at a concessional rate, the assistance is taken to be the difference between the cost at which the government provided the funds, and the cost of those funds if they were borrowed at a commercial rate. As the commercial rate is not known, and the information about concessional loans varies across agencies, estimates of assistance provided by concessional finance are provided as a range.

Estimating budgetary assistance

Estimating the value of budgetary assistance — and allocating such assistance across industries — requires a detailed itemisation and classification of programs that qualify as Australian Government budgetary assistance for the purpose of the TAR. The Commission primarily uses the annual Treasury *Tax Benchmarks and Variations Statement*, agency annual reports and consultation with departmental staff to construct a database of programs that constitute budgetary assistance, which are then allocated to particular industry groupings on an ‘initial benefiting industry’ (IBI) basis (figure 2.2, box 2.2).

Figure 2.2 – Estimating budgetary assistance by industry

Figure 2.2. This figure shows how budgetary assistance by industry is estimated. Stage 1: collect budgetary assistance data from the Tax Benchmarks and Variations Statement, agency annual reports and departments, and generate a list of continuing, lapsed and new programs. Stage 2: categorise budgetary data. Stage 3: allocate assistance to industries.

| Box 2.2 – The ‘initial benefiting industry’ allocation method |
| --- |
| The Commission allocates budgetary assistance to industries on an ‘initial benefiting industry’ (IBI) basis. This means that assistance is allocated to the industry of the businesses that benefit initially from a program or measure.  The IBI approach does not attempt to identify all the beneficiaries of assistance from flow‑on effects. For example, budgetary assistance to the Australian film industry is allocated to the ‘arts and recreation services’ industry group. However, the benefits of this assistance could extend beyond this industry, such as to construction services in the case where film production requires these services as inputs. Further, an increase in demand for construction services may increase demand in the wood and paper products industry, and so on.  When a measure initially benefits businesses in a single industry, the entire value of assistance is assigned to that industry. When a measure initially benefits businesses in multiple industries, the value of the assistance is apportioned across multiple industries as well.  Where assistance is delivered via an intermediate organisation — such as Austrade providing export promotion services or the CSIRO undertaking industry‑benefiting research — the initial benefiting industry is the industry in which the businesses that use the services operate. For example, wheat research by the CSIRO would be allocated as assistance to the wheat growing industry (which is part of the ‘sheep, beef cattle and grain farming’ industry grouping).  Some programs where the initial beneficiaries are consumers (rather than businesses or intermediary bodies) are included in the Commission’s estimates of assistance. In such cases, the assistance is allocated to the industry providing the good or service to the consumer. As an example, in the past, assistance has been provided to consumers to convert cars to LPG, with the Commission classifying this assistance as accruing to the industry providing the conversion service.  Similarly, where assistance is provided to an intermediary service, such as transport or financial services, and that assistance lowers the cost of a good or service to a consumer, the initial benefiting industry is deemed to be that of the consumer, rather than the intermediary.  Where the initial beneficiary cannot be identified, the assistance is ‘unallocated’. This means that the assistance is included in the aggregate estimates, but not in industry totals. |
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In allocating assistance to industry groupings, each measure is examined individually. Programs that assist a single industry, such as the Automotive Transformation Scheme or the Grape and Wine R&D Corporation, are allocated directly to that industry (motor vehicle and parts, and horticulture and fruit growing, respectively).

Many programs assist multiple industries. The Commission draws on a variety of sources to allocate the assistance provided by such programs across the benefitting industries.

Where the Commission can obtain sufficiently detailed data for a program, it uses this information to distribute the program’s funding among the initial benefiting industries. For example, the Commission obtains claims data by ANZSIC industry for the Export Market Development Grants scheme from the Australian Taxation Office, and these data are sufficiently detailed to determine the initial benefiting industries for the program. Similarly, the Department of Industry, Science, Energy and Resources has published details of grant recipients for many of its administered programs.

Where there are no data identifying the industries that initially benefit from a particular program, the assistance given under that program is recorded as ‘unallocated’. There are four ‘unallocated’ categories: one each for primary production, manufacturing and the services sectors (used when the initial benefitting sector can be identified but not the initial benefitting industry or industries within it), and an ‘unallocated other’ category for assistance that cannot be assigned to particular sectors based on available information. ‘Unallocated’ funding forms part of the Commission’s aggregate estimates of assistance.

The IBI approach does not attempt to identify all the industries that might ultimately benefit from a program because of its ‘flow on’ effects. Care is therefore required when drawing inferences about the resource allocation effects of budgetary assistance given the static nature of the underlying model. This aspect of the model, coupled with the IBI approach of allocating assistance, means that only the initial effects of assistance are captured, while the responses of producers and consumers to the incentives created by the assistance are not.

Estimating the compliance cost of tariffs

In 2022 the Commission researched the nuisance costs of tariffs (PC 2022). As part of this research we estimated the compliance costs incurred by businesses when they import goods that are subject to tariffs, but a preferential rate or concession can be accessed.

* These compliance costs arise because businesses devote resources to accessing preferential and concessional rates of customs duty.
* Compliance costs come in two forms: the costs of generating and dealing with the ‘paperwork’ (now often electronic) needed to demonstrate eligibility for a preference or concession, and the costs that foreign producers incur in adapting their production to make the imports eligible for a preference.
* Most of these costs are passed on along the supply chain to Australian consumers in the form of increased prices, at least in the short run.

Compliance costs are not readily available in administrative records, and estimating them is not straightforward. The Commission estimated compliance costs incurred in 2019‑20 against a counterfactual of costs that would not have been incurred had the statutory rate been ‘free’. We limited the estimation to the costs of complying with preferential trade agreements (PTAs) and with the tariff concession system (TCS), as these are the most common ways in which businesses reduce their tariff liabilities to zero.[[3]](#footnote-4)

From 2021-22 onwards, the TAR has included an estimate of the compliance costs of PTAs and the TCS.

* We estimate annual TCS related compliance costs to be at least $5 million. The $5 million calculation understates the true costs, because of the uncosted components outlined in the research paper.
* We estimated compliance costs associated with accessing preferences as a percentage of the value of imports that benefitted from a preference (PC 2022b, p. 66). The average, over a five-year period, **was estimated to be 2.1% of the total value of imports that entered Australia under a preferential trade agreement**.

More detail on the methodology can be found in the research report, section 4.1 and appendix C.

For the purposes of TAR, the compliance cost of accessing a preferential rate on tariffs is estimated by multiplying the total value of imports entering Australia under a preferential trade agreement (taken from the ABS International Trade Imports and Import Clearances data collection) by the estimated compliance costs as a percentage of value of imports, which is 2.1%. However, given the uncertainty of point estimates, a range of 1.05‑3.15% (a 50% range around 2.1%) is used to estimate compliance costs.

Estimating concessional finance

To estimate the industry assistance of concessional finance, the Commission has identified five government agencies which offer concessional finance.

* Export Finance Australia (EFA), which has provided finance to Australian exporters since 1991
* The Clean Energy Finance Corporation (CEFC), which has provided finance to clean energy and low emissions technology businesses since 2012
* The Northern Australia Infrastructure Facility (NAIF), which has provided finance to some businesses in Western Australia, the Northern Territory and Queensland since 2016,
* The National Housing Finance and Investment Corporation (NHFIC), which has been providing finance to community housing providers since 2018
* The Regional Investment Corporation (RIC), which has been providing low interest loans to farm businesses since 2018.

This list of entities offers some examples of concessional finance in Australia, but is not exhaustive. Further, this list can be expected to grow.

The Commission considered two approaches to estimating the industry assistance value of concessional finance. The first involved using the annual unwind of concessional loan charges, published by a number of government‑owned finance entities. The second involved estimating the ‘return gap’ of these entities, the difference between what these loan portfolios earned in a given year, relative to what they would have earned had those funds been invested at prevailing market rates of interest.

### Method 1 – Annual unwind of bottom‑up concessional loan charges

A concessional loan charges is calculated by taking the difference between the net present value of a concessional loan were it to be provided at a commercial rate and the net present value of the loan given the concessional terms on which it is offered. It is thereby an estimate of the overall value of the concessional component of the concessional loan activities of an entity.

The annual *decrease* in the value of the concessional loan charge is expressed as a concessional loan charge ‘unwind’.

The unwind is considered to be of most relevance to the TAR, for the following reasons:

* Every year, the total value of the concession on outstanding loans decreases (or unwinds).
* The amount the concessional stock decreases by (the unwind) is considered to be the amount of the concession ‘used’ in that year.
* As the TAR is focussed on the benefits provided to industry in any given year, the unwind is considered to be the most appropriate figure for this report. The use of the unwind is analogous to an asset depreciating: the asset represents a stock, while the depreciation represents the decrease in the value of that stock. Here, the value of the concession is the stock, and the unwind represents the depreciation – the decrease in the value of that stock *in one year*.

Unfortunately, not all entities that offer concessional finance report concessional loan charges. Of the five agencies identifies as being responsible for the majority of concessional finance, only the NHFIC and CEFC publish concessional loan charges in their annual reports.

Financial statements for RIC are consolidated within the financial statements for the Department of Agriculture, Fisheries and Forestry. The TAR reports the unwind of the concessional loan charge for the whole Department, noting these are likely to include loans that do not originate from RIC (and therefore may not qualify as industry assistance).

Financial statements for NAIF have been consolidated within the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) since 2021-22. Prior to this, DITRDCA reported a small volume of concessional loans. After NAIF was transferred to DITRDCA in 2021‑22, there is a noticeable increase in the unwind of concessional loan charge reported.

To estimate the unwind attributable to NAIF, this report estimates the concessional unwind charges attributable to DITRDCA to be unchanged from their three-year average. This way, the *increase* in the unwind, relative to the three-year average prior to NAIF being reported as part of the DITRDCA annual report, is assumed to be the unwind of the concessional loan charge attributable to NAIF.

For example, the concessional unwind charge reported by DITRDCA was $17.6m, $21.0m and $22.0m in 2018-19; 2019-20 and 2020-21 respectively (a three-year average of $20.2m). The concessional unwind charge reported by DITRDCA in 2021-22 (the year NAIF was included as part of DITRDCA’s reporting) was $32.8m. The difference between the 2021-22 figure, and the previous three‑year average ($12.6m) was assumed to be the concessional unwind charge attributable to NAIF in 2021‑22.

EFA do not report any concessional loan activity.

### Method 2 – Top down portfolio ‘return gap’ methodology

The top down portfolio ‘return gap’ approach to estimating the concessionality of government owned finance entities is calculated using the following formula:

Stock of loans reported as assets in annual reports (S) multiplied by the benchmark market yield (i), less the portfolio interest earnings.

For EFA, CEFC and NHFIC, the stock of loans and portfolio interest earnings are taken from the respective annual reports.

For RIC, the estimates use the total loans and portfolio interest earnings from the Department of Agriculture annual report, noting this likely overstates the loans and earnings that are attributable to RIC.

For NAIF, the stock of loans is available in the DITRDCA annual report. However, interest earned is aggregated across the DITRDCA portfolio. As such, the interest earned that is attributable to NAIF is derived. The yield on DITRDCA portfolio (without NAIF loans) is assumed to be the three‑year portfolio yield average, prior to 2021-22 (i.e. before NAIF was included as part of DITRDCA reporting).[[4]](#footnote-5) This yield is multiplied by the stock of loans in the DITRDCA annual report that are not attributable to NAIF or the NBN. The difference in this figure, and the total interest earned on the DITRDCA portfolio (net of interest earned on loans to the NBN) is assumed to the interest earned on the NAIF loan portfolio.

As the risk-profile of concessional loans is unknown, the benchmark market yield range is calculated as a range. The upper bound is taken to be the 5 year A rated non-financial corporate debt security yield and the lower bound is taken to be the 10 year BBB rated non-financial corporate debt security yield. Both series are taken from the RBA F3 statistical table.

Abbreviations

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| --- | --- |
| **ABS** | Australian Bureau of Statistics |
| **ANZSIC** | Australian and New Zealand Standard Industrial Classification |
| **CEFC** | Clean energy finance corporation |
| **CSIRO** | Commonwealth Scientific and Industrial Research Organisation |
| **COVID-19** | Coronavirus Disease 2019 |
| **EFA** | Export finance Australia |
| **ERA** | effective rate of assistance |
| **GVA** | gross value added |
| **IBI** | initial benefitting industry |
| **IO** | input-output |
| **IOIG** | Input-Output Industry Groups |
| **IOPG** | Input-Output Product Groups |
| **LPG** | liquefied petroleum gas |
| **NAIF** | Northern Australia infrastructure facility |
| **NHFIC** | National Housing Finance and Investment Corporation |
| **RIC** | Regional investment corporation |
| **R&D** | research and development |
| **SITC** | Standard International Trade Classification |
| **TAR** | Trade and Assistance Review |
| **TIDES** | Tariff and Import Database and Estimating System |

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1. This Methodological Annex (2022) replaces the annual Methodological Annex and will be updated only if the methodology changes. The last annual Methodological Annex was for 2019‑20. [↑](#footnote-ref-2)
2. Includes unallocated in three sectors plus unallocated other. [↑](#footnote-ref-3)
3. In 2019-20, 28% of imports entered under a PTA, 11% entered under the tariff concession system, and a different instrument was used to reduce the tariff to ‘Free’ for only 1% of imports (PC 2022, p. 9). [↑](#footnote-ref-4)
4. This assumption is based on the fact that most loans by DITRDCA are made for a period ranging from 9 to 118 years, with interest rates fixed. [↑](#footnote-ref-5)