Assistance conferred by preferential trading agreements — Case study of the Australia–New Zealand CER Trade Agreement

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ABSTRACT

A preferential trade agreement such as the Australia–New Zealand Closer Economic Relations (CER) Trade Agreement affords preferential access to goods produced within the area of preference. The trade preferences expand the protected market available to domestic producers in both countries. Duty free access available to Australian producers in New Zealand can extend New Zealand tariff protection to Australian producers and vice versa. This paper modifies the standard effective assistance framework to quantify the impact of tariff preferences on assistance to industry. Using this new methodology, it shows how preferences have increased the effective assistance to manufacturing industry on both sides of the Tasman. With tariff reductions in Australia and New Zealand, the extent of assistance has declined over time. The greatest advantage remaining accrues to TCF activities.

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Preferential trade agreements seek to increase trade between partners by providing preferential access to goods originating in the preferential trade area. Such access extends assistance afforded by tariffs otherwise reserved for producers in one country to producers in the other.[1]

Depending on market conditions and competition between suppliers in a PTA area, trade preferences may enable exporters within the trade area to price up to the tariff on imports from third countries. This would increase the cost of imported goods to the importing country and provide incentives for producers to change production and investment decisions to benefit from assistance afforded by tariff preferences. The global increase in the number of PTAs, including PTAs entered into by Australia, will result in complex assistance structures and mixed incentives to industry. It will also add to the transfers of incomes between countries as exporters within preferential trade areas seek to take advantage of border protection of countries within a particular area. The complexity and scope for income

[1] For example, manufacturers of jumpers are protected by most favoured nation (MFN) tariff rates of 25 per cent in Australia and 19 per cent in New Zealand. Under the CER, Australian producers are protected in their home market by a 25 per cent tariff on third country imports but face competition from duty free New Zealand imports. In the New Zealand market, they compete against local manufacturers and are protected by the New Zealand tariff of 19 per cent. New Zealand producers are also afforded higher protection against third country imports in the Australian market than in the New Zealand market (ie 25 per cent as against 19 per cent).

transfers will be increased by high and/or disparate tariff structures of participating countries and diverse preferential rules of origin.[2]

To date, to the authors knowledge, estimates have not been made of the assistance implications of tariff concessions under a PTA. The Productivity Commission has attempted to make a start towards filling this gap by measuring assistance afforded firms by tariff concessions under the Australia and New Zealand Closer Economic Relations (CER) Trade Agreement (PC 2004a, b). These estimates provide some indication of the importance of CER preferences to industry and how they have changed over time. The estimates were used to assist the Commission in its response to the terms of reference for a recent study into rules of origin (RoO) under CER (Campbell 2003).

The first section of this paper provides some background on the current study. The second section outlines the standard framework adopted by the Productivity Commission for assistance measurement and the extension of that framework to estimate the assistance effects of a PTA such as CER. The paper then specifies how the framework was applied to estimate assistance to output, potential assistance to inputs and effective assistance to Australian and New Zealand industry. A decomposition analysis emphasising the tariff differences between partners is also specified. Section 4 reports key results from the study while section 5 sums up the study.

1 Background

It is well known that a PTA can have both positive and negative effects on the welfare of a member country. The selective reductions in tariffs can benefit the importing country. Where the formation of a PTA *creates* new trade, consumers and producers can benefit from lower prices. The discriminatory nature of the tariff reductions also *diverts* trade away from cheaper sources outside of the PTA area. The net effect of trade diversion on welfare may be positive or negative. Overall, there is a presumption that preferential arrangements will lower prices to producers and consumers and that members will gain from any new trade — especially if the new trade also results in lower unit costs due to economies of scale and productivity improvements or to increased competition.

The preferences afforded firms exporting in the PTA area by tariff concessions, however, serve increase protection available to output and value adding factors of those firms and erode the potential gains from selectively lowering tariffs. If barriers to trade were reduced multilaterally this effect does not occur and economic gains from trade generally result.

This paper builds on the standard framework for measuring effective protection (ie assistance) to industry (Corden 1971 and Balassa *et al.* 1971). This framework has been

[2] Rules of origin (RoO) are the criteria used to define where a product has been made for the purposes of ensuring that only the products of countries which are party to a preferential trade agreement (PTA) obtain the benefits of the agreement.

applied by the Productivity Commission and its predecessors to measure import tariff assistance and other assistance to Australian industry since the 1970s. The estimates are reported in the Commission's annual *Trade & Assistance Review*, the latest being for the year 2003-04 (PC 2004c). Estimates of assistance have been widely used in Australia to support the evaluation of assistance to individual industries or sectors and development of policy options. Estimates of assistance to New Zealand industry also have been prepared by Syntec (1988), BERL (1990) and Lattimore (2003).

Traditional applications using the standard model, however, consider competition from only one source — firms in the rest of the world. In the standard framework, no distinction is made between exports between partners to a preferential trade agreement or the possibility, mentioned above, that CER concessions and tariffs in the partner may influence the price received for exports within the CER area. Similarly, no distinction is made between imports from CER and non-CER sources and the impact that this may have on local costs. These restrictive features of the model, in its standard form, do not lend it to an analysis of the assistance impact of a trade agreement such as CER. Accordingly, the standard model has been adapted for this study to apply to a situation where domestically produced goods are subject to competition from two import sources — the rest of the world and the other CER economy.

In the modified framework, the tariff protection provided in the CER partner country is recognised and treated as possible additional assistance to the output of an industry.[3] The assistance to output exported to the partner country may be higher or lower than that available on sales in the home market, depending on the alignment of tariffs between the partner countries.

Potentially, tariff differences between the CER partners also provide an opportunity for firms to find cheaper sources of supply within the CER preferential trade area. Where the Australian tariff is higher, competition between New Zealand suppliers for Australian market share could drive the price of materials imported from New Zealand to a level consistent with the New Zealand tariff. Similarly, competition between Australian suppliers for the New Zealand market share could drive the price of materials exported to New Zealand to that consistent with the Australian tariff. Depending on tariffs on third-country imports and market conditions in Australia and New Zealand, this factor could raise or lower the cost of imported inputs. In the modified framework, tariff differences between Australia and New Zealand are treated as potentially influencing assistance to inputs.

[3] Trade agreements such as CER can also include non-tariff matters such as investment provisions, provisions relating to the mobility of people and mutual recognition of standards and qualifications. The impact of such provisions is not analysed in this paper.

2 Framework for assistance measurement

Standard framework

As noted, the framework adopted for estimating assistance in Australia is based on the concept of effective assistance. This concept enables the impact of tariffs and other government interventions on the price received for outputs, the cost of inputs and the net effect on returns to value-adding factors to be evaluated within a consistent framework using a series of standard assistance measures. For example, where a producer supplies goods to the domestic market in competition with imported goods, a tariff on those imports assists the local producer by allowing it to increase prices to a level consistent with the tariff. At the same time, the tariff penalises producers that use tariff-assisted goods and consumers. By taking into account both of those effects, effective assistance measures reflect the net assistance to industry value added provided by tariff protection.

The key measures relating to assistance to output, material inputs and value-adding factors are:

- The *gross subsidy equivalent* (GSE) which 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 *tax equivalent on materials* (TEM) which 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 that 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 *net subsidy equivalent* (NSE) which 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.

Because assistance changes the returns to industry, the basic measures of assistance listed above are expressed as subsidy equivalents and denominated in currency units (ie Australian or New Zealand dollars, as appropriate). To avoid problems of comparing measures in different currency units that pertain to different industrial structures in Australia and New Zealand and to aid comparisons of assistance to industry over time and between jurisdictions, the basic measures are re-expressed as the subsidy equivalent per unit of output, input or value added factor, reported as a percentage — that is, as nominal and effective rates of assistance. The current analysis emphasises nominal and effective rate of assistance measures, namely:

- The *nominal rate of assistance on outputs* (*NRO*) which 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 *nominal rate of assistance on materials* (ie intermediate inputs) (*NRM*) which is the percentage change in the prices paid for materials used in the production process, as a result of government intervention.
- The *effective rate of assistance* (*ERA*) which 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 practical application of the concept of effective assistance involves a number of simplifying assumptions. In particular, the assistance measures are derived using static, partial-equilibrium assumptions. These focus attention on the initial impact of interventions on prices, costs and returns. Thus, while the assistance measures indicate transfers associated with interventions, they do not indicate changes in supply and demand or more general equilibrium effects. The major simplifying assumptions underlying the standard effective assistance model are:

- perfect substitution between domestic and foreign goods of the same description;
- the small country assumption, whereby Australia and New Zealand do not influence the world price of either their imports or exports (ie 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 represent their opportunity cost to the community in the absence of assistance;
- 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; and
- constant returns to scale.

While these assumptions underlie assistance measures for an individual country, they essentially assume that the actions of a single country cannot influence 'world prices' or assistance faced by producers in another country. They do not take into account the potential for a preferential trading agreement between two countries, such as the CER, to influence prices and assistance levels in the partner economy. However, as trading agreements such as CER extend border assistance in one partner country to firms in the other partner country, analysis of the impact of the CER on assistance to Australian and New Zealand producers

can be undertaken. In order to do so, the following additional simplifying assumptions need to be made:

- the preferential supplier takes full advantage of tariff assistance available in the CER partner economy;
- there is only one distortion in the form of simple ad valorem tariffs. The impact of duty drawback schemes and other types of assistance (including budgetary assistance to industry) were not included in the analysis; and
- all imports from the CER partner enter duty free instead of at MFN rates and the CER preferences are the only means of obtaining duty free entry for those imports. In practice, a small number of firms in recent years have forgone tariff preferences by supplying at MFN rates in the CER and some trade across the Tasman enters duty free under duty drawback and related arrangements. There are also imports that enter duty free under other concessional arrangements (eg the Australian *Tradex* scheme).

The first assumption follows from the assumptions underpinning the standard application of the model — particularly the small country assumption. The remaining two assumptions are used because it was impractical to obtain precise data on these variables or relationships for all industries and because available information suggests that the overall impact of these factors is likely to be small. Broad indications of the preference provided to a sector by the CER are therefore unlikely to be sensitive to plausible real world divergences from the recording conventions.

While violations of the general or more specific assumptions need not invalidate the relevance of the assistance estimates presented in this study for policy analysis, they do emphasise the approximate nature of the estimates.

Choice of benchmark price

Measurement of assistance or protection requires a reference price at which products are likely to sell on the domestic market in the absence of the tariff preference arrangements.

For internationally traded goods, the Productivity Commission effective assistance estimation framework uses either import parity (the landed duty free price of the imported equivalent) or export parity (the export value of the exported equivalent) as a benchmark price. The choice between these two depends on whether, if the assistance arrangements were removed, the domestic price would be determined by competing imports or the price achieved for exports. In standard applications of its assistance methodology, the Commission uses import parity pricing for the estimation of assistance to manufacturing and export parity pricing for the estimation of assistance to selected agricultural commodities.

In standard estimates of nominal rates of assistance to Australian industry, the Productivity Commission does not distinguish between imports from New Zealand and imports from the rest of the world. This aligns with the treatment of other preferences. An important

implication of this convention is the assumption that New Zealand exporters price up to the applied tariff levels prevailing in Australia. Application of the standard treatment to the estimation of assistance to New Zealand firms similarly involves the assumption that the Australian exporters to New Zealand price up to the applied tariff levels prevailing in New Zealand.

If the CER preferences alter only the source of imports rather than their total level, they will not alter the assistance to producers in the preference-granting country that is implied by the applied tariff rates (usually MFN rates) for that country. In this case, the applied rate would be the appropriate indicator of assistance and the world price — that is the landed duty free price of imports — would be the most appropriate indicator of the benchmark price. Furthermore, the lowering of applied rates would not affect the benchmark price of imports, although, in the presence of tariff preferences, it could affect sourcing between preferential and non-preferential sources (ie it could affect the extent of trade diversion).

The use of import parity as a benchmark price essentially emphasises the opportunity cost of protecting certain domestic production. As such, it does not require the assumption of perfect competition in the world market, simply that the actions of a single country cannot influence world prices.[4]

3 Estimation of the assistance effects of CER

In calculating total assistance to industry in Australia and New Zealand, inclusive of the impact of CER preferences, standard assistance calculations are first applied to that part of output sold in the local market. Assistance to that part of production which enters the trans-Tasman trade is then added to the traditional assistance measures of assistance to outputs, inputs and value-adding factors. This section is concerned with these incremental effects of the CER Trade Agreement on assistance to industry.

The estimates of assistance in Australia and New Zealand were based on industry structures as reported in input-output tables for Australia and New Zealand, foreign trade statistics including estimates of trans-Tasman trade and country tariff schedules (see PC 2004b, appendix B). The input-output methodology was adapted from the standard method used for estimating assistance for Australia (see PC 2002).

[4] To obtain an indication of the impact of tariffs on assistance, the MFN tariff rates are deflated to a landed duty free (ldf) basis by multiplying each tariff rate by the ratio of imports evaluated on a vfd basis and imports on a cost, insurance and freight (cif) basis (ie the vfd/cif ratio). The vfd of imports is usually equivalent to the fob value whilst the cif value is taken to be equivalent to the ldf value. The nominal rate of assistance (that is, adjusted for the impact of insurance and freight costs) for product groups has been calculated by deriving a weighted average of nominal rates at the tariff item level, using the value of imports recorded on a cif basis as weights. It should be noted, however that, in principle, the production weights should be used but detailed production data are not available to permit such a weighting.

Estimating the impact of CER on assistance to outputs

CER is assumed to have no impact on assistance to output sold on the domestic market. That is, according to the price benchmarking conventions outlined above, output prices are benchmarked either to import or export parity. In conventional assistance calculations, exports to the CER partner economy and other economies would be assumed to occur at international parity prices and hence not be influenced by tariffs on imports.

However, CER concessions remove the duty on most items entering the trans-Tasman trade and afford the prospect that producers in Australia or New Zealand are 'protected' by the import duties of the counterpart country. That is, a wedge is driven between the CER export price and the export price of non-CER trading partners. In this study, therefore, it has been assumed that:

- firms entering the trans-Tasman trade are import-competing firms in the home economy;
- the relevant benchmark price for output exported in the CER region is the import-parity price within the home market; and
- the landed price actually available to the CER exporter in the partner economy is equal to the import parity price plus the margin of preference implied by the MFN tariff rates in the partner economy.

The impact of CER preferences on total assistance to an industry would also depend on the importance of CER sales in total sales of that sector (evaluated at unassisted prices).

In this framework, the total effect of assistance on output exported to the partner economy would be equal to:

- a home-country effect — namely, the assistance available on CER exports if sold the home country; and
- a price effect — namely, the difference between tariff assistance available locally and the tariff available in the partner economy. In other words, the increase or reduction in assistance relative to the case of supplying to the home market (see box 1).

The home-country effect would always be zero or positive while the price effect could be positive or negative, depending on the relation between tariff rates in the partner economies. The total effect of assistance on output exported to the partner economy is equal to the sum of the home-country and price effects. As the reference price in the partner country is always equal to or greater than the world reference price, the total effect would always be positive.

Typically, the protection effect for import-competing commodities is indicated by the scheduled MFN tariff rate. However, when general tariff concessions reduce the effective tariff (eg in New Zealand, the granting of a tariff preference under its commercial tariff concession order system permanently reduces the applied tariff rate to zero for the product in question), the applied MFN rate can differ from the scheduled MFN rate. For data reasons

and because of the widespread application of concessions in the New Zealand tariff, the applied tariff rate used in assistance calculations is the rate implied by duty collected on non-CER trade. Because the applied tariff in Australia is not subject to permanent reductions arising from the granting of commercial tariff or other concessions, the applied tariff and the MFN rate are assumed to coincide.

Taking into account the possibility that the MFN and applied tariff can differ, the price effect of the assistance structure can be further decomposed to reflect the:

- difference in the assistance structure between the partner and home countries; and
- modification of MFN rates due to permanent changes in the tariff on account of factors including permanent tariff concessions in multilateral trade (box 1).

Box 1 **Estimating the impact of CER on assistance to outputs**

The gross subsidy equivalent accruing to the home economy per unit of output exported to the CER partner (GSE) is defined as the fob price received in the partner economy per unit of output (P_P)[5] less the world reference price (P_W), that is:

$$GSE_{CERX} = P_P - P_W$$

where the subscript *CERX* represents a CER exporter — in Australia or New Zealand, as the case may be. When the CER exporter is Australian, the partner economy represented by P_P is New Zealand, and vice versa. For each dollar of output, evaluated at unassisted prices, the GSE measures the 'nominal rate of assistance on output' (NRO).

To take account of differences in the assistance regimes between CER partners, the basic equation can be decomposed by adding and subtracting the ldp benchmark price per unit of output in the *domestic economy* (P_D):

$$GSE_{CERX} = (P_D - P_W) + (P_P - P_D)$$

The first bracketed expression refers to the assistance producers could expect if they sold locally, while the second indicates price effects arising from differences in the assistance structures of the respective partner economies.

Finally, to take into account differences between the MFN and applied rates in the exporting country (ie the country of production), the expression for the subsidy equivalent of protection can be further decomposed by adding and subtracting the applied price impact of the domestic economy ($P_{D,MFN}$), so that:

$$GSE_{CERX} = (P_D - P_W) + (P_P - P_{D,MFN}) + (P_{D,MFN} - P_D)$$

The second bracketed expression indicates the difference between the applied rate in the partner country and the MFN rate in the home economy, while the third indicates the difference between the MFN and applied rates in the country of origin (ie the assistance regime normally applicable to production by import-competing firms). Note that the protection effect (P_P) in the partner economy is the MFN rate. In this framework, when Australia is the CER country, the third expression is assumed to be zero because the applied and MFN rates are treated as equal for Australia, the originating country. When New Zealand is the CER country of origin, the third expression is non-zero due to the difference between the MFN and applied rates in New Zealand.

5 It is assumed that the CER exporter takes full advantage of the tariff in the partner country. Under this assumption, the fob export price is equivalent to the dutiable value — ie the vfd price — from the point of view of the CER importer. The subsidy equivalent of assistance is treated as being appropriated by the manufacturer (or other goods producer) in line with the practice followed in standard assistance calculations. The impact of trans-Tasman transport costs is considered under input assistance.

Estimating the potential impact of CER on assistance to inputs

In conventional assistance calculations, inputs are valued at cost and assistance to materials from local or offshore sources is generally evaluated on the basis of the tariff rates for the relevant materials. Thus, material imports from the CER partner would be treated as if the exporter priced up to the landed duty paid price of competing imports from outside the CER. This treatment is the other side or 'dual' of the treatment of assistance to output. Under this treatment, CER concessions would not affect input costs (and it would be assumed that any tariff revenue forgone would be appropriated by the CER exporter or absorbed into additional transport and distribution costs).

The tariff concession available on CER imports, however, raises the possibility that cost-minimising producers can 'shop around' and purchase material inputs at prices determined by assistance and cost conditions in the exporting economy, plus transport costs.[6] For example, producers in Australia may purchase material inputs from New Zealand suppliers at the import parity (ie the landed duty paid) price in New Zealand. In this case, the seller does *not* take advantage of the protection afforded by the Australian tariff when selling into the Australian market.

In the calculation of assistance for that part of material inputs imported from the CER partner, the standard calculation of assistance on inputs can be modified to show the potential price effects of the assistance structure in the originating economy compared with the using economy. As with assistance to output, this modification can be decomposed to show:

- the difference between the assistance structure in the partner and home countries;
- the impact of trans-Tasman transport costs on assistance; and
- the modification of MFN rates due to permanent changes in the tariff in the originating country, on account of factors including permanent tariff concessions in multilateral trade (box 2).

6 Estimated as the ratio of transport costs to the value of imports measured on a vfd basis. That is $\left(\frac{cif - vfd}{vfd}100\right)$. Across all manufacturing industries, trans-Tasman transport costs average around 5 per cent of the vfd (ie fob) of imports, although there is considerable variability around that figure for particular products and industries. The ratios for 2000-01 are broadly representative of the average for the period under consideration.

Box 2 **Estimating the impact of CER on assistance to inputs**

The tax equivalent of assistance on materials entering the trans-Tasman trade (*TEM*) incurred by the importing partner is defined as:

$$TEM_{CERM} = PM_D - PM_W$$

where the subscript *CERM* represents the CER importer. PM_D is the assisted domestic price of materials per unit of input implied by the general tariff level and PM_W is the border price of those inputs. For each dollar of inputs, evaluated at unassisted prices, the *TEM* measures the 'nominal rate of assistance on inputs' (*NRM*). To illustrate the potential impact of CER on material input costs, a decomposition analysis akin to that applied for assistance to outputs (box 3.1) can be undertaken.

By adding and subtracting the material price implied by the partner's assistance regime (adjusted for product-specific trans-Tasman transport costs, indicated by the hat sign) (ie $\hat{P}M_P$) and rearranging, the standard equation cited above can be expanded in the following way:

$$TEM_{CERM} = \left(\hat{P}M_P - PM_W\right) + \left(PM_D - \hat{P}M_P\right)$$

The first bracketed expression indicates the tax on imported materials implied by the CER partner's assistance structure, while the second expression indicates the CER price effect arising from different assistance structures applied in the respective partner countries. For example, the price of Australian imports of produce originating in New Zealand would be influenced first by protection afforded to the production of the produce in New Zealand and, additionally, by the difference between the Australian and New Zealand protection regimes.

Finally, the impact of differences in the MFN and applied rates in the originating country can be illustrated by decomposing the *TEM* equation further by adding and subtracting the price implied by MFN rates in the country of origin ($\hat{P}M_{P,MFN}$):

$$TEM_{CERM} = \left(\hat{P}M_P - PM_W\right) + \left(PM_D - \hat{P}M_{P,MFN}\right) + \left(\hat{P}M_{P,MFN} - \hat{P}M_P\right)$$

The second bracketed expression now indicates the difference in the tariff structures between the two countries, while the third bracketed expression illustrates the implied price-lowering impact of permanent tariff concessions in the country of origin (ie the assistance regime normally applicable to production in the originating country). Where Australia is the CER economy being examined, both bracketed expressions are non-zero (ie New Zealand permanent applied and MFN rates are allowed to differ). However, where New Zealand is the CER economy being examined, the first of the two bracketed expressions, but not the third, is assumed to be non-zero. That is, the MFN rate of Australia, the partner country to New Zealand, is assumed to be equal to the applied rate for all products.

(continued next page)

Box 2 **(continued)**

In addition, the prices for the partner country are adjusted for the cost of trans-Tasman freight. The impact of these costs on the difference in tariff structures (second bracketed expression, above) can be illustrated by adding and subtracting the assistance equivalent of transport costs (TM_P):

$$TEM_{CERM} = \left(\hat{P}M_P - PM_W\right) + \left(PM_D - \hat{P}M_{P,MFN} - TM_P\right) + TM_P + \left(\hat{P}M_{P,MFN} - \hat{P}M_P\right)$$

given,

$$PM_{P,MFN} = \hat{P}M_{P,MFN} - TM_P$$

that is,

$$TEM_{CERM} = \left(\hat{P}M_P - PM_W\right) + \left(PM_D - PM_{P,MFN}\right) + TM_P + \left(\hat{P}M_{P,MFN} - \hat{P}M_P\right)$$

This expanded version of the model shows the potential impact of CER due to differences in the tariff schedules of the CER partners in the second bracketed expression and the impact of trans-Tasman transport costs on the cost of materials imported from the CER partner.

In this framework, the potential impact of CER assistance and concessions on total assistance to materials would also depend on the importance of CER imports as a source of materials (evaluated at unassisted prices) used by CER producers. It should be emphasised, however, that the decomposition analysis illustrates *only* the *potential* impact of CER on assistance to materials. Because the modifications and additional analysis do not alter the underlying assumption that goods are sold at import parity prices plus the effect of any duty in the market where the good is used, the summary aggregates are not affected.

By contrast, the application of this assumption in the calculation of assistance to output suggests that CER concessions afford additional assistance to firms exporting to the CER partner.

Estimating the impact of CER on effective assistance to industry

To the extent that the CER influences assistance afforded to industry output and the cost of inputs, it will also influence the incentives to commit resources to productive activities. The impact of the overall assistance structure on those incentives is summarised by measures of effective assistance to industry. This section draws on the decomposition analysis presented above to outline the potential impacts of CER concessions on effective assistance.

The effective assistance, or the net subsidy equivalent (NSE) of assistance, is derived by deducting assistance to inputs (TEM) from assistance to outputs (the GSE). For each dollar

of value added output, evaluated at unassisted prices, the NSE measures the 'effective rate of assistance' (ERA) defined above.

In summary, the above analysis indicates that the CER influences outputs and inputs in a number of ways depending on:

- the underlying assistance to outputs and inputs in the CER countries where the goods are produced;
- the difference in the assistance structure of the partner countries; and
- modifications to the assistance structure due to permanent changes in the applied tariff arising from tariff concessions in multilateral trade (box 3).

As with assistance to outputs and inputs, the impact of CER concessions on effective assistance levels in Australia and New Zealand depends on the level of tariffs in the respective countries and the relative importance of trans-Tasman trade as a source of demand for output and material inputs. In addition, effective assistance is influenced by differences in tariff levels on outputs and inputs traded across the Tasman.

Box 3 **Estimating the impact of CER on effective assistance to industry**

The impact of CER concessions on effective assistance to manufacturing industry can be defined as:

$$NSE_{CER} = GSE_{CERX} - TEM_{CERM}$$

From boxes 3.1 and 3.2, the *NSE* can be decomposed in the following way:

$$\begin{aligned} NSE_{CER} &= \left(P_D - P_W\right) - \left(\hat{P}M_P - \hat{P}M_W\right) \\ &+ \left(P_P - P_{D,MFN}\right) - \left(PM_D - \hat{P}M_{P,MFN}\right) \\ &+ \left(P_{D,MFN} - P_D\right) - \left(\hat{P}M_{P,MFN} - \hat{P}M_P\right) \end{aligned}$$

The first line represents the underlying assistance to output of final goods and material inputs evaluated in the country where the good is produced. From Australia's point of view, the left hand expression of the first line refers to assistance to goods produced in Australia for export to New Zealand. The right hand expression refers to assistance to materials produced in New Zealand and used by Australian firms (now evaluated according to the assistance structure prevailing in New Zealand). That is,

$$\left(P_A - P_W\right) - \left(\hat{P}M_{NZ} - \hat{P}M_W\right)$$

where the subscripts *A* and *NZ* represent Australia and New Zealand, respectively.

The second line is concerned with the difference between the assistance structures of the partner countries. Noting that this effect compares the applied rates in the economy of production with the scheduled MFN rates in the CER partner, the contribution of differences in the assistance structures from Australia's point of view would be:

$$\left(P_{NZ} - P_{A,MFN}\right) - \left(PM_A - \hat{P}M_{NZ,MFN}\right)$$

The third line represents modifications to the assistance structure due to permanent changes in the applied tariff arising from tariff concessions in multilateral trade in the country where the production of the good takes place. From Australia's point of view:

$$\left(P_{A,MFN} - P_A\right) - \left(\hat{P}M_{NZ,MFN} - \hat{P}M_{NZ}\right)$$

As mentioned, because the MFN rate in Australia is treated as the measure of the applied rate, the left hand term is equal to zero by definition.

Similarly, the impact of CER tariff concessions on effective assistance for New Zealand would be:

$$\begin{aligned} NSE_{NZ} &= \left(P_{NZ} - P_W\right) - \left(\hat{P}M_A - \hat{P}M_W\right) \\ &+ \left(P_A - P_{NZ,MFN}\right) - \left(PM_{NZ} - \hat{P}M_{A,MFN}\right) \\ &+ \left(P_{NZ,MFN} - P_{NZ}\right) - \left(\hat{P}M_{A,MFN} - \hat{P}M_A\right) \end{aligned}$$

4 Results

This section first presents estimates of assistance afforded to Australian and New Zealand manufacturing industry, using standard methods for the years 1989-90 to 2001-02. New estimates of the impact of CER concessions on tariff assistance to manufacturing are then presented for the year 2001-02. A decomposition analysis applying the methods outlined above is then used to examine differences in the tariff structure in Australia and New Zealand and the significance of transport costs in trans-Tasman trade.

Standard estimates of assistance to manufacturing

The standard estimates of effective rate of assistance in Australia and New Zealand are provided in figure 1 for the years 1989-90 to 2001-02. Both series were compiled according to standard methods for assistance measurement in which assistance is measured for individual countries and abstract from the assistance effects of preferential trading agreements.[7] They provide a suitable basis for a comparative analysis of the assistance structures in Australia and New Zealand and for assessing the impact of CER on assistance levels.

The estimates indicate that in general, assistance to Australian manufacturing industry is higher than protection to New Zealand industry. The estimates also indicate that protection to Australian industry declined significantly during the 1990s and is now only just above the New Zealand level at the sectoral level. With tariff reductions in both countries, tariff protection is a declining influence on the allocation of productive resources — in favour of protected activities in Australia and New Zealand at the expense of more internationally competitive activities — compared with the situation at the inception of the CER in 1983.

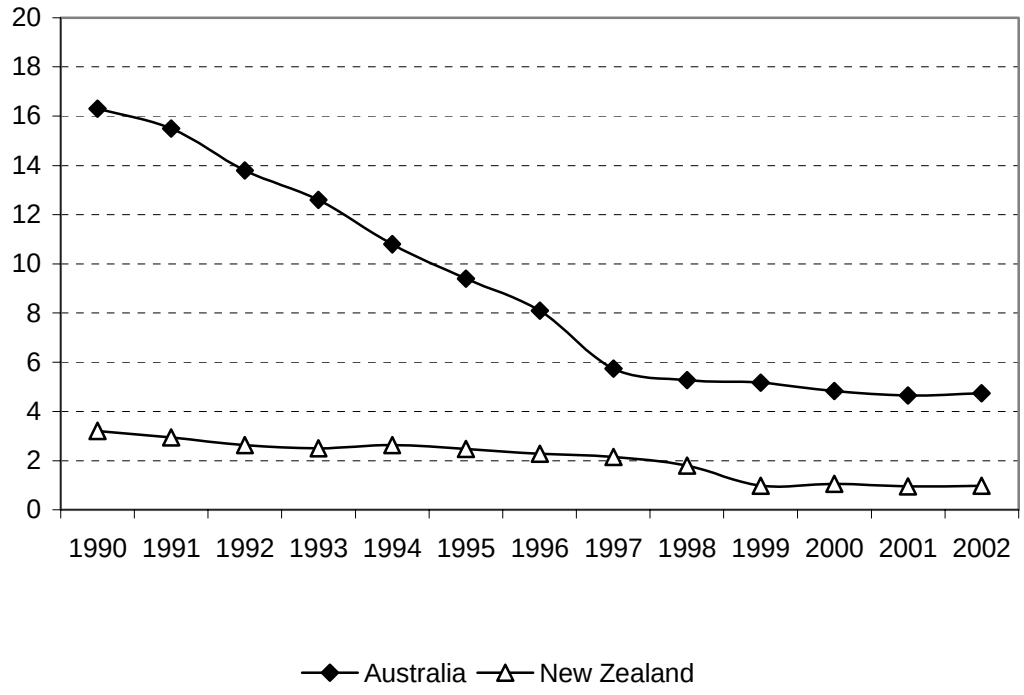
The manufacturing group averages, however, hide significant variation in effective assistance between industries in each CER country.

- For example, in Australia, the TCF and Motor vehicles and parts sectors are the largest recipients of government assistance, as they were ten years ago. The effective rate of assistance to TCF was nearly 86 per cent in 1989-90 and declined to 26 per cent in 2001-02. The effective rate to the Motor vehicles and parts sector declined from 55 per cent in 1989-90 to 11 per cent in 2001-02.
- In New Zealand, the effective rate of tariff assistance was highest for the Motor vehicles and parts and TCF sectors in 1989-90. The effective assistance for Motor vehicles and parts sectors had declined by 1998 and this sector currently receives little tariff assistance. However, the TCF sector is the main recipient of tariff assistance and the effective rate for this sector was estimated at around 7 per cent in 2001-02.

[7] The estimates for Australia are drawn from the Productivity Commission's annual *Trade and Assistance Review* (see PC 2003). New estimates of tariff assistance to New Zealand producers, also for the years 1989-90 to 2001-02 were calculated as part of this study.

Figure 1 **Trends in average effective rates of assistance to manufacturing, 1989-90 to 2001-02**

Per cent[a]



a Estimates of the average effective rate of assistance for Australian manufacturing industry were based on the *Trade & Assistance Review*.

Source: Productivity Commission (2004b).

Impact of CER on tariff assistance to industry

Impact on assistance to output

Over the period since 1989-90 and reflecting generally higher tariffs on outputs in Australia compared to the New Zealand average, output assistance provided by the Australian tariff to New Zealand exporters was higher than output assistance provided by the New Zealand tariff to Australian exporters. By 2001-02, the *average* level of output assistance to Australian industry was raised by 0.04 percentage points above that available from sales to the Australian market (table 1). Average output assistance to New Zealand exporters was raised by 0.4 percentage points above that available in the New Zealand market. The greatest advantage was afforded to clothing and footwear producers in New Zealand, with additional assistance of around 2 percentage points.

The decomposition analysis (see table 2 at end of text) further indicates that:

- when the New Zealand scheduled tariff structure is compared with the Australian tariff structure on a MFN basis, it is evident that there is a significant incidence where the New Zealand scheduled MFN rate was higher than the comparable rate for Australia. This is

particularly evident for the Other vehicles, and Other machinery and equipment sectors; and

- the base implied by New Zealand's scheduled MFN rates is higher than would be otherwise evident from inspection of applied rates (ie those struck once permanent tariff concessions are taken into account). The impact of permanent concessions is estimated to be highest for the Other machinery and equipment and TCF sectors.

Table 1 **Impact of CER on tariff assistance received by Australian and New Zealand firms by manufacturing industry group, 2001-02**

Percentage points

	Australia		*New Zealand*	
ANZSIC industry	*NRO*	*ERA*	*NRO*	*ERA*
Food, beverages and tobacco	0.04	0.09	0.36	0.86
Textiles, clothing, footwear and leather	0.23	0.53	1.57	2.24
Wood and paper products	0.07	0.12	0.37	0.68
Printing, publishing and recorded media	0.01	0.02	0.10	0.15
Petroleum, coal, chemical and associated products	0.03	0.08	0.46	0.60
Non-metallic mineral products	0.02	0.03	0.06	0.08
Metal products	0.01	0.03	0.29	0.45
Motor vehicles and parts	0.01	0.01	0.18	0.23
Other vehicles	0.01	0.02	0.12	0.15
Other machinery and equipment	0.03	0.05	0.60	0.83
Other manufacturing	0.04	0.07	0.58	0.90
Total manufacturing	**0.04**	**0.08**	**0.43**	**0.73**

NRO: Nominal rate of assistance on output; ERA. The effective rate of assistance was benchmarked to the unassisted value of output, ie after the deduction of assistance to the domestic market *and* assistance afforded by the CER. These estimates differ fractionally from the 'time series' estimates of the impact of the CER presented in PC 2004b. Because of data limitations, the time series estimates were benchmarked to the unassisted value of output calculated after the deduction of assistance afforded by the CER, only.

Source: For additional details, see tables 4 and 5; Productivity Commission (2004b).

Impact on effective rates of assistance

Estimates of the impact of CER concessions on effective assistance — that is, effective assistance above (below) that provided by tariffs in the local market (see table 1 above) indicate that:

- overall, average effective assistance provided by the Australian tariff to New Zealand activities is higher than effective assistance provided by the New Zealand tariff to Australian activities. This reflects generally higher output tariffs in Australia; and
- by 2001-02, the *average* level of effective assistance to Australian manufacturing activities was raised by 0.08 percentage point above that available from sales to the Australia market. Average effective assistance to New Zealand manufacturing activities was raised by 0.7 percentage point above that available in the New Zealand market. The

greatest advantage was afforded to TCF activities in New Zealand, with additional effective assistance of over 2 percentage points.

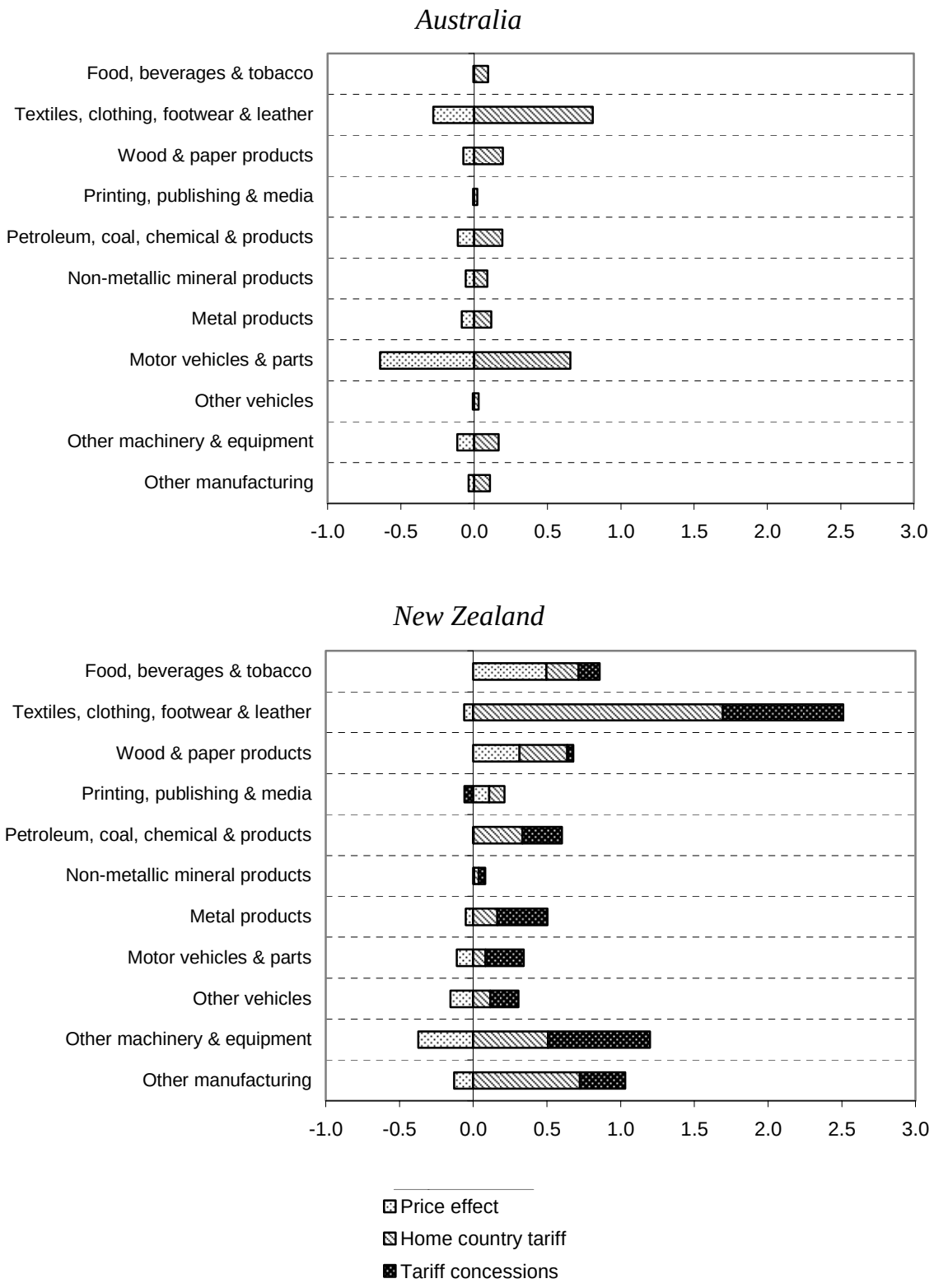
A decomposition of the impact of CER on assistance to value added factors for 2001-02 is provided in figure 2 (see also tables 4 and 5). In assistance calculations, because inputs are valued on the basis of the border price of the importer (as opposed to the border price of the exporter relevant to the evaluation of output assistance), the analysis takes into account the additional benefit CER exporters obtain from the output side only and not the penalties domestic input users face on the input side. The decomposition analysis indicates that:

- had Australian companies received the same assistance to their activities from New Zealand tariffs as they derived from Australian tariffs (ie the positive 'home country' effect), effective assistance conferred by CER concessions would be higher than otherwise for all sectors. The largest beneficiaries would be the TCF and Motor vehicles and parts sectors for which effective assistance would be raised by around 0.8 and 0.7 percentage points, respectively (see home country effect column in table 4);
- because rates of assistance tend to be lower in New Zealand than Australia, Australian firms did not receive the full amount of protection available in their home market. The difference between effective assistance available in New Zealand and Australia is indicated by a 'price effect' which is negative for Australian firms for each sector. The largest difference in effective tariff assistance between Australia and New Zealand is in the Motor vehicles and parts sector; and
- because tariff differences do not completely outweigh the benefits of the Australian tariff otherwise available, the CER has raised the effective tariff assistance to Australian industry. The largest increase was for the TCF sector for which the effective assistance was raised 0.5 percentage points from 19.2 per cent to 19.7 per cent.

For New Zealand, the analysis indicates that, overall, the CER arrangements afforded a net increase in assistance to activities of New Zealand firms from exports to Australia. The significance of the Australian market to New Zealand firms tends to be larger than the significance of the New Zealand market to Australian firms and tariffs on outputs are higher in Australia than New Zealand. For these reasons, the net increase in effective assistance is typically higher for New Zealand firms exporting to Australia than for Australian firms exporting to New Zealand. For the TCF sector, CER arrangements increased the effective assistance to New Zealand firms by 2.4 percentage points (net CER effect column in table 5) compared with 0.5 percentage points (table 4) for Australian firms.

Figure 2 **Decomposition analysis of the effect of CER on the effective rate of assistance, 2001-02**[a]

Percentage points



a As noted in the text, because of the assumption that goods are sold at import parity prices plus any duty, trade preferences are only modelled as affecting effective rates through changes in output assistance.

Source: For data, see tables 4 and 5; Productivity Commission (2004b).

Potential impacts of CER on input assistance

Because standard assistance analyses assume that the producers and importers take full advantage of the protective effects of tariffs, and price up to the value of *non-concession* imports plus duty, that analysis does not consider the possible impact of CER tariff concessions on input prices. However, as noted, the tariff concessions under CER provide producers on either side of the Tasman with incentives to shop around for lower-priced materials produced by firms in the CER partner, including materials receiving less tariff protection than those produced at home.

This section uses the decomposition analysis outlined above to show some of the implications of relaxing that convention. The analysis takes account of the importance of the CER partner as a supplier of materials to local producers and the difference in the tariff structures of Australia and New Zealand. In addition, as inputs are valued on the basis of the border price of the importer in assistance measurement, the analysis also takes into account the cost of trans-Tasman transport of merchandise.

The key finding from the analysis is that the potential impact of the CER on the input costs of Australian firms is modest, as indicated by the 'partner country tariff effect' for Australia in table 6. In the main, this reflects the relatively small share of material inputs used by Australian firms imported from New Zealand. It also reflects low levels of tariff protection to New Zealand producers of materials imported to Australia for use by Australian industry. On the other hand, the potential impact of the CER on the input costs of New Zealand is larger because Australia is a more important source of material supplies to New Zealand industry than New Zealand is for Australia industry.

The analysis for Australia also indicates that:

- the key additional cost arising from trans-Tasman trade is contributed by cross-border insurance and freight costs. This is evidenced by the close correlation between the 'partner country tariff' effect (which is inclusive of freight costs, col. C table 6) and the separately identified 'transport costs' item (col. E table 6). Indeed, most of the imports of material inputs from New Zealand pertain to items which have a zero tariff in New Zealand;
- where there is a material difference between Australian and New Zealand tariffs, Australian firms tend to import items that are subject to higher scheduled tariffs in New Zealand than Australia (indicated by the negative 'tariff difference' effect, col. D table 6). This is most evident in the Wood and wood products, Printing, publishing and media, and Other manufacturing sectors. This suggests that, for these activities, New Zealand firms have a competitive or comparative advantage over other suppliers that outweighs the negative impact of relatively high tariff protection in the home market; and
- for most items of materials imported from New Zealand to Australia, the MFN and the applied tariffs are the same, as indicated by an (almost) unidentifiable 'tariff concession' effect (col. F table 6). This is another reflection of the fact that for most material items, trade is characterised by MFN tariff rates of zero.

For New Zealand, the analysis indicates that, overall, the CER arrangements can have a significant impact on material costs of New Zealand firms in most sectors, reflecting the fact that imports from Australia are currently a significant source of supply for New Zealand industry — available data suggest that the impact is largest for the Motor vehicle and parts sector. Again, the decomposition analysis (see table 7) indicates that:

- transport costs account for the major part of the additional costs in the trans-Tasman trade; and
- where tariff differences occur, the Australian rate of tariff protection tends to be higher than the New Zealand rate; this is especially evident for TCF products and Motor vehicles and parts, potentially adding to the costs of New Zealand firms.

Overall, the comparison of tariff differences across the Tasman indicates that New Zealand firms selling into Australia, and Australian firms selling into New Zealand, must have a cost or competitive advantage that outweighs the effect of tariff differences and trans-Tasman transport costs. In addition, the balance between tariff protection and transport costs in determining the competitiveness of Australian and New Zealand firms is likely to have changed over time. The importance of tariff differences was likely to have been greater when Australian and New Zealand tariffs were higher and more disparate than now. In that environment, trans-Tasman transport costs are likely to have been of less importance. Tariff reductions in both countries has increased the relative importance of transport costs in the trans-Tasman trade.

5 Summing up

The analysis presented in this paper indicates that assistance afforded to CER exporters raised manufacturing industry assistance slightly in both countries. Estimates of additional assistance afforded by tariff concessions indicate that overall average output assistance provided by the Australian tariff to New Zealand exporters is higher than that provided by the New Zealand tariff to Australian exporters. This reflects generally higher MFN tariffs in Australia. It also reflects the greater importance of the Australian market to New Zealand producers than the New Zealand market is to Australian producers. Average assistance to output of Australian and New Zealand manufacturers was estimated to have been raised by 0.04 and 0.4 percentage points, respectively, in 2001-02.

The potential impact of CER concessions on the cost of inputs of materials appears to be minimal. With tariffs at their current low levels, trans-Tasman transport costs and other factors appear to be more important than tariff protection in influencing the competitiveness of Australian and New Zealand firms supplying materials for further processing in the CER partner.

The CER agreement is likely to have slightly increased effective assistance to manufacturing on both sides of the Tasman. The largest increase was for the TCF sector, where CER arrangements were estimated to have increased effective assistance to New

Zealand firms by 2.4 percentage points compared with 0.5 percentage points for Australian TCF firms.

The effective assistance framework provides a useful tool for assessing the importance of trade preferences and the incentives they afford producers to divert productive resources to preferential trade. The decomposition analysis developed in this paper also highlights the significance of tariff differences between countries and how those differences effect incentives faced by producers. The framework as applied to the CER Trade Agreement also could be applied to estimate the assistance implications of other PTAs. Moreover, to provide a measure of the welfare implications of trade preferences, not attempted in this paper, the framework could be extended to calculate the transfers of income conferred by such preferences to firms exporting within a PTA.

Table 2 **Decomposition of the nominal rate of output tariff assistance — Australia, 2001-02**

Percentage points

ANZSIC industry	*Total output tariff assistance*	*Decomposition of CER output tariff preference effect*				
	Domestic effect[a]	*Home country effect* $P_D - P_W$	*Price or different tariff structures effect* $P_p - P_{D,MFN}$	*Tariff concessions effect* $P_{D,MFN} - P_D$	*Total CER output effect* $P_p - P_W$	*Total effect benchmarked to MFN rates*
	[A]	[B]	[C]	[D]	[B]+[C]+[D]	[A]+[B]+[C]+[D]
Food, beverages and tobacco	2.163	0.046	-0.003	0.000	0.043	2.206
Textiles, clothing, footwear and leather	10.423	0.349	-0.121	0.000	0.229	10.652
Wood and paper products	3.585	0.110	-0.042	0.000	0.068	3.653
Printing, publishing and recorded media	1.398	0.014	-0.004	0.000	0.011	1.408
Petroleum, coal, chemical and associated products	2.051	0.081	-0.047	0.000	0.033	2.085
Non-metallic mineral products	1.752	0.052	-0.034	0.000	0.018	1.770
Metal products	2.460	0.052	-0.038	0.000	0.014	2.473
Motor vehicles and parts	6.094	0.275	-0.269	0.000	0.006	6.099
Other vehicles	0.868	0.015	-0.005	0.000	0.011	0.878
Other machinery and equipment	2.097	0.084	-0.058	0.000	0.026	2.123
Other manufacturing	3.465	0.059	-0.021	0.000	0.038	3.503
Total manufacturing	**2.729**	**0.087**	**-0.050**	**0.000**	**0.038**	**2.767**

[a] Tariff assistance forms part of total output assistance to industry.

Source: Productivity Commission (2004b).

Table 3 **Decomposition of the nominal rate of output tariff assistance — New Zealand, 2001-02[a]**

Percentage points

ANZSIC industry	*Total output tariff assistance*	*Decomposition of CER output tariff preference effect*				
	Domestic effect	*Home country effect* $P_D - P_W$	*Price or different tariff structures effect* $P_p - P_{D,MFN}$	*Tariff concessions effect* $P_{D,MFN} - P_D$	*Total CER output effect* $P_p - P_W$	*Total effect benchmarked to imputed MFN rates*
	[A]	[B]	[C]	[D]	[B]+[C]+[D]	[A]+[B]+[C]+[D]
Food, beverages and tobacco	0.581	0.093	0.210	0.060	0.363	0.944
Textiles, clothing, footwear and leather	5.071	1.088	-0.040	0.526	1.574	6.644
Wood and paper products	0.923	0.178	0.171	0.023	0.371	1.294
Printing, publishing and recorded media	0.641	0.070	0.075	-0.042	0.103	0.744
Petroleum, coal, chemical and associated products	0.742	0.250	0.002	0.203	0.455	1.197
Non-metallic mineral products	1.788	0.020	0.005	0.030	0.055	1.843
Metal products	0.811	0.105	-0.033	0.218	0.290	1.100
Motor vehicles and parts	0.120	0.066	-0.088	0.205	0.182	0.302
Other vehicles	0.621	0.096	-0.128	0.156	0.124	0.744
Other machinery and equipment	0.451	0.368	-0.272	0.503	0.599	1.050
Other manufacturing	2.428	0.465	-0.083	0.196	0.578	3.005
Total manufacturing	**0.980**	**0.209**	**0.063**	**0.155**	**0.427**	**1.407**

a In the absence of a time series of scheduled rates for New Zealand, rates for the year 2003 were used to proxy those prevailing in 2001-02, on the basis that few changes were made in scheduled rates over the period.

Source: Productivity Commission (2004b).

Table 4 **Decomposition of the effective rate of tariff assistance — Australia, 2001-02[a]**

Percentage points

ANZSIC industry	*Traditional measure of effective tariff assistance*		*Decomposition of CER effective rate of tariff assistance*								
	Total[b]	*Excluding assistance to CER sourced inputs*	*Home country effect* $P_D - P_W$	*Partner country effect* $\hat{P}M_P - PM_W$	*Price effect on output side* $P_p - P_{D,MFN}$	*Price effect on input side* $PM_D - \hat{P}M_{P,MFN}$	*Tariff concession effect on output side* $P_{D,MFN} - P_D$	*Tariff concession effect on input side* $\hat{P}M_{P,MFN} - \hat{P}M_P$	*CER total effect[c]*	*CER net effect*	*Total effect*
	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]=[C-D]+ [E-F]+ [G-H]	[J]=[C]+[E] + [G]	[A]+[J]
Food, beverages and tobacco	3.341	2.893	0.096	0.556	-0.006	-0.174	0.000	0.066	-0.358	0.090	3.431
Textiles, clothing, footwear and leather	19.172	18.923	0.809	0.462	-0.279	-0.292	0.000	0.079	0.281	0.529	19.70
Wood and paper products	4.357	3.980	0.196	1.347	-0.075	-1.088	0.000	0.119	-0.257	0.121	4.478
Printing, publishing and recorded media	1.291	1.196	0.022	0.495	-0.006	-0.367	0.000	-0.032	-0.080	0.016	1.308
Petroleum, coal, chemical and associated products	3.379	3.302	0.193	0.294	-0.113	-0.253	0.000	0.036	0.003	0.080	3.459
Non-metallic mineral products	2.194	2.152	0.089	0.170	-0.058	-0.148	0.000	0.020	-0.011	0.032	2.226
Metal products	3.410	3.223	0.117	0.360	-0.086	-0.310	0.000	0.137	-0.156	0.031	3.441
Motor vehicles and parts	10.346	10.251	0.656	0.211	-0.643	-0.191	0.000	0.075	-0.082	0.013	10.36
Other vehicles	-1.542	-1.704	0.032	0.316	-0.010	-0.255	0.000	0.101	-0.140	0.022	-1.521
Other machinery and equipment	1.602	1.463	0.167	0.281	-0.116	-0.253	0.000	0.111	-0.088	0.052	1.654
Other manufacturing	3.472	3.104	0.107	0.989	-0.038	-0.812	0.000	0.191	-0.299	0.069	3.540
Total manufacturing	**3.711**	**3.490**	**0.182**	**0.466**	**-0.103**	**-0.320**	**0.000**	**0.076**	**-0.142**	**0.079**	**3.789**

a In the absence of a time series of scheduled rates for New Zealand, rates for the year 2003 were used to proxy those prevailing in 2001-02, on the basis that few changes were made in scheduled rates over the period. **b**. Tariff assistance forms part of total effective assistance to industry. **c** The values may not exactly add to total, due to rounding. The identity in decomposition analysis is maintained through [A]-[B]=[J]-[I].

Source: Productivity Commission (2004b).

Table 5 **Decomposition of the effective rate of tariff assistance — New Zealand, 2001-02[a]**

Percentage points

ANZSIC industry	*Traditional measure of effective tariff assistance*		*Decomposition of CER effective rate of tariff assistance*								
	Total	*Excluding assistance to CER sourced inputs*	*Home country effect* $P_D - P_W$	*Partner country effect* $\hat{P}M_P - PM_W$	*Price effect on output side* $P_p - P_{D,MFN}$	*Price effect on input side* $PM_D - \hat{P}M_{P,MFN}$	*Tariff concession effect on output side* $P_{D,MFN} - P_D$	*Tariff concession effect on input side* $\hat{P}M_{P,MFN} - \hat{P}M_P$	*CER total effect*[b]	*CER net effect*	*Total effect*
	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]=[C-D]+ [E-F]+ [G-H]	[J]=[C]+ [E]+ [G]	[A]+[J]
Food, beverages and tobacco	0.799	0.509	0.219	5.066	0.496	-4.776	0.142	0.000	0.567	0.857	1.656
Textiles, clothing, footwear and leather	7.191	7.050	1.692	1.228	-0.062	-1.088	0.818	0.000	2.308	2.448	9.639
Wood and paper products	1.038	0.691	0.324	3.319	0.312	-2.973	0.041	0.000	0.332	0.678	1.716
Printing, publishing and recorded media	0.202	-0.251	0.103	1.894	0.109	-1.441	-0.061	0.000	-0.303	0.150	0.352
Petroleum, coal, chemical and associated products	0.681	0.563	0.330	1.289	0.003	-1.171	0.268	0.000	0.482	0.601	1.281
Non-metallic mineral products	2.131	2.020	0.030	3.399	0.008	-3.288	0.044	0.000	-0.029	0.082	2.213
Metal products	0.778	0.536	0.164	2.417	-0.051	-2.175	0.340	0.000	0.211	0.453	1.231
Motor vehicles and parts	-0.533	-0.766	0.083	1.841	-0.112	-1.609	0.259	0.000	-0.002	0.230	-0.303
Other vehicles	0.280	0.083	0.116	1.051	-0.156	-0.854	0.190	0.000	-0.047	0.150	0.431
Other machinery and equipment	0.151	-0.051	0.506	1.382	-0.374	-1.180	0.693	0.000	0.623	0.825	0.977
Other manufacturing	2.858	2.532	0.724	2.048	-0.129	-1.722	0.305	0.000	0.574	0.900	3.758
Total manufacturing	**1.121**	**0.874**	**0.356**	**2.735**	**0.107**	**-2.488**	**0.263**	**0.000**	**0.479**	**0.726**	**1.847**

a In the absence of a time series of scheduled rates for New Zealand, rates for the year 2003 were used to proxy those prevailing in 2001-02, on the basis that few changes were made in scheduled rates over the period. **b** The values may not exactly add to total, due to rounding. The identity in decomposition analysis is maintained through [A]-[B]=[J]-[I].

Source: Productivity Commission (2004b).

Table 6 **Decomposition of the nominal rate of input tariff assistance — Australia, 2001-02[a]**

Percentage points

	Total Australian input tariff assistance		*Decomposition of CER input tariff effect[b]*					
ANZSIC industry	*Domestic effect[c]*	*Attributable to non-CER*	*Partner country effect* $\hat{P}M_P - PM_W$	*Price or different tariff structures effect* $PM_D - PM_{P,MFN}$	*Transport cost effect* TM_P	*Tariff concessions effect* $\hat{P}M_{P,MFN} - \hat{P}M_P$	*Total CER input effect* $PM_D - PM_W$	*Total effect*
	[A]	[B]	[C]	[D]	[E]	[F]	[G]=[C]+[D]+[E]+[F]	[B]+[G]
Food, beverages and tobacco	1.073	0.667	0.504	-0.580	0.422	0.060	0.406	1.073
Textiles, clothing, footwear and leather	3.848	3.659	0.351	-0.414	0.192	0.060	0.189	3.848
Wood and paper products	2.547	2.064	1.722	-2.983	1.591	0.152	0.483	2.547
Printing, publishing and recorded media	1.600	1.420	0.929	-1.475	0.786	-0.060	0.180	1.600
Petroleum, coal, chemical and associated products	1.099	1.043	0.212	-0.364	0.182	0.026	0.056	1.099
Non-metallic mineral products	1.044	0.986	0.235	-0.404	0.200	0.028	0.059	1.044
Metal products	1.685	1.537	0.285	-0.466	0.220	0.109	0.148	1.685
Motor vehicles and parts	3.114	3.045	0.152	-0.252	0.114	0.054	0.069	3.114
Other vehicles	3.010	2.858	0.297	-0.464	0.224	0.095	0.152	3.010
Other machinery and equipment	2.592	2.452	0.281	-0.463	0.210	0.111	0.139	2.592
Other manufacturing	3.456	3.001	1.224	-2.078	1.073	0.236	0.455	3.456
Total manufacturing	**1.796**	**1.591**	**0.431**	**-0.654**	**0.358**	**0.070**	**0.205**	**1.796**

a In the absence of a time series of scheduled rates for New Zealand, rates for the year 2003 were used to proxy those prevailing in 2001-02, on the basis that few changes were made in scheduled rates over the period. **b** The price effects of CER are benchmarked to import values at the border of the importing country (ie cif values). A analysis of fob and cif values for 2001-02 suggested very high trans-Tasman transport costs that were out of line with cost data for earlier years and information about transport costs received during the study. The values also could not be confirmed by the ABS. Accordingly, cif values used in this analysis were revised on the basis of fob values of trade for the year 2001-02 and transport cost data benchmarked to 2000-01. **c**. Tariff assistance forms part of total input assistance to industry.

Source: Productivity Commission (2004b).

Table 7 **Decomposition of the nominal rate of input tariff assistance — New Zealand, 2001-02**

Percentage points

ANZSIC industry	*Total New Zealand input tariff assistance*		*Decomposition of CER input tariff effect*[a]					
	Domestic effect	*Attributable to non-CER*	*Partner country effect* $\hat{P}M_P - PM_W$	*Price or different tariff structures effect* $PM_D - PM_{P,MFN}$	*Transport cost effect* TM_P	*Tariff concessions effect* $\hat{P}M_{P,MFN} - \hat{P}M_P$	*Total CER input effect* $PM_D - PM_W$	*Total effect*
	[A]	[B]	[C]	[D]	[E]	[F]	[G]=[C]+[D]+[E]+[F]	[B]+[G]
Food, beverages and tobacco	0.421	0.215	2.090	-3.548	1.664	0.000	0.206	0.421
Textiles, clothing, footwear and leather	1.258	0.998	4.264	-7.393	3.389	0.000	0.260	1.258
Wood and paper products	0.784	0.375	3.042	-4.532	1.899	0.000	0.408	0.784
Printing, publishing and recorded media	1.602	0.637	3.993	-5.336	2.307	0.000	0.965	1.602
Petroleum, coal, chemical and associated products	0.934	0.577	4.272	-6.818	2.903	0.000	0.357	0.934
Non-metallic mineral products	1.102	0.870	2.743	-4.562	2.050	0.000	0.232	1.102
Metal products	0.869	0.446	4.027	-6.387	2.783	0.000	0.423	0.869
Motor vehicles and parts	2.615	1.693	7.649	-10.978	4.250	0.000	0.922	2.615
Other vehicles	2.215	1.371	5.194	-7.458	3.107	0.000	0.843	2.215
Other machinery and equipment	1.245	0.705	3.848	-5.650	2.342	0.000	0.540	1.245
Other manufacturing	1.656	1.033	3.590	-5.026	2.059	0.000	0.623	1.656
Total manufacturing	**0.779**	**0.433**	**2.988**	**-4.741**	**2.099**	**0.000**	**0.346**	**0.779**

[a] See footnote b table 6.

Source: Productivity Commission (2004b).

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