REPORT

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Benefits of trade and trade liberalisation

Prepared for

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Canberra

Centre for International Economics
Ground Floor, 11 Lancaster Place
Majura Park ACT 2609

GPO Box 2203
Canberra ACT Australia 2601

Telephone +61 2 6229 0900
Facsimile +61 2 6229 0988
Email cie@TheCIE.com.au
Website www.TheCIE.com.au

Sydney

Centre for International Economics
Suite 2, Level 16, 1 York Street
Sydney NSW 2000

GPO Box 397
Sydney NSW Australia 2001

Telephone +61 2 9250 0800
Facsimile +61 2 9250 0888
Email ciesyd@TheCIE.com.au
Website www.TheCIE.com.au

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Introduction

Australia exists in a continually changing world economy. The last decade has seen the rapid development of Asian countries, a massive expansion of capacity and demand occurring in China and India, a commodity price boom, expansion of world trade and the development of global production chains. Of late, the sub-prime inspired global financial crisis (GFC) has seen a substantial fall in global economic growth and rising unemployment, a large decline in world trade, and the ending of the commodity price boom. Such changes — both good and bad — create challenges for our domestic industry.

An enormous transformation is occurring in the world economy and will continue over the next 20 years. Nowhere will the developments be more dramatic than in the Asia Pacific region.

Australia has much to gain from developments over the next 20 years. With abundant reserves of mineral commodities, a highly skilled labour force and flexible economy, the structure of our economy is complementary to, rather than rival to, that of the emerging economies in our region. The economic reforms that occurred during the 1980s and 1990s have positioned Australia to take advantage of the opportunities that these developments will generate. The floating of the dollar; the deregulation of the financial markets; the reform of public enterprise; the decentralisation of the industrial relations system; the introduction of competition policy; and the reduction in trade barriers and industry protection have produced a much more flexible and resilient economy — one that is better placed than almost any other OECD country to weather the current global financial crisis.

Trade liberalisation, the lowering of tariffs and the removal of quotas, and the removal of restrictions on capital flows with the floating of the dollar, was an integral component of the broader series of economic reforms that occurred during the 1980s and 1990s. Taken together the reforms have left the average Australian family much better off with higher wages, higher levels of wealth, less exposure to unemployment and a greater range of opportunities for their children. This paper looks at the contribution of trade liberalisation — in the form of tariff reform — to those higher standards of living.

Estimates of the impact of trade liberalisation that occurred through the 1980s and 1990s on the economy and on living standards are presented in chapter 1. Estimates of the number of people who are employed in trade related activities are presented in chapter 2. Consideration is given to what the unfolding global financial crisis means

for international trade in chapter 3, as well as an investigate the impacts of increasing protection as a means of preserving local jobs. Conclusions are drawn in chapter 4.

1 Economic effects of trade liberalisation

The movement towards deregulation and trade liberalisation began in the mid seventies. It accompanied large changes in the world economy, following on the breakdown of the Bretton Woods system of fixed exchange rates and the turmoil associated with the first oil price shock. These events, which were outside of Australia's control, led to an increased consciousness that Australia faced an uncertain external environment. Australia needed to be competitive and responsive to maintain its place in the world. This continues to be the case today.

The first significant post-war move in the direction of trade liberalisation was the 25 per cent tariff cut of 1973. It took place in a year of booming commodity prices. Part of the reason for the cut was to reduce the pressure for an upward revaluation of the dollar. The main subsequent reductions in tariffs and industry protection occurred between the mid 1980s and the late 1990s (see box 1.1), with the development of industry plans for various parts of manufacturing and the gradual phase down of border protection. Between 1981-82 and 2001-02 the average rate of protection for manufacturing fell from 25 per cent to less than 5 per cent and has remained at around that level since.

1.1 History of tariff reduction in Australia

Australia's tariff reductions over the 1970s, 80s and 90s has been one of the major unilateral liberalisations in the world. The starting point, as Garnaut puts it is that 'for two decades until the mid-1980s, Australia and New Zealand had the most protected manufacturing sectors among the members of the OECD.[1]

But, in the space of a generation, Australia's tariff walls were dismantled with the average level of industry protection, as measured by the effective rate of assistance, falling from over 30 per cent to under 5 per cent between 1970 and 2001.[2] Effective rates of assistance have remained at a little under 5 per cent since.

(Continued on next page)

1 Garnaut, R. 2002, 'Australia: A Case Study of Unilateral Trade Liberalization', in Bhagwati, J. (ed), *Going Alone: The Case for Relaxed Reciprocity in Freeing Trade*, Massachusetts Institute of Technology.

2 Leigh, A. 2002, 'Trade Liberalisation and the Australian Labor Party', *Australian Journal of Politics and History*, vol. 48, no. 4.

1.1 **History of tariff reduction in Australia** (continued)

A major tariff cut was announced by the Hawke government in 1988. Before that, protection of industry was removed by the Hawke government starting in 1983. Quantitative import restrictions on steel, household consumer durables and some heavy machinery were removed.[3] The major tariff liberalisation was made in May 1988. As summarised by Garnaut,

> In May 1988, the government announced that all tariffs above 15 per cent would be reduced in annual steps to 15 per cent in 1992. Tariffs between 10 and 15 per cent would be reduced to 10 per cent. Exceptions were made for textiles, clothing, footwear, and cars. By this time, quantitative import restrictions had been removed on all items other than textiles, clothing, footwear, and cars. For textiles, clothing, and footwear, quantitative restrictions would continue to be eased slightly under the 1987 program. For cars, quantitative import restrictions were abolished with immediate effect, and tariffs reduced by 2.5 percentage points per annum, from 45 per cent in 1988 to 35 per cent in 1992.[4]

Later, in 1991, another comprehensive reduction in protection was announced. Again, Garnaut summarises:

> The tariff for cars was to continue to fall by 2.5 percentage points per annum, to 15 per cent in the year 2000. For the first time, radical reduction in textiles, clothing, and footwear protection was included in the liberalization program. Quantitative import restrictions were abolished, and a schedule of tariff reductions was announced to maximum rates of 15 per cent (for most textile and footwear) and 25 per cent (for clothing) by 2000. For all other manufactured goods, the maximum tariff rate was to be reduced to 5 per cent in 1996.[5]

Major tariff reform ended in 1991 but further reductions to Australia's more highly protected car and textile industries were announced in 1997 by the Howard government. The intention was to achieve tariffs of 10 per cent for cars, textiles and footwear and 15 per cent for clothing by 2005. Car tariffs are expected to be 5 per cent by 2010 and an average (across 1000 tariff lines) of 5.23 per cent for textiles, clothing and footwear.

Conceptual linkages and dynamic effects

Trade restrictions, tariffs and quotas, impact on economic welfare via a number of channels.

- *Micro distortions to relative prices and hence the pattern of consumption and production* — tariffs affect household welfare directly by distorting prices and leading to less consumption of some goods and more of others than would otherwise be desired. Similarly, they lead business to produce more of some goods and less of others than it would otherwise be profitable to do. Unless there is a positive externality

3 Garnaut, loc. cit.

4 ibid., page 144.

5 Ibid., pp. 144–5.

(a non market benefit) involved with the production of a good that is protected, then the tariff will automatically produce a welfare loss (in technical terms a loss of consumer and producer surplus). Perhaps the most infamous examples of trade restrictions that induced large allocative losses were the English Corn Laws of the early 19th century. These restricted the importation of wheat,[6] bolstering the profits of wealthy land owners and artificially raising the price of bread for the poor leading to riots and near revolution in 1844. Australian tariffs and import restrictions have similar if less dramatic effects. They bolster the profits of some firms relative to others and raise the cost of consumption to households. These costs are greater when the application of tariffs and import restrictions is uneven across sectors. A uniform tariff across all imports for example would create fewer distortions than one that applied selectively to some items and not others.

- *Macroeconomic impacts on activity and productivity* — these are more ambiguous and depend on the structure of the economy and such things as the responsiveness of the demand for Australian exports to changes in price. The imposition of tariffs and other import restrictions lead initially to a fall in imports and an improvement in the trade balance. For given savings and investment behaviour this leads to a rise in demand for Australian dollars relative to their supply, and hence an appreciation of the exchange rate. The higher exchange rate reduces the demand for Australian exports and restores some of the imports. Depending on the relative responsiveness of exports and imports, this can either lead to higher or lower income and output. In the earlier part of the 20th century many Australian economists believed that demand for Australian exports was relatively unresponsive to prices and hence that protection would increase income and output. However the bulk of Australian exports are now sold in commodity markets where Australia is a price taker. The expansion of world trade has also led to the commodification of many manufactures. This means that Australian exports are now very sensitive to price. Tariff protection therefore had the effect of holding our highly productive export industries back while having a smaller effect on the less productive sectors that were being sheltered.
- *Deadweight administrative losses* — like any form of government policy or tax, the implementation of the policy results in deadweight administrative losses. These are partly dependent on the complexity of the system. A uniform rate that applied to all goods might be relatively simple and efficient to enforce. However, the schedule setting out rates of duty to be applied to imports in the 1987 Amendment to the *Customs Tariff Act 1982* runs to more than 500 pages. Every individual category of imports from umbrella handles to bicycle tyres had its own rate and often multiple rates where there are exemptions for individual countries. Different rates depend on fine definitions — the rate applied on particle board for example depends on its density. It would be hard to imagine a more complex

6 Corn being the generic 19th century term for grains. The laws were abolished in 1846.

system. The administrative cost of collecting the duty is borne by both the custom service and businesses that have to comply (compliance costs).

- *Dynamic losses* — these are much harder to pin down. There are two types of dynamic effects. The first revolves around the incentives for firms to compete, to innovate and to search for new opportunities and markets. The second relates to the impact of reduced competition on wage bargaining behaviour and hence on the tendency for the economy to generate wage price spirals which result in higher unemployment.
  - *Dynamic productivity effects* – firms in protected industries are less likely to innovate or seek new markets. Evidence across OECD countries suggests that firms in protected sectors have lower rates of innovation and productivity growth than firms in areas that face the full force of international competition.[7]
  - *Dynamic unemployment effects* — the same cross country evidence also suggests that countries which are more open to competition generate less unemployment. This occurs because in more competitive markets, employers are less able to pass on higher wage costs by setting higher prices. This makes them more resistant to wage increases in excess of productivity improvements. Lower prices in turn lead to lower wage claims. This in turn means damaging wage price spirals of the sort that occurred in Australia in 1974 and 1981 are less likely to occur.

The importance of trade liberalisation in driving dynamic productivity gains, and in turn economic growth, should not be under appreciated. Research into dynamic productivity is increasing, with recent research (by the IMF) suggesting that reform of product markets, including trade liberalisation, is one factor that helps to explain Australia's strong productivity performance since the early 1990s.[8]

It is generally accepted that countries can achieve allocative efficiency gains through trade liberalisation. Allocative gains — arising through the (re)allocation of resources to the efficient sectors of the economy — represent the traditional theory on the benefits from trade liberalisation. Consequently, it is these gains that are typically estimated and reported.

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7 OECD (Organisation for Economic Co-operation and Development) 2003, *The Sources of Economic Growth in OECD Countries,* OECD Economics Department, Paris and id., 2005, *Trade and Structural Adjustment: Embracing Globalisation*, Paris; and references therein. Frankel, J.A. and Romer, D. 1999, 'Does trade cause growth?', *American Economic Review*, vol. 89, no. 3, pp. 379–99, provides evidence on the links between trade and productivity growth for developing countries.

8 See Tressel, T. 2008, *Does Technological Diffusion Explain Australia's Productivity Performance?*, IMF Working Paper, WP/08/4.

However, trade reform also sees an increase in import competition, thereby encouraging domestic producers to pursue productivity gains, either though the use of better technology and business practices, or through innovation and/or quicker adoption of new ideas. Improved domestic efficiency and liberalisation of other countries' trade barriers will improve the competitive position of exporters, and greater exports may also be associated with productivity gains. There can be learning by exporting where the experience and knowledge gained in export markets can be translated into productivity gains.[9] Exporting may also allow producers to expand output and exploit economies of scale, thereby lowering average production costs.[10]

Finally, a 'more efficient' economy will likely open the way for new foreign investment opportunities leading to transfer of technical know-how and capital accumulation, which can in turn stimulate productivity growth and lead to higher economic growth.

Approaches to modelling the effects of trade liberalisation

To capture these various effects involves using different approaches. In this study we have used four different models: ORANI, an input output based computable general equilibrium (CGE) model of the Australian economy; GTAP, a CGE model of the world economy which identifies 57 sectors of economic activity; CIEG-Cubed, which is a dynamic CGE model of the world economy and also includes 57 sectors; and the AUS-M model which is an outgrowth of the Treasury Macroeconomic (TRYM) model and includes industry detail and detailed labour market specifications that allow examination of some of the dynamic labour market impacts mentioned above. The role of product market competition in reducing unemployment is discussed in appendix A, while further details on the various models can be found in appendix B.

To use the models to estimate the impacts of reduced protection we first need an estimate of the change in protection in individual sectors. These are shown in table 1.2.

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9 Aw, B.A., Chung, S. and Roberts, M.J. 2000, 'Productivity and Turnover in the Export Market: Micro-level Evidence from the Republic of India and Taiwan (China)', *The World Bank Economic Review*, 14(1), pp. 65–90.

10 Itakura, K., Hertel, T.W. and Reimer, J.J. 2003, *The Contribution of Productivity Linkages to the General Equilibrium Analysis of Free Trade Agreements*, GTAP Working Paper 23, March 2003.

1.2 **Equivalent tariff rates by sector — 1988 and 2008**

Sector	*1988*	*2008*	*Sector*	*1988*	*2008*
	Per cent	Per cent		Per cent	Per cent
Paddy Rice	2.0	0.0	Dairy	17.0	0.7
Wheat	2.0	0.0	Processed Rice	2.0	0.0
Other Grains	2.0	0.0	Sugar	10.0	0.2
Vegetable & Fruit	2.0	0.3	Other Food	8.3	1.2
Oil Seeds	2.0	0.5	Beverages & Tobacco	13.5	1.3
Cane & Beet	0.0	0.0	Textiles	24.0	6.1
Plant Fibres	2.0	0.0	Wearing Apparel	89.0	12.6
Other Crops	2.0	0.2	Leather	40.0	4.7
Cattle	2.0	0.0	Lumber	9.3	2.2
Other Animal Products	2.0	0.1	Paper & Paper Products	16.0	1.8
Raw Milk	2.0	0.0	Petroleum & Coke	18.0	0.0
Wool	2.0	0.3	Chemical Rubber Products	17.0	1.5
Forestry	0.5	0.1	Non-Metallic Minerals	3.3	2.4
Fishing	0.0	0.0	Iron & Steel	8.4	1.5
Coal	0.7	0.0	Non-Ferrous Metals	5.4	0.7
Oil	0.0	0.0	Fabricated Metal Products	15.0	3.3
Gas	0.7	0.0	Motor Vehicles:	56.1	4.1
Other Mining	0.7	0.3	Other Transport Equipment	22.0	1.3
Cattle Meat	2.0	0.0	Electronic Equipment	19.0	1.0
Other Meat	2.0	0.4	Other Machinery & Equipment	14.0	1.8
Vegetable Oils	3.1	1.1	Other Manufacturing	18.0	1.9

Note: Equivalent tariff rates include estimated tariff equivalents of import quotas. In the case of wearing apparel and leather these are derived from the value placed on quota tenders by importers — Table A11.2, IAC, 1990. Tariff rates used in the calculation were drawn from the statutory rates from the Schedule of Tariffs 1987 applying prior to the Economic Statement of May 1988. Rates within categories were aggregated using domestic output weights where necessary.

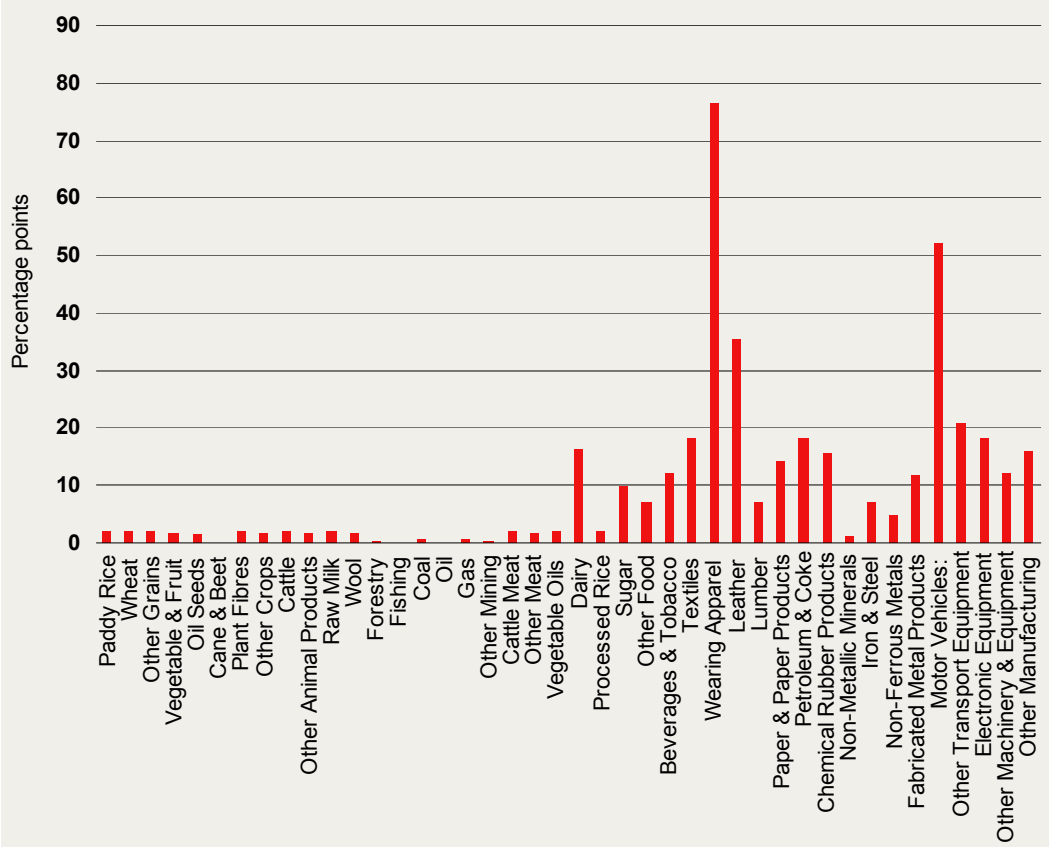
Source: GTAP Database, Industry Commission Annual Report 1988-89, Australian Government, *Custom Tariff Amendment Act 1987*.

As can be seen from table 1.2 levels of protection were quite uneven across sectors in 1988 with particularly high levels of protection in textiles clothing and footwear, motor vehicles, and transport equipment.[11] Consequently there should be significant allocative efficiency gains from eliminating the relative price distortions — that is, implementing the tariff reductions shown in chart 1.3. It can be seen from chart 1.3 that the sectors that were the most heavily protected in 1988 are typically those that have experienced the largest reduction in protection by 2008. For example, wearing

11 Statutory rates for cars in 1987 were 57.5 per cent for passenger vehicles, 35 per cent for light commercial vehicles and 25 per cent for four wheel drives. The tariffs applying to out of quota imports (quotas being set at 22 per cent of the market) had been reduced to 85 per cent by 1987 under the first Button Plan (1984). The former strict quota system had been replaced by a tariff quota under the Lynch Plan in 1981. With imports running at around 35 per cent, the tariff equivalent for motor vehicles in general applying before the Economic Statement of May 1988 was 56.1 per cent (table 1.2). (Note that using an average tariff possibly understates the true change in border protection post 1987, as domestic car manufacturers in 1987 would have been competing at the margin with out of quota imports. Also, the model results deal with the impacts of changes in border protection per se, not the broader question of the impact of industry assistance in general.)

apparel tariffs have fallen from 89 per cent in 1988 to 12.6 per cent in 2008, a reduction in protection of over 76 percentage points, while motor vehicle protection fell 52 percentage points.

1.3 **Reduction in protection by sector**



Data source: as for table 1.2.

Simulation assumptions

Because the existing databases for the GTAP and CIEG-Cubed are for the current period rather than for 1988, the simulations take the form of restoring levels of protection to their former level. For the tariff changes to be fiscally neutral, any change in government taxation revenue needs to be offset by either an increase (or decrease) in another tax, or by a reduction (or increase) in government expenditure. For all models — ORANI, GTAP, CIEG-Cubed and AUS-M — changes in collected tariff revenue has been offset/balanced via a change in taxes on labour income.[12] For presentational purposes the results are inverted — that is, presented as gains from the reduction of tariffs rather than costs of increased tariffs.

[12] As labour supply is assumed to be inelastic to the real wage in the long run in all three CGE models the imposition of the labour tax has a minimal distorting effect on activity across sectors.

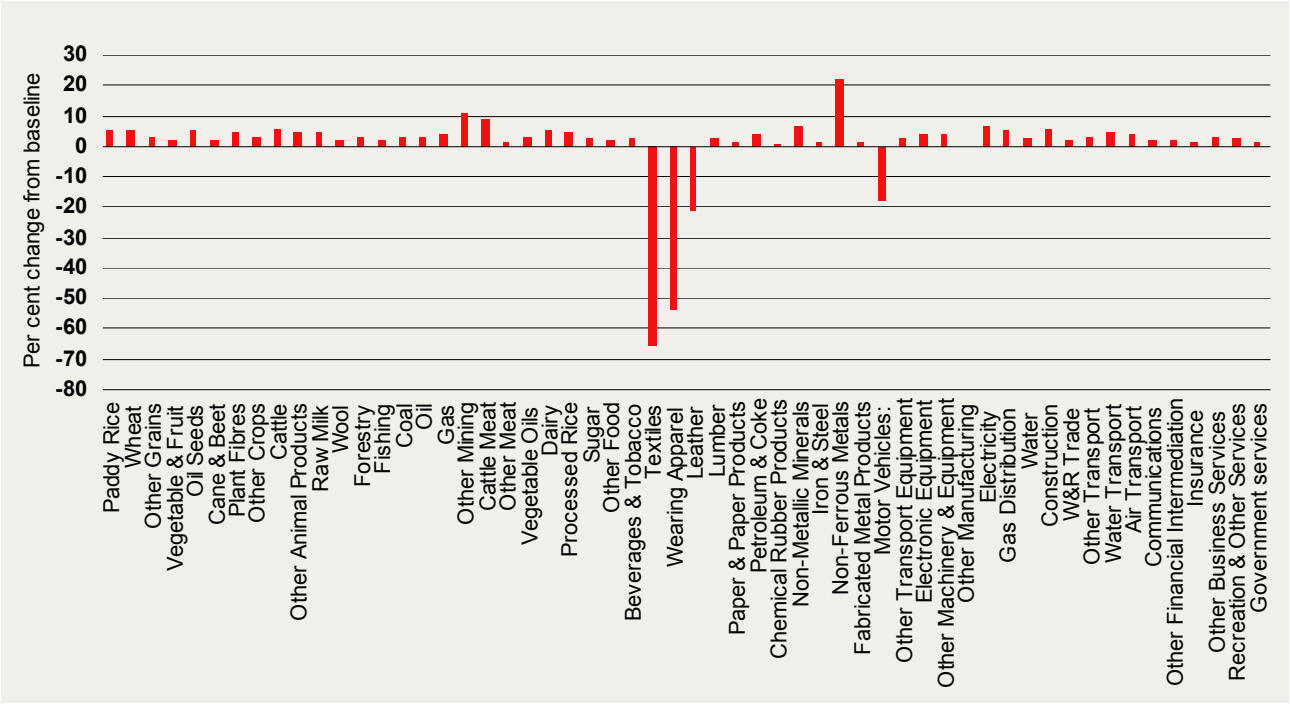
Results

Results in terms of the output of individual sectors are shown in chart 1.4. As can be seen, and despite the large changes in tariff protection, the motor vehicle and machinery and equipment sectors are much less affected than textiles clothing and footwear. This is because the former sectors are significant exporters and hence gain from the exchange rate depreciation resulting from lower tariffs.[13] They are also significant importers of inputs and hence benefit from tariff reductions on imported components. The largest gains are made in the non-ferrous metals sector where output is largely destined for the export market and hence benefit from the lower exchange rate. The largest output reductions are in textiles, clothing and footwear, reflecting the size of the reductions in protection and the lack of export activity in the sector.

It is interesting to note that the service sectors, which were not subjected to trade liberalisation in the modelling, also benefit from liberalisation of merchandise trade. Trade liberalisation is associated with an increase in GDP, and as GDP increases so too does the output of the service sectors.

That the negative impacts of the tariff reductions on import competing sectors has been offset by positive effects on exports is borne out by the historical data. As

1.4 **Impacts of tariff reductions on sectoral output**

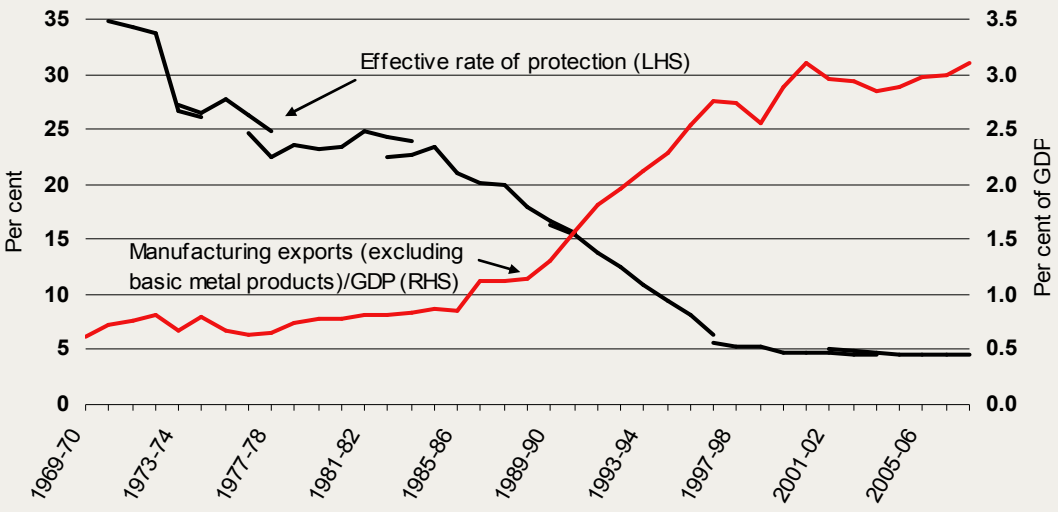


Data sources: GTAP modelling simulation and CIE estimates.

13 The exchange rate depreciates as the supply of Australian dollars (to pay for imports) increases relative to supply (determined by capital inflow).

protection was reduced for manufacturing through the 1980s exports rose as a percentage of GDP (chart 1.5). While there were many factors behind this surge, it is precisely what is predicted by the models (chart 1.6). The models predict that the

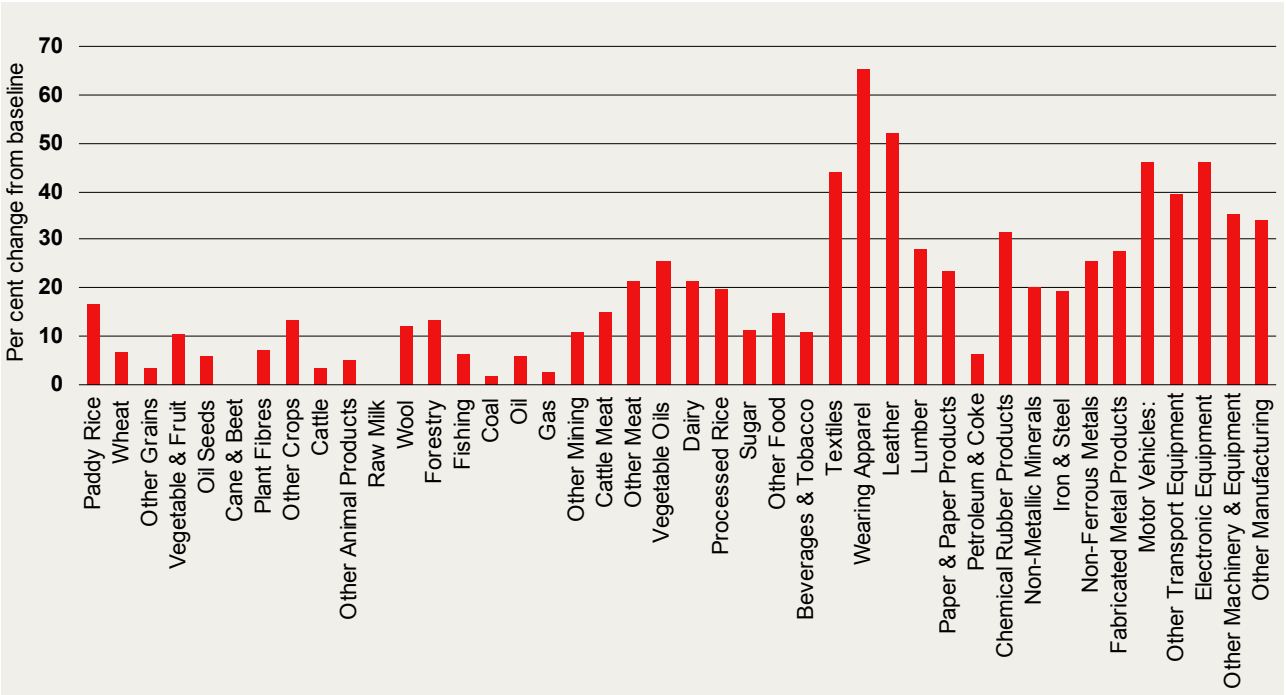
1.5 **Trade liberalisation and manufacturing exports**



Notes: Effective rates of assistance for manufacturing calculated by the Productivity Commission, manufacturing export volumes excluding basic metal products as a percentage of GDP at 2005-06 constant prices.

Data sources: Productivity Commission (2007); ABS Cat. no. 5302.0 and 5206.0; and AUS-M Model Database.

1.6 **Higher manufacturing exports are one consequence of tariff reductions**



Notes: Data shown is measured as per cent deviation from baseline in export volumes by sector.

Data sources

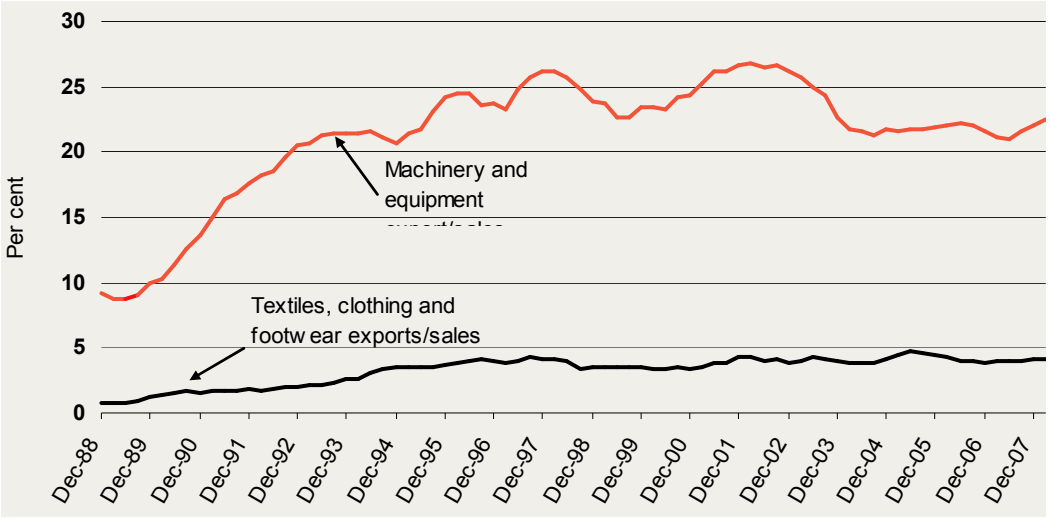
: GTAP modelling simulation and CIE estimates.

reductions would have contributed to exports being between 20 and 50 per cent higher than otherwise across a range of sectors producing elaborately transformed goods. The increases in exports also occurred in the sectors predicted by the models — the most substantial absolute impacts occurring in areas where Australia has a comparative advantage such as capital and knowledge intensive machinery and equipment exports (which includes motor vehicles). For labour intensive sectors such as textiles, clothing and footwear — areas where Australia does not have a comparative advantage — there were very few exports to start with. While exports rose as a result of the reforms this was from a very low base (chart 1.7).

Consequently, it can be inferred that the reductions in protection had little adverse impact on manufacturing activity or employment in aggregate. In fact, when dynamic productivity and labour market impacts are taken into account, the balance is probably on the side of increased activity and employment in manufacturing. Where tariff reductions have had their main effect is in changing the pattern of activity and employment within manufacturing, with declines in labour intensive import competing activity such as textiles, clothing and footwear, and expansions in more capital intensive and export oriented sectors.[14] Appendix C provides examples of the impact of trade liberalisation on individual sectors.

The changes within manufacturing have been associated with a significant shift towards professional and skilled workers within the sector. Since 1988, the proportion of professionals, para professionals, managers and administrators employed in manufacturing has increased by over 60 per cent, while the proportion

1.7 **TCF and machinery and equipment exports over sales**



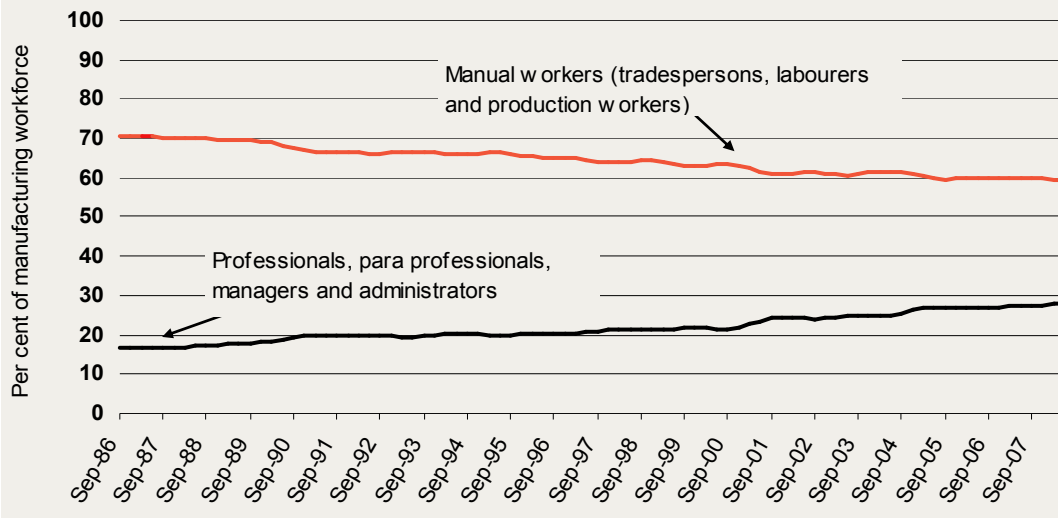
Data sources: ABS Cat. No. 5432.0, 5439.0 and 5676.0, and CIE calculations.

14 Many of these changes would have occurred to some extent even in the absence of tariff reduction as imports of labour intensive goods from developing countries became increasingly available. The impact of the tariff changes were one factor in a larger picture.

of manual and production workers has declined by around 15 per cent (chart 1.8). Overall, these occupational changes have increased the average real wage in manufacturing by 6 per cent since 1988, or roughly $3000 per worker.[15]

The shifts towards more capital intensive and skill intensive manufacturing and the fall in levels of protection were one factor in the move towards the engagement of Australian manufacturing in international production chains, something indicated by the increase in the level of intra industry trade through the 1990s (chart 1.9). There has been some falling off in this indicator recently, but this is mainly the result of the rising share of basic metal product exports in manufacturing exports due to the resources boom.[16] With the ending of the resources boom, we would expect the level of intra industry trade to increase.

1.8 **Employment shares by occupation in manufacturing**

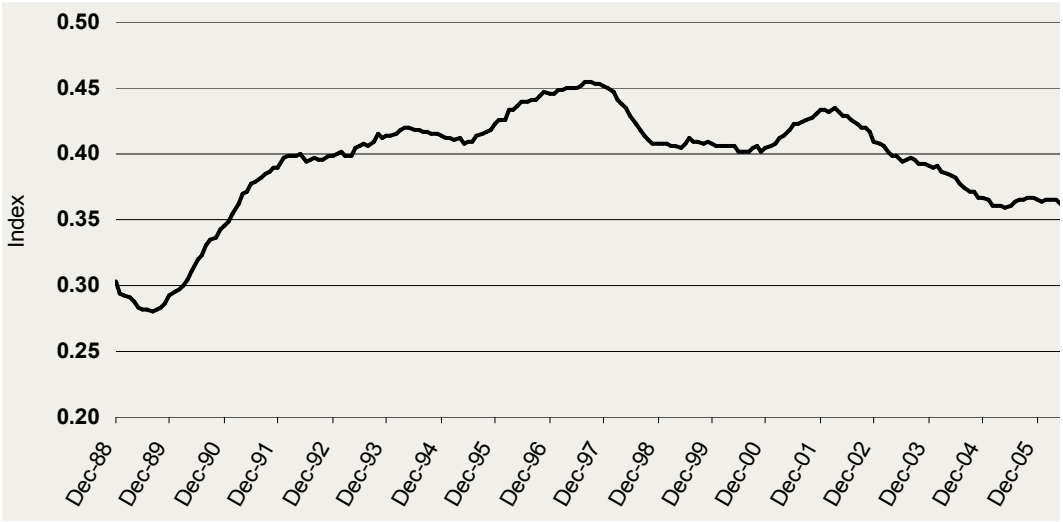


Notes: Series are per cent of total employment in manufacturing. Series are smoothed using a 13 period Henderson trend.
Data sources: ABS Cat. No. 6203.0; AUS-M Model Database and CIE calculations.

15 As the share of higher paid professionals, para professionals, managers and administrators in the manufacturing sector increases, the average wage of all manufacturing workers also increases.

16 The basic metal products sector is largely an extension of the mining industry. It mainly consists of the refining of ores to produce metals such as aluminium, copper and zinc largely destined for the export market. It is classified by the ABS as being part of manufacturing. These metals are primary industrial inputs and not part of the reprocessing trade (for example, ores are not being imported, processed then exported as part of an international production chain). Consequently, as exports of these metals increase as a proportion of manufacturing exports, the measured level of intra-industry trade falls. At the same time the higher exchange rate associated with higher commodity prices has capped the rate of expansion of other parts of manufacturing such as machinery and equipment where there is a higher level of intra-industry trade.

1.9 **Manufacturing intra-industry trade**



Notes: Series is a Grubel Lloyd index of intra industry trade calculated for Australian manufacturing trade. A value of one indicates complete intra industry trade.

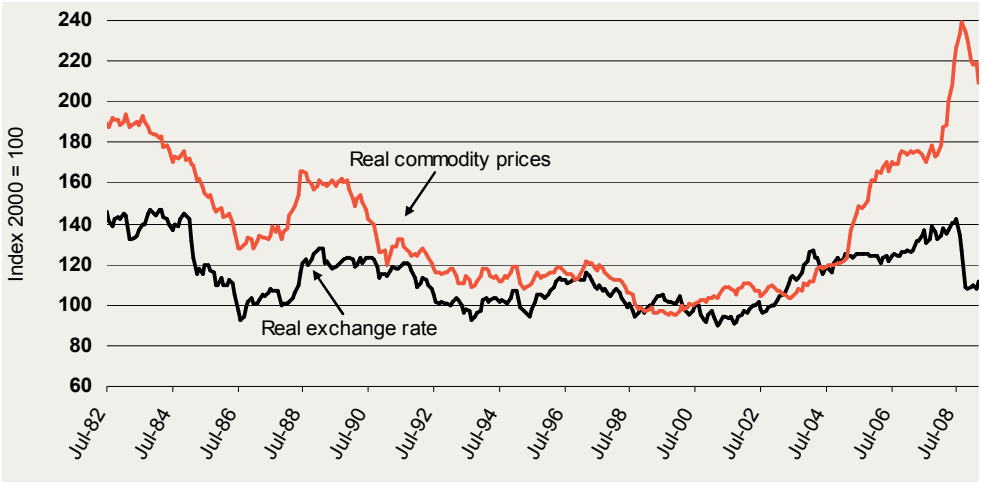
Data source: ABS Cat. No 5432.0, 5439.0 and CIE calculations.

Overall the changes in industry assistance since 1988 have produced a far more dynamic manufacturing sector. Over 1988 to 2008 manufacturing export volumes increased by more than a factor of four, world trade has expanded enormously, with particularly rapid developments in trade by our Asian trading partners. The movement of manufacturing to being a more export oriented, capital intensive and skill intensive sector has helped it to respond to the challenges and opportunities these developments have thrown up. For example, the rapid growth of China and other East Asian countries over the last ten years has led to a boom in demand for elaborately transformed manufactures such as machinery and equipment, exactly the sorts of goods favoured by tariff reform. And until recently (see further below), the higher global growth has led to higher commodity prices and a higher exchange rate. The higher exchange rate combined with increased availability of labour intensive goods such as textiles and clothing, means there has been a large fall in the landed import price of these items over the last eight years. However, as a result of trade liberalisation Australia had by 2000 already largely moved away from domestic production of these goods and towards the more capital intensive and design intensive goods (for example, the movement towards fashion and design within TCF). Consequently the economy has been better able to respond to the opportunities as they have arisen. Prior to 2009, manufacturing exports had continued to grow despite the high level of the dollar. For example, manufacturing export volumes (excluding basic metal products) have increased by 22 per cent over 2005–08, quite a remarkable result considering the nearly 15 per cent appreciation of the real exchange rate that has occurred over the same period (chart 1.10).[17] It can also be seen from chart 1.10 that the real exchange rate has risen with commodity prices,

17 Source: ABS Catalogue Number and AUS-M Model Database.

making manufacturing less export competitive. Liberalisation has also increased the engagement of domestic firms with a rapidly expanding global market.

1.10 **The real exchange rate and commodity prices**



Notes: Real commodity prices are the RBA all items commodity price index expressed in SDRs divided by the G7 CPI. Real exchange rate is the OECD's measure of Australia's real effective (trade-weighted) exchange rate.

Data sources: RBA Bulletin; and OECD Main Economic Indicators.

Aggregate effects of trade liberalisation

Estimates of the overall impact of trade liberalisation, including estimates of the dynamic productivity and labour market impacts are shown in table 1.11. Estimates of the long run impacts of post 1988 trade liberalisation from ORANI GTAP and the CIEG-Cubed models are much higher than earlier estimates by the Industries Assistance Commission using ORANI in 1989.[18] This appears to be due to two factors. The first is that there has been a significant expansion in trade since the mid eighties, with Australia's trade share almost doubling over the period.[19] With twice the amount of trade, the distortions introduced by trade restrictions, if they had been maintained, would now be having much larger effects. The second is that over time estimates of the responsiveness of exports to price changes have become larger, with for example a much higher proportion of Australian exports being sold in commodity markets. Consequently the models' estimate of the change in the exchange rate in response to a tariff change is smaller, and hence the offset from the terms of trade is lower.

Taking an average of the ORANI, GTAP and CIEG-Cubed results indicates a contribution to GDP of 2.5 per cent from trade liberalisation. Part of the increase in

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18 The Industries Assistance Commission (IAC) reports GDP losses from trade restrictions at around 1.1 per cent of GDP (IAC 1989, *Annual Report 1988-89*, AGPS, Canberra).

19 Rising from 23 per cent in 1985 to 44 per cent in 2007 measured at constant prices.

1.11 Estimated long run impacts of trade liberalisation since 1988

	CGE model				Additions		
					Dynamic prod.	Reduced unempl.[b]	
	ORANI[a]	GTAP	CIEG-Cubed	Average	CIEG-Cubed	AUS-M	Total
GDP ($ billion)	24.9	35.1	26.0	28.6	3.5	6.6	38.7
GDP (%)	2.2	3.1	2.3	2.5	0.3	0.6	3.4
National Income (%)	1.3	2.3	1.9	1.8	0.3	0.6	2.7
Private Consumption (%)	0.9	1.3	0.8	1.0	0.4	0.6	2.0
Investment (%)	6.2	5.9	2.3	4.8	0.1	0.6	5.4
Exports (%)	7.8	16.1	27.1	17.0	-2.5	0.7	15.2
Imports (%)	5.6	13.0	21.1	13.2	-2.5	0.4	11.2
Employment (%)	0.0	0.0	0.0	0.0	0.0	0.6	0.5
Real after tax wage (%)	1.7	1.2	1.2	1.4	0.6	0.1	2.0
GDP per capita ($)	1 174	1 656	1 228	1 352	165	310	1 827
GDP per household ($)	2 954	4 165	3 089	3 403	416	779	4 598

Notes: Figures are percentage deviation from baseline unless otherwise indicated. [a] CIE estimates using 2000 version based on 1996-97 input-output tables. [b] AUS-M model estimate of the impacts of a ¼ percentage point reduction in equilibrium unemployment due to improved competition in the product market.

Sources: IAC; GTAP; CIEG-Cubed and AUS-M modelling simulations; and CIE estimates.

GDP, is due however to an increase in the capital stock, part of which is funded by inflows from overseas. As the inflows need to be serviced, the increase in national income is somewhat less than GDP at around 1.8 per cent. This implies an increase in real income of approximately $2700 per annum for the average working family.[20] When dynamic productivity and employment effects are included the rise in real income is around $3900 dollars per annum per working family.

The model results on the impact of trade liberalisation in Australia are in line with the positive results found internationally (box 1.12).

1.12 International evidence on trade liberalisation

Many studies, too numerous to mention here, have been made on the impact of trade liberalisation on economic growth, incomes and adjustment. An earlier major study by the World Bank ran into several volumes.[21] They examined in depth the trade liberalisation experience of developing countries. They found that liberalisation conferred significant benefits and, what was more surprising to the researchers, that the costs of adjustment were very small, even in the short term.

(Continued on next page)

[20] Defined here as a working couple with children. Figures are for the increase in gross household income before tax. Increases are approximate and in reality would depend on government tax policies and a range of other responses.

[21] Papageorgiou, D., Choksi, A.M. and Michaely, M. 1990, *Liberalizing Foreign Trade in Developing Countries: The Lessons of Experience*, World Bank, Washington, DC.

1.12 **International evidence on trade liberalisation** (continued)

They found that, while the rate of jobs growth in previously protected industries was slower, trade liberalisation led to overall jobs growth because of the extra jobs in industries previously penalised by the indirect effects of the protection. The extra employment effect for different countries and their liberalisation period is show in the following table.

Country and liberalisation period	*Change in employment following liberalisation*
	'000 jobs
Argentina (1967–70)	78
Argentina (1976–80)	269
Brazil (1965–73)	1 617
Korea (1978-79)	99
Peru (1979-80)	61
Philippines (1960–65)	369
Philippines (1970–74)	540
Singapore (1968–73)	
Sri Lanka (1968–70)	149
Sri Lanka (1970–79)	43
Turkey (1980–73)	166

A more recent study by Wacziarg and Welch of the National Bureau of Economic Research examines new evidence of the relationship between trade liberalisation and economic growth for a wide cross-section of countries in the 1990s.[22] They found that trade liberalisation has robust positive effects on growth, openness and investment rates within countries. Specifically, they found that over the period 1950–88, countries that have liberalised their trade regimes 'have experienced, on average, increases in their annual rates of growth in the order of 1.5 percentage points compared with pre-liberalisation times'.[23] Furthermore, liberalisation raised the trade to GDP ratio on average by around 5 percentage points.

22 Wacziarg R., and Welch, K.H. 2003, 'Trade Liberalization and Growth: New Evidence', National Bureau of Economic Research, *Working Paper No. 10152*.

23 ibid., page 28.

2 *Workforce contribution to exports and import use*

One of the common misconceptions in popular discussions of trade is that Australian jobs are being exported to countries such as China and India. This leads to the conclusion that the Government should do something to prevent this happening. The argument is a version of what economists sometimes refer to as the 'lump of labour fallacy' — that there is a lump of jobs to share around and that giving some jobs to the Chinese or Indians means that there is less left for us.[24] The truth is that there is no lump of jobs — while employment shrinks in one industry it expands in another. Each year labour supply expands due to natural population growth and net inward migration. The increased demand for goods and services from the extra population generates the employment to occupy the additional workers. Employment depends on the overall level of demand in the economy, not the level of imports or exports.

Only a small part of the changes in employment we observe is due to changes in trade.

Employment patterns change for a wide variety of reasons, from changes in taste and fashions, to changes in technology and the way businesses organise themselves.[25] Changing patterns of trade are only one element in a much larger picture. Most of the structural change that is occurring in the economy is completely unrelated to trade. For example, there has been a decline in the share of manufacturing employment over the last twenty years in all advanced OECD countries. This is often attributed to increased imports from developing countries. However, trade is a two way flow and the increased import of manufactured goods from developing countries has been largely matched by increasing exports of manufactured goods such as high tech plant and equipment from the OECD countries. Consequently, only

24 Another version of the lump of labor fallacy is that by imposing reduced hours of work or enforcing early retirement, the level of unemployment can be reduced — the jobs freed up can be shared around. Unfortunately the cross country evidence shows that this doesn't work, and rather has the reverse effect. Reduced workforce participation and reduced pay for reduced hours lead to reduced demand for goods and services leading to fewer jobs. Ultimately everyone is worse off with unemployment likely to increase rather than decrease (particularly if wages do not fall to match reduced hours). (See Layard, Nickel and Jackman 1991, for a full discussion and dissection of the international evidence.)

25 Downes, P. and Stoeckel, A. 2007, *Drivers of Structural Change*, Centre for International Economics Report, Canberra, February, provides a detailed breakdown of the drivers of structural change in Australian industry.

a very small part of the decline in manufacturing employment is related to increased trade. Rather the main cause of the decline in manufacturing employment is the shift of consumption towards services within the OECD countries themselves (as incomes rise the proportion of income spent on the consumption of goods tends to fall). The shift in consumption patterns means there is less demand for manufactured goods relative to services. At the same time the high level of productivity growth in manufacturing relative to services means that manufacturers can meet demands with fewer workers.[26] Hence the bulk of the decline in manufacturing employment can be attributed to the secular shift towards services. No one would argue that people should stop taking holidays, getting an education, going to health clinics, gymnasiums or restaurants to preserve jobs in manufacturing. Yet the logically equivalent argument is made about imports, that is, that imports should be held back to preserve jobs in manufacturing.

How many jobs are generated by trade?

This section looks at the number of jobs involved in export activity and how those have changed over time, and how many are involved in imports and getting them to their final destination. That is, answering the question 'how many jobs does trade generate' rather than 'how many does it cost?'

To calculate the number of jobs that are related to exports we use the ABS input-output tables. These allow us to trace the production of exports to their source. Estimates for 1996-97 and 2006-07 are shown in table 2.1.

The results from the input-output data indicate that the share of employment involved in exports is less than the export share in total GDP. This seems reasonable and makes intuitive sense. Currently the export share of GDP is 20 per cent, of which 62 per cent are commodity exports (agriculture, mining and basic metals), 16 per cent are manufactures and 22 per cent are services.[27] Commodity exports are capital intensive and hence do not generate as many jobs as activity on average. By way of example, the return to capital as a share of total value added for mining is 80 per cent. Also, a small part of exports come from imported inputs, which go into both export and domestic activities (imported fuel for mining operations for example). Consequently, the share of employment related to export activity, both directly and indirectly through flow on effects, is a little over 13 per cent, with the largest concentrations in mining, agriculture, basic metal products and transport and storage (particularly water and air transport). The share translates to approximately 1 in 7 workers ultimately being involved in the production of exports.

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[26] In addition there has been a degree of outsourcing of jobs by manufacturing firms, so some jobs that were previously done in house are now classified to be in another sector.

[27] At 2005-06 constant prices.

2.1 **Employment by industry — total and export related**

Sector	*1996-97*			*2006-07*		
	Total	*Export related*	*Ratio*	*Total*	*Export related*	*Ratio*
Agriculture, Forestry & Fishing	426 050	182 637	0.429	358 600	154 677	0.431
Mining	83 050	58 542	0.705	138 200	102 959	0.745
Manufacturing						
▪ Food, Beverage & Tobacco	182 900	51 265	0.280	199 200	55 465	0.278
▪ Textile, Clothing, Footwear & Leather	96 800	18 437	0.190	51 700	10 091	0.195
▪ Wood & Paper Product	63 500	9 958	0.157	68 600	10 896	0.159
▪ Printing, Publishing	118 950	13 905	0.117	122 780	14 826	0.121
▪ Petroleum, Coal, Chemicals	102 450	23 904	0.233	105 380	25 344	0.241
▪ Non-Metallic Minerals	46 450	5 423	0.117	38 500	4 641	0.121
▪ Metal Products	179 800	57 724	0.321	170 380	65 034	0.382
▪ Machinery and Equipment	240 050	56 653	0.236	262 660	63 344	0.241
▪ Other Manufacturing	86 950	7 180	0.083	58 200	5 006	0.086
▪ Total Manufacturing:	1 117 850	244 449	0.219	1 077 400	254 649	0.236
Electricity, Gas & Water	65 350	9 420	0.144	86 000	13 388	0.156
Construction	602 200	10 491	0.017	944 000	20 964	0.022
Wholesale Trade	500 450	105 681	0.211	452 800	121 780	0.269
Retail Trade	1 250 050	66 044	0.053	1 529 700	85 361	0.056
Accomm., Cafes & Restaurants	407 350	48 583	0.119	516 400	65 798	0.127
Transport ant Storage	395 450	115 265	0.291	488 900	149 087	0.305
Communication Services	152 750	23 154	0.152	190 000	30 746	0.162
Finance and Insurance	318 600	57 758	0.181	401 500	50 434	0.126
Property Services	112 100	18 016	0.161	178 300	30 648	0.172
Business Services	781 750	122 354	0.157	1 071 000	178 908	0.167
Govt. Administration and Defence	345 050	9 319	0.027	484 200	13 948	0.029
Education	586 200	38 574	0.066	740 700	52 212	0.070
Health & Community Services:	795 750	12 668	0.016	1 083 500	18 659	0.017
Culture & Recreational Services	204 150	13 556	0.066	291 100	19 836	0.068
Personal Services	164 700	5 622	0.034	205 100	7 488	0.037
Total	**8 308 850**	**1 142 133**	**0.137**	**10 237 400**	**1 371 540**	**0.134**

Note: The proportion of industry value added going to exports is derived from the primary import content of final demand matrix.
Sources: ABS Cat. no. 5206.0; 6203.0 and CIE estimates.

This share has remained relatively constant over time, with declines in agricultural employment being offset by increased contributions from mining and business services over the last 10 years. It is interesting to note that there are now more people involved in export activity in finance, property and business services than there are in manufacturing (260 000 compared with 255 000).

There are also a large number of workers involved on the import side of the trade equation. Currently, approximately 41 per cent of all of the goods moving through the Australian economy are sourced from imports.[28] This means that around 1.1 million workers in distributional services (transport and storage, retail and wholesale trade) are involved in import related activity (or 1 in 10 Australian workers).[29] Accounting for the number of workers in distributional services who are also involved in export activity as shown in table 2.1 means that a little over one in five workers are involved in trade-related activities.[30]

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28 Imports of goods by volume (at 2005-06 prices) as a percentage of total expenditure on goods in Australia (including exports of goods) at 2005-06 prices. Consumer good imports were equivalent to approximately 28 per cent of retail trade by value in the March quarter of 2008. That figure is higher when margins are added to the imports. Input output data indicate that almost 50 per cent of the goods consumed by Australian households are sourced from overseas (value basis). However distributional services also supply goods for business investment, construction, government investment and government consumption where Australian sourcing is more dominant. Hence the 41 per cent figure is used for the employment calculation.

29 Transport and retail and wholesale trade are defined as margin industries in input output analysis. They are not the source of commodities but rather add value to commodities produced by other industries or sourced from imports.

30 One in every 4.48 workers.

3 *The global financial crisis, world trade and calls for protection*

The causes of the global financial crisis are complex and are not yet fully understood. However, it is clear that a range of factors contributed. Strong global growth and benign financial conditions in the years leading up to the crisis led to some complacency. Credit standards were loosened and in search for yield investors increased their exposure to risky and increasingly complex structured credit products linked to the US housing market. Also contributing to the abundant liquidity in the US and other developed economies were foreign capital inflows from the massive build up of foreign exchange reserves in China and other Asian economies as a result of their exchange rate policies. Indeed, some have argued that this was the root cause of the crisis. When mortgage delinquencies in the US began to rise, particularly in the subprime market, and house prices began to fall, losses at financial institutions around the world began to mount. Banks became increasingly worried about counterparty risk, since lack of disclosure meant that exposure to these 'toxic assets' was unclear. As a result, inter-bank markets and global credit markets more generally became frozen and many businesses were unable to obtain credit and meet their obligations. Stock markets around the world plummeted.

These disruptions to financial markets have subsequently spilled over into the real economy. Confidence in the financial system has deteriorated. Businesses and households in many developed countries have reduced their spending and begun to pay down debt. As global demand and GDP has declined, businesses have shed jobs leading to rising unemployment around the world. Trade flows have also fallen sharply. Indeed, more sharply than in previous downturns. One reason is that the current recession has been more synchronised across countries than previously. The financial crisis has also meant that access to trade finance has become more difficult.

Policymakers around the world have responded to the challenges presented by the financial crisis and the subsequent economic downturn. In the US and Europe, banks and other financial institutions have been recapitalised and in many cases nationalised to restore confidence in the financial system. Both monetary and fiscal policy has been used across the world to stimulate economic activity, and governments have moved to guarantee bank deposits. To encourage trade, the G20 has committed to ensuring the availability of at least US$250 billion to support trade finance through export credit and investment agencies and through the Multilateral Development Banks. The World Bank has already launched a coordinated global

initiative worth up to US$50 billion to support trade in developing markets and address the shortage of trade finance resulting from the global financial crisis. The Asian Development Bank has also expanded its Trade Finance Facilitation Program to US$1 billion.

Underlying the move to increase the availability of trade finance is the realisation that international trade is an important contributor to economic growth and household welfare.

Are calls for protection well founded, and will increasing tariffs protect jobs?

The worsening of the global financial crisis in late 2008, with the entry of Lehman Brothers into Chapter 11 bankruptcy protection in the United States, and the consequent deterioration in economic conditions, has bought a new threat to world trade in the form of political pressures for increased protectionism. This threat comes from the desire of national governments to protect jobs in their own countries, in particular industries, even if that is at the expense of jobs in other countries. With unemployment heading towards 10 per cent in many countries, protecting employment becomes politically paramount. The other impacts of higher tariffs such as higher prices and lower productivity become secondary considerations. Moreover, many governments are introducing very large fiscal stimulus packages in an attempt to curb the deterioration in their economies. In the midst of a crisis there is a natural tendency for politicians to want the tax payers' money to be spent within their own country.

Can anything be learnt from the Great Depression?

Exactly the same sort of political logic led to the introduction of the Smoot Hawley tariff in the United States in 1930, despite widespread objections by economists at the time.[31] The increase in US tariffs led to retaliation by other countries and an average increase in effective tariff rates of around 10 to 15 percentage points worldwide.[32]

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31 There was extensive debate in the US over the bill first introduced to Congress in early 1929 with 1028 economists petitioning President Hoover to veto the bill in 1930. It was signed into law on 17 June 1930, and set off a wave of trade retaliation by other countries. This was despite attempts at international coordination following on from the World Economic Conference of 1927 (where in principle agreement for tariff reductions had been achieved). The US and other key countries failed to attend the 'Preliminary Conference with a View to Concerted Economic Action' in February 1930, and few that did attend signed the final convention not to raise tariffs. (Kindleberger 1986, pp. 123-7.)

32 The increase in the average tariff rates on dutiable items under Smoot Hawley was around 8 percentage points from 40 to 48 per cent. Averaged over all imports it was smaller at around 3 to 4 percentage points, with the impact of an increase in non-tariff barriers bringing the effective rate of protection back towards an 8 percentage point increase. The

There was also widespread use of import quotas and other quantitative restrictions in individual countries.

Ultimately the increases in tariffs and other protectionist measures were self-defeating. They had little impact on each countries share of world trade. Their only effect was to significantly reduce world trade relative to global GDP. This in turn reduced productivity, investment, GDP and employment in each country and was an important factor in deepening and prolonging the Great Depression.[33]

Despite this experience, and while noting that the economic environment of the 1930s is vastly different to that of today, domestic pressures for increased protectionism are building. Despite signing a pledge in November 2008 to avoid protectionism, 17 of the G20 countries have since introduced 47 individual measures that have the effect of restricting trade.[34] As the IMF staff note:

> Some [fiscal] interventions currently discussed such as subsidies to troubled industries may be perceived as industrial policy by trading partners. The history of the Great Depression shows that, as the crisis deepens, there is increasing pressure to raise trade barriers. Such a race would bring significant costs in terms of efficiency.[35]

The impact of an increase in world wide tariffs

To investigate the impact of moving to a more protectionist economy, an illustrative modelling simulation was conducted that saw tariff barriers being increased by 10 per cent world wide. Hence if a particular tariff in a particular country was 10 per cent, it was raised to 11 per cent; if the tariff was 20 per cent it was raised to 22

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onset of deflation in the early 1930s increased the effective tariff even further adding another 3 or 4 percentage points. The increase in average tariff rates was larger in Canada and the main European countries, for example 22 percentage points in Germany, and 15 percentage points in the UK and Italy (Eichengreen, B. and Irwin, D. 2009, 'The Protectionist Temptation: Lessons from the Great Depression for Today', http://ww.voxeu.org.).

33 Most OECD countries are in a similar position nine months into the current crisis, as western countries were at a similar stage following the stock market crash of 1929. What happened in the Great Depression, as opposed to a more normal downturn, was that the stock market and the economy kept on falling for three years until 1932-33 (by which stage the Dow Jones Industrial Average had lost 89.4 per cent of its former value). One factor that led to the protracted worsening was the global break out of protectionism.

34 Gamberoni, E. and R. Newfarmer, 2009, 'Trade protection: incipient but worrisome trends', Chapter 10 in Baldwin and Evenett (eds), *The collapse of global trade, murky protectionism, and the crisis: Recommendations for the G20,* published by Voxeu.org., page 49.

35 Blanchard, O., Cottarelli, C ., Spilimbergo, A. and Symansky, S. 2009,'Fiscal Policy for the Crisis', Mimeo, 19 February, http://www.voxeu.org.

per cent and so on. Given the relatively low average tariff levels today, most of the average tariff increases were in the order of 0.5–1 percentage points.

The economic impact of raising global tariff barriers by 10 per cent for a range of economies is reported in table 3.1. As can be seen, moving to a more protectionist environment is detrimental not only for imports, but also exports, investment, household consumption (the proxy for welfare) and GDP. In other words, raising import barriers would make an already bad situation — the global financial crisis — worse. What is also apparent from table 3.1 is that the countries whose economies are more heavily trade orientated (typically the Asian economies) would be devastated by an even a small rise in global protectionism. Globally, world GDP is estimated to be some 0.2 per cent lower as a result of increasing tariff barriers by a modest 10 per cent. The contraction in GDP is equivalent to some A$110 billion, with the loss in global welfare (household consumption) being some A$84 billion.

Given the preceding analysis presented in this chapter, the results presented in table 3.1 are to be expected. Australia's importation of foreign merchandise trade will obviously contract as increasing tariff barriers makes them more expensive. However, exports also fall (reinforcing the idea that tariffs act as a tax on exports). The contraction in exports can be attributed to a combination of three factors. Firstly, imports are also used by businesses in the production of exports. As the cost of those imports increases, exports also become more expensive and hence less competitive internationally. Secondly, and depending on the relative changes in barriers between countries, there could be an appreciation of the Australia dollar, which also makes our exports less competitive. Thirdly, not only is Australia raising its tariff barriers, but so to are our trading partners. Increasing the tariff levied on Australian exports will obviously see them being less competitive.

3.1 **Impact of raising global tariffs by 10 per cent** Per cent deviation from baseline

Country/region	*Imports*	*Exports*	*Investment*	*Consumption*	*GDP*
	Per cent	Per cent	Per cent	Per cent	Per cent
Australia	-0.59	-0.43	-0.30	-0.11	-0.13
China	-1.87	-1.65	-0.76	0.29	-0.37
EU(25)	-0.21	-0.19	-0.15	-0.08	-0.08
India	-1.45	-1.75	-0.27	-0.06	-0.15
Indonesia	-1.37	-1.32	-0.73	-0.27	-0.39
Japan	-0.77	-0.67	-0.15	-0.09	-0.08
(Republic of) Korea	-1.35	-1.31	-0.76	-0.27	-0.43
Malaysia	-1.22	-1.28	-1.48	-0.11	-0.73
New Zealand	-0.59	-0.31	-0.43	-0.25	-0.21
Singapore	-0.75	-0.68	-0.86	-0.59	-0.43
Thailand	-2.28	-2.43	-1.91	-0.85	-1.29
Philippines	-1.42	-1.65	-0.97	-0.49	-0.65
United States	-0.49	-0.64	-0.16	-0.03	-0.06
Rest of ASEAN	-1.78	-1.81	-1.40	-0.71	-0.89
Rest of World	-1.10	-1.05	-0.53	-0.21	-0.28

Source: GTAP modelling simulation.

Increasing protection also sees greater distortions (allocative inefficiencies) being introduced into the Australian economy, culminating in capital earning a lower return and therefore making Australia a less attractive destination for investment. Lower exports and investment is associated with increasing unemployment (or lower wages), which in turn sees household income falling. Lower disposable income combined with higher import and local production costs see household consumption falling. Falling exports, investment and household consumption combine to see a contraction in GDP.

Raising tariff barriers therefore works in exactly the opposite direction to what is needed. Lowering trade barriers would encourage international trade and stimulate demand, and in so doing reduce the impacts of the GFC.

A former EU trade commissioner, amongst others, has suggested using trade to ameliorate the impacts of the financial crisis, noting when talking about a possible EU-India bilateral trade agreement:

> The downturn does not reduce the value of a bilateral trade deal, it raises it. The EU and India should call the deal what it would be — a confidence building economic stimulus package — and sign it before the end of the year…The pressure to reach for trade barriers or other forms of protectionism is stronger during a downturn — but all the more important to resist. (Peter Mandelson)[36]

[36] See 'FTA need of the hour: EU trade commissioner', Economic Times, 20 Jan 2009, article reported on www.bilaterals.org/article.php3?id_article=14221, accessed 22 January 2009.

4 Conclusions

Ongoing trade liberalisation has been an important reform contributing to a less insular, more resilient economy — one that is positioned to take advantage of emerging opportunities and to respond to changes in our external environment.

Australians are working smarter as a result. They are wealthier, have on average more highly skilled jobs, greater employment opportunities and can look forward to more stable investment incomes in retirement due to the diversification of funds overseas. By itself trade liberalisation has increased GDP by between 2.5 to 3.5 per cent relative to where it would otherwise have been (depending on what account is taken of dynamic productivity and labour market effects), thereby adding between $2700 and $3900 per annum to the real income of the average family. Moreover, it has had very little in the way of an adverse impact on the overall level of activity in manufacturing in doing so. While imports of manufactured goods have increased as a result of falling tariffs, so too have exports. If account is taken of potential dynamic productivity and labour market effects, it could be argued that manufacturing activity has actually increased as a result of reduced protection. In addition, the average yearly real wage within manufacturing is $3000 higher due to a shift towards more highly skilled jobs, which is at least in part attributable to trade liberalisation. In sum, it seems to be a case of a reform which, while involving painful adjustment in some manufacturing sub-sectors, in the long run has left almost everyone much better off.

Trade liberalisation, and the accompanying capital account liberalisation and the floating of the exchange rate were complementary parts of the wider set of economic reforms that occurred during the 1980s and 1990s. These reforms allowed a far more rapid expansion of the economy than would otherwise have occurred.

While it is impossible to put precise figures on the benefits of any one part of the inter-related reforms, the transformation of the economy in terms of lower unemployment, low inflation, rising incomes, higher levels of wealth, and greater stability, must be obvious to all.

The Australian experience demonstrates the benefits of trade liberalisation — the population is better off with low rather than high trade barriers. If, in response to the current financial crisis, every country were to increase their trade barriers then the global economy would experience a further contraction in GDP. Raising trade barriers will only make an already bad situation much worse.

Appendices

A The role of product market competition and trade liberalisation in reducing unemployment

The rise in unemployment in the OECD through the 1970s and 1980s and the persistence of both high inflation and unemployment following the oil price shocks of 1973 and 1980 led to a substantial amount of academic work to explain how this could occur. Out of this literature emerged a loose consensus that the tendency for the economy to generate damaging wage price spirals and persistent unemployment related not only to problems in the labour market (such as job protection legislation, or generous unemployment benefits, or the tendency of some economies to generate high levels of long-term unemployment) but also to lack of competition in the product market. Firms that were shielded from competition or had market power would tend to pass on wage increases in the form of higher prices. This led to higher inflation, high interest rates as central banks reacted to bring inflation under control and consequently high unemployment.

Hence one part of the solution to the unemployment problem was to make product markets more competitive. This was a key recommendation of the OECD's 1994 Jobs Study — a recommendation which followed intensive study by the Secretariat and widespread consultation with member countries. It was also something picked up in the Australian Committee on Employment Opportunities 1993 Green Paper *Restoring Full Employment*. The survey of the evidence presented in the Green Paper indicated that the persistent high levels of unemployment that Australia experienced through the late 1970s and 1980s were not caused by search factors, or a mismatch of skills to available jobs, but by problems in wage setting and price setting. A key part of the strategy for reducing unemployment set out in the Green Paper therefore was to increase the level of competition in the product market. That in turn would both increase productivity and reduce the tendency for the economy to generate wage price spirals.

A simple model leading to a decomposition of changes in equilibrium unemployment

The model that describes this process can be simply set out in two equations, consisting of a price setting curve and a wage setting curve. (This, in turn, is a

simplified version of the more detailed model set out in Layard, Nickell and Jackman (1991).[37]

The model

Price Setting — this represents the mark up of prices over wages, where P* is the desired price of the firms output, W is the wage (nominal unit labour costs), δ_0 represents the degree of market power that firms have, and δ_1 derives from the marginal revenue product condition. In a perfectly competitive market where the firm is a price taker, where there are no barriers to entry or alternatively capital is free to adjust, and the firm faces a perfectly elastic long run demand curve for its product both δ_0 and δ_1 would be zero.

1. $P_t^* = W_0 + \delta_0 + \delta_1 u$

Wage Setting — this represents the mark up of wages over prices where ϕ_0 represents union bargaining power and ϕ_1 how responsive that bargaining power is to the level of unemployment - the larger the responsiveness the lower the ultimate level of unemployment.[38]

2. $W_t = P_t^e + \phi_0 - \phi_1 u$

Peace is achieved in the battle of the mark ups when unemployment is at an equilibrium u^* given by:

2(a) $u^* = \dfrac{\delta_0 + \phi_0}{\phi_1 - \delta_1}$

When unemployment is below its equilibrium level u^*, inflation will rise (prices accelerate) — when it is above its equilibrium level inflation will fall (prices decelerate).

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37 Layard, R., S. Nickell and R. Jackman 1991, *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press, New York.

38 In an insider-outsider model of unemployment (where insiders with jobs bargain over wages with little reference to the concern of outsiders — the unemployed) the responsiveness of wages to the level of unemployment would be very low leading to the potential for a very high equilibrium level of unemployment. In the insider-outsider model the wage bargainers respond more to the change in unemployment than to the level. This can lead to significant inertia in unemployment (for example, unemployment becoming stuck at a high level).

It is clear from this that unemployment is a two sided process. If product markets were perfectly competitive and if unions had no bargaining power then unemployment (in so far as it related to wage setting and price setting factors) would fall to zero. In other words the only unemployment that would exist would be due to normal frictions in the labour market (that is due to normal turnover, levels of mismatch and the time taken to find jobs — which in turn depends on the search intensity of the unemployed and the level of their reservation wage). Evidence from the AUS-M model indicates that this latter level of unemployment is currently around 3 per cent of the labour force. The model also indicates that there has been little movement in this level over time so that the bulk of unemployment experienced during the 1970s, 1980s and 1990s stemmed from price setting/wage setting factors.

The AUS-M model also indicates that the price/wage setting component of unemployment has fallen from a peak of around 4.5 per cent in the late 1980s to a little less than 1 per cent now. The bulk of the 3.5 percentage point fall in this measure can be attributed to reforms to the labour market such as the decentralisation of wage bargaining, the changing structure of the workforce with far more professional and skilled workers, and the decline in union membership. However, part can be attributed to increased levels of competition in the economy, with the opening up of the economy to trade and foreign investment, the deregulation of the financial system, the reform and privatisation of public enterprise and the implementation of competition policy. Based on international evidence these changes have probably accounted for around one to one and half percentage points of the reduction.[39] Of this, possibly around a third can be attributed to trade liberalisation – that is it would account for around a third to a half of a percentage point reduction in the unemployment rate.

Translating the model into a conventional expectations-augmented Phillip's curve

The simple two equation model can be translated into a standard expectations augmented Phillip's curve which is then estimated off the time series wage and price data as follows:

1+2 implies 2(b) $P^* - P_t^e = \delta_0 + \phi_0 - (\phi_1 - \delta_1)u$

Substituting 2(a) into 2(b) implies: 2(c) $P^* - P_t^e = (\phi_1 - \delta_1)(u^* - u)$

[39] See for example recent cross country evidence in Bassanini, A. and R. Duval 2006, 'Employment Patterns in OECD Countries: Reassessing the Role of Policies and Institutions', *OECD Economics Department Working Papers* , No. 486, Paris; and Gianella, C., Koske, I., Rusticelli, E. and Chatal, O. 2008, 'What Drives the NAIRU? Evidence from a Panel of OECD Countries', *OECD Economics Department Working Papers*, Paris.

To translate the model into a dynamic setting we need to make some assumptions about how quickly prices adjust. Due to overlapping contracts and price indexation there is inevitably some nominal inertia in Price Setting:

3. $\Delta P_t = (1-\alpha_1)\Delta P_{t-1} + \alpha_1 \Delta P_{t-2} + \alpha_0 (P^*_{t-1} - P_{t-1})$

For simplicity in exposition we can assume that $P^e_t = P_t$ in 2. That is workers price expectations are based on current outcomes. This then gives a reduced form price Phillip's curve as follows:

4. $\Delta P_t = (1-\alpha_1)\Delta P_{t-1} + \alpha_1 \Delta P_{t-2} + \alpha_0 (\phi_1 - \delta_1)(u^*_{t-1} - u_{t-1})$

In which case, the coefficient on the unemployment gap term depends on the degree of nominal inertia α_0 in the product market, the extent of competition in the product market, and the extent to which real wages respond to unemployment in the labour market (i.e. or how much the workers bargaining position responds to the level of unemployment). That is, if prices adjust very rapidly the reduced form slope will be high, and the increase in unemployment required to reduce inflation will be low.

Given 2. $\Rightarrow \Delta P_t = \Delta W_t + \phi_1 \Delta u_t$

4. can be rewritten as a wage Phillips curve

5. $\Delta W_t = (1-\alpha_1)\Delta P_{t-1} + \alpha_1 \Delta P_{t-2} + \alpha_0 (\phi_1 - \delta_1)(u^*_{t-1} - u_{t-1}) - \phi_1 \Delta u_t$

B Models used in the modelling simulations

The ORANI model of the Australian economy

ORANI is a comparative static computable general equilibrium model of the Australian economy. This report uses the Fiscal Horridge version of the ORANI model. This version of the model differs from the standard ORANI in that it has a richer specification of taxes, allows the income earned by primary factors to go back to households and allows wealth accumulation.

ORANI can be run with two different closures, that is, choices of which model variables adjust in response to the shock. There is a short-run closure (corresponding to an adjustment period of a couple of years) and a long-run closure (corresponding to adjustments that may take up to ten years). This report uses the long-run closure of the model. Some of the assumptions underlying the long-term closure of ORANI are as follows.

- Profit maximisation: the representative business in each industry chooses inputs and outputs to maximise profit subject to prices, and a production function exhibiting constant returns to scale. This involves choosing inputs of land, capital, labour and intermediate goods and services, and outputs for the local and export markets.
- Labour market equilibrium: in the long-run the labour market is assumed to attain equilibrium, so that an economic shock has no lasting effect on total employment. This assumption is implemented by fixing the level of total employment.
- External trade balance: in the long-run, external balance is assumed to be achieved, so that trade shocks have no lasting effect on the trade balance. This assumption is implemented by setting the trade balance equal to the cost of servicing payments on foreign-owned capital — the real exchange rate needed to achieve this outcome is determined by the model.
- Budget balance: in the long-run, fiscal policy must be sustainable. Specifically, in ORANI the government budget is assumed to be in balance. It is necessary to designate a swing fiscal policy instrument to achieve that outcome. Generally, the rate of tax on labour income is used as the swing fiscal policy instrument.

- Private savings: in the long-run the level of private sector savings and associated asset accumulation must be accounted for. Further, as mentioned before, Fiscal Horridge version of the ORANI allows for accumulation of assets.

The ORANI model distinguishes about 100 sectors and describes:

- the demands by industries, households and government for domestically produced and imported goods and primary factors (that is labour, capital and land);
- the supplies of commodities (for example crops and livestock, manufactures and services) by domestic producers to the local and export markets;
- the balance between the demand and supply of commodities and primary factors; and
- macroeconomic outcomes (gross domestic product, balance of trade and so forth), which are the sum of their industry and commodity components.

ORANI captures the linkages within an economy by modelling the economic behaviour and interactions of producers, consumers and governments. The in-built behaviour in the model is that consumers are assumed to maximise utility and producers to maximise profits. Markets are assumed to be competitive and there are constant returns to scale. The economy is composed of consumers and producers. Producers can purchase their inputs from any other industry in Australia as well as imports from overseas. Producers supply goods and services to consumers who have a choice about whether they purchase imports based on price and tastes. Producers also supply the export market. Producers have a degree of flexibility in how they combine inputs, using that combination which minimises costs. Technological change is exogenous.

The model reflects a combination of two key components: its database and the theoretical structure embodied in the system of equations of the model.

Of key importance in this model is that workers can make choices between the occupations they engage in according to the wage they can earn in a particular industry. This labour can be used in varying proportions with capital and land. Also, producers can make flexible choices between the uses of imported or domestic varieties of each commodity from industries, such as motor vehicles. However, each commodity and primary factors in total are used in fixed proportions as given by the input/output structure.

Original documentation of ORANI including a detailed description of the underlying structure of the model and how to interpret results can be found in Dixon et al (1982)[40].

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[40] Dixon, P., Parmenter, B., Sutton, J. and Vincent, D. 1982, *ORANI: A Multicultural Model of the Australian Economy*, Amsterdam, North Holland.

GTAP

GTAP is the global modelling framework developed as part of the Global Trade Analysis Project, which was established in 1992. GTAP is supported by a fully documented, publicly available, global database and underlying software for data manipulation and implementing the model. The GTAP framework consists of a system of multi-sector country economy-wide models linked at the sector level through trade flows between commodities and factors of production. The latest GTAP database (version 7) divides the global economy into 113 regions, with 57 sectors of economic activity in each region.

GTAP is a comparative static, general equilibrium model. In the GTAP model the activities of economic agents — consumers, producers and government — are modelled according to neoclassical economic theory. Consumers are assumed to maximise utility and producers to maximise profits. Markets are assumed to be perfectly competitive. Production exhibits constant returns to scale. Different regions and economies are linked through trade.

The change in welfare reported by the GTAP model arises principally from the reallocation of resources within an economy and the resulting change in allocative efficiency. Welfare may also change as a result of terms of trade effects, which may be significant for some countries. GTAP does not permit any statement about the time path of benefits and capital flows that allow consumers to borrow and so vary their real consumption patterns over time. Important dynamic gains from trade liberalisation are not captured in a comparative static model of this kind.

A detailed description of the GTAP CGE model can be found in Hertel (1997).[41]

The CIEG-Cubed model

The CIE version of the G-Cubed model (termed CIEG-Cubed) tracks the flows of resources within the Australian economy as well as between Australia and the rest of the world. The model in its current form covers 57 sectors. CIEG-Cubed is unique in that it integrates a number of alternative approaches to modelling — macro-econometric models, computable general equilibrium models and real business cycle models into one framework. The model distinguishes between financial and physical capital.

Financial capital is perfectly mobile between sectors and from one region to another, and is driven by forward-looking investors who respond to arbitrage opportunities. Physical capital, in contrast, is perfectly immobile once it has been installed: it cannot

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41 Hertel, T.W. (ed.) 1997, *Global Trade Analysis: Modelling and Applications*, Cambridge University Press, UK.

be moved from one sector to another or from one region to another. In addition, inter-temporal budget constraints are imposed on economic decision maker.

Drawing on the general equilibrium literature, CIEG-Cubed represents the Australian economy as a multi-sector general equilibrium model. Production is broken down into fifty seven industries and each is represented by a cost function. Unlike many general equilibrium models, however, CIEG-Cubed draws on macroeconomic theory by treating saving and investment as the result of forward-looking inter-temporal optimization. Households maximize an inter-temporal utility function subject to a lifetime budget constraint, which determines the level of saving, and firms choose investment to maximize the stock market value of their equity.

Finally, CIEG-Cubed also draws on the macroeconomic literature by including a transactions-based money demand equation, liquidity-constrained agents, and slow nominal wage adjustment. Unlike typical macro models, however, CIEG-Cubed has substantial sector detail.

This combination of features was chosen to make CIEG-Cubed versatile. Industry detail allows the model to be used to examine environmental and tax policies which tend to have their largest direct effects on small segments of the economy. Inter-temporal modelling of investment and saving allows the model to trace out the transition of the economy between the short run and the long run. Slow wage adjustment and liquidity-constrained agents improves the empirical accuracy with which the model captures the transition. Overall, the model is designed to provide a bridge between computable general equilibrium models, international trade models and macroeconomic models by combining the best features of each approach.

The key features of CIEG-Cubed are summarized in table B.1.

B.1 **Key features of CIEG-Cubed**

- Includes the same Australian and regional detail as GTAP.
- Each region's production, consumption and international trade is disaggregated into 57 sectors;
- Complete specification of the demand and supply sides of each economy;
- Full integration of real and financial markets;
- Complete intertemporal accounting linking stocks and flows of both real and financial assets;
- Imposition of al intertemporal budget constraints on agents and countries;
- Short run behaviour is a weighted average of neoclassical optimization and liquidity-constrained behaviour;
- Full short and long run macroeconomic closure around a long run Ramsey neoclassical growth model;
- Solved at an annual frequency for a full rational expectation equilibrium out to 2030 or beyond.

More details on the G-Cubed model — the model underlying CIEG-Cubed — can be found in McKibbin and Vines (2000) and McKibbin and Wilcoxen (1998).[42]

The AUS-M Model

The AUS-M Model is a quarterly time-series structural model of the Australian economy. It is essentially an outgrowth of the Treasury Macroeconomic (TRYM) model. It is an evolution of that model towards a CGE style model incorporating input-output based demand systems and far greater industry and commodity detail than the original model, but retaining the same overarching design philosophy. Like the original TRYM model it has three broad sectors (the household sector, the business sector and the public sector) and three markets: the product market, the labour market, and the financial market. Systems of equations link each sector and each market. Like TRYM each equation has a long run representation. The long run components are combined to form a steady state version of the model that is simulated to provide forward values for expectational variables. Unlike models such as ORANI, GTAP and G-Cubed where parameters are largely imposed by the model builder, the parameters in AUS-M are entirely estimated off the historical time series data. (Doing so limits the size of the model, so it is not as detailed as a traditional CGE model.) The model is updated quarterly and used for detailed forecasting and sensitivity analysis. The comparative advantage in a model of this kind comes from being constantly tested against the data. If structural change is occurring in any individual sector of the economy this is immediately reflected in the model's parameters. It has a good fit of the historical data, and hence is able to provide a coherent explanation of historical developments. Its focus on dis-equilibrium adjustment processes, for example in the dwelling and labour markets, and its empirical grounding make it an ideal complement to the more detailed models (or alternatively the more detailed models are an ideal complement to it).

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42 See McKibbin, W.J. and Vines, D., 2000, 'Modelling Reality: The Need for Both Intertemporal Optimization and Stickiness in models for Policymaking', *Oxford Review of economic Policy*, vol. 16, no. 4; and McKibbin W. and Wilcoxen P., 1998, 'The Theoretical and Empirical Structure of the G-Cubed Model', *Economic Modelling*, 16, 1, pp. 123–48.

C Examples of the impact of trade liberalisation on individual sectors

Dairy industry

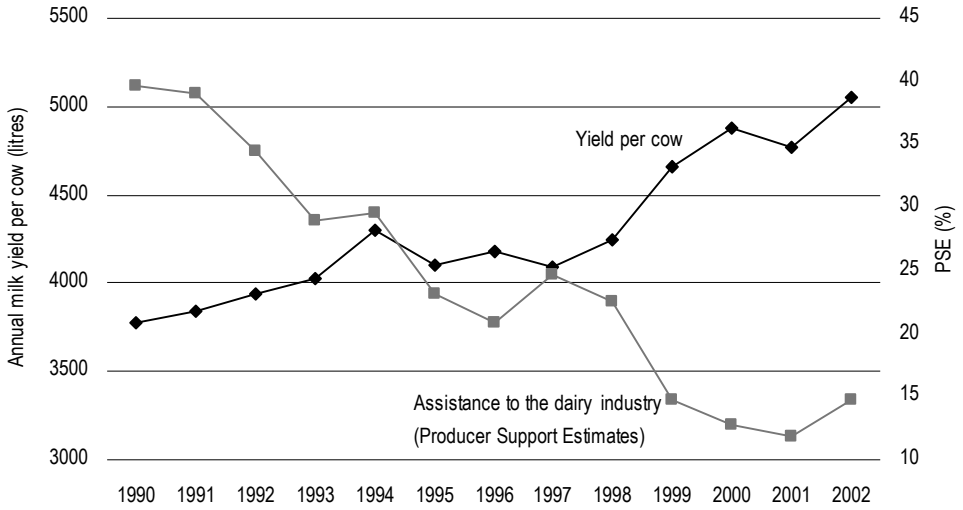
Historically, the Australian dairy industry gained extensive protection through import protection and price support schemes that allowed farmers to receive a substantially higher farm gate price for market milk compared with the average price for manufactured milk, even though there is no difference between the two products.

That all changed in 1986 when the *Dairy Produce Act* was introduced into Parliament which began the phase out of price support for domestic producers. Some farmers made changes to improve viability during this time, but in July 2000 the last major policy change was implemented in the industry; full liberalisation of the dairy products market involving the overnight removal of all price supports in the industry.

The first full year of deregulation saw dramatic impacts on farm incomes. Farm returns from milk fell 18 per cent in Queensland and 12 per cent in New South Wales, largely driven by the 16 per cent reduction in price received.

However, in the following two years of deregulation, the quantity of farm output increased by 26 per cent in New South Wales; 18 per cent in Queensland and 19 per cent in Victoria as farmers adjusted to the new market order. In reacting to the new market conditions farmers who stayed in the industry were forced to increase productive performance. Some expanded the number of dairy cows, while others increased their land area. However, the vast majority of farmers that did not adjust herd size made changes to improve performance by changing the use of inputs such as fertilizer and irrigation to increase milk yields. Through farm adjustment and exit of the least efficient, yields improved. The relationship between milk yields and industry protection is shown in chart C.1. It shows that with declining industry protection, milk yields increased.

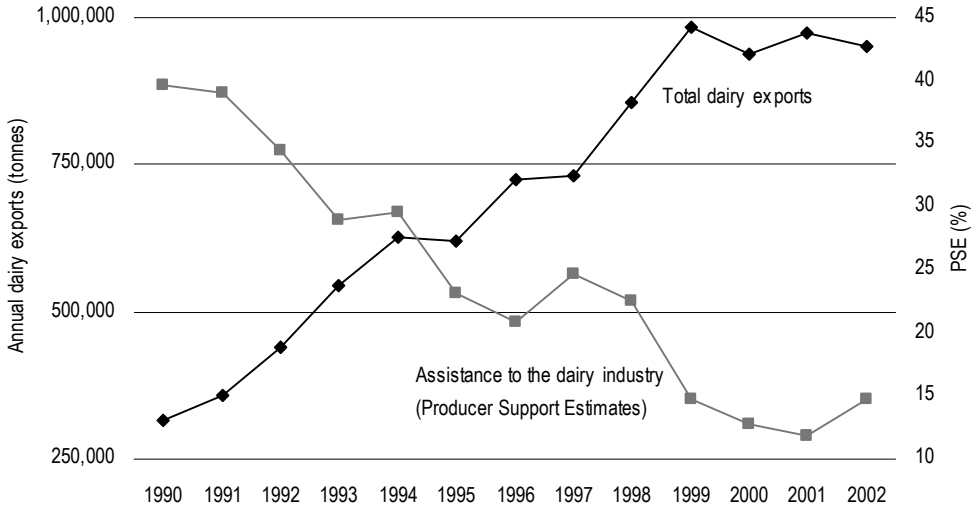
C.1 **Australian dairy milk yields and level of industry protection**



Data sources: ABARE AGSURF Database and OECD Support Database.

The end result was that the Australian dairy industry improved its international competitiveness. Total dairy product exports increased 200 per cent in the years 1990–2002, correlating with the decline in industry support as shown in chart C.2. Removing protection had a dynamic effect on productivity and reoriented the Australian dairy industry to a globally competitive export industry.

C.2 **Australian dairy product exports and level of industry support**



Data source: Dairy Australia and OECD Support Database.

Automotive industry

The Australian motor vehicle industry has traditionally received special attention from the federal government and has been heavily affected by their policies. From 1968 to 1985 the automotive industry received massive support in the form of trade tariffs and non tariff measures such as import quotas and local content requirements. By the time the Fraser government came to office, the tariff rate on imported cars stood at 57.5 per cent, their highest historical level. However, this protectionism did not seem to help the market position of the local manufacturers.

When the Hawke government was elected to power it was faced with a weak industry, characterised by high tariff and quotas and poor quality locally made cars. In 1983, Holden laid off 2000 employees. Instead of the government resorting to tariffs and other forms of protection to protect the automotive industry, a number of substantial reforms were announced under what is now known as the 'Button' plan.

The aim of the plan was to increase efficiency in the industry in general but also to raise the quality of domestically made cars. To facilitate this, the import quotas were abolished and several rounds of tariff reductions took place. Table C.3 highlights just how dramatic the tariff reductions in the automotive industry were.

Additionally, the plan made provisions for export facilitation, rationalisation of the component manufacturing sector and investments in new production technology and training.

As a result, by 2003 the rate of tariff protection the automotive industry enjoyed was reduced to 10 per cent. By 2005, substantial rationalisation had occurred in the industry, which left four foreign owed producers — Ford, GM Holden, Mitsubishi and Toyota — and 200 component manufacturers, from an estimated 500 in 1989-90, supplying the market.[43] In March 2008, Mitsubishi announced that it would cease production of passenger motor vehicles in Australia as part of its global restructuring process.

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43 Department of Foreign Affairs and Trade 2001, *Australian Trade: Outcomes and Objectives statement*, Australian Government, Canberra.

C.3 **Two Decades of tariff reductions**

Year	*Tariff Rate (%)*	*Non-Tariff Reforms*
1978-84	57.5	Introduction of the export facilitation scheme in 1979
1985	57.5	Introduction of the Button Plan
1986	57.5	
1987	57.5	
1988	45	Import quota abolished
1989	42.5	Local content scheme abolished
1990	40	
1991	37.5	
1992	35	
1993	32.5	
1994	30	
1995	27.5	
1996	25	Introduction of a voluntary code for reducing fuel consumption
1997	22.5	
2000	15	
2003	10	
2008	10 (Scheduled to fall to 5% in 2010)	Bracks Review recommends increased adjustment assistance

Source: The CIE.

In re-positioning itself as an export industry the Australian automotive industry has been quite successful in the rationalisation of the market after the implementation of tariff reductions. The growth in total automotive exports from Australia has been substantial, increasing from $1 billion in 1990 to $4 billion in 2007,[44] with 40 per cent production now destined for overseas markets as compared with 10 per cent a decade ago.[45]

Despite the global trend towards smaller cars, market forces have helped the Australian automotive industry become a niche player in the world market in supplying large rear wheeled drive saloons. Naturally, there are some success stories from within the automotive industry. Prior to the 2008-09 global financial crisis Toyota and GM Holden had been increasing their exports of locally made and developed models to an increasing number of international markets. Both suppliers

[44] ABS (Australian Bureau of Statistics), 'International Trade in Goods and Services, Australia', ABS Publication No. 5368.0.

[45] Productivity Commission 2008, 'Modelling Economy-wide Effects of Future Automotive Assistance', *Productivity Commission Research Report*, May, page 3.

had made significant in-roads to the Middle Eastern market and in 2008 36 000 vehicles were exported to the highly competitive North American market.[46] While overall production has not increased markedly neither has it fallen, with average levels increasing by around 9 per cent between 1988 and 2008,[47] quite a remarkable result given the trend of consumers towards smaller cars, and the large increase in the exchange rate over the period. While production has been broadly maintained, the price of cars to the consumer has fallen by 36 per cent in real terms since 1987, equivalent to a saving of around $18 000 on a standard family sedan. The model results indicate that a little over half of this reduction (or $10 000) can be attributed to the reduction in border protection.

The current global financial crisis will obviously have a detrimental impact on the Australian (and indeed, global) automotive sector. The Federated Chamber of Automotive Industries is forecasting 880 000 new vehicle sales in Australia during 2009, down from the 1 012 164 new vehicles sold during 2008.[48] The domestic car manufacturers — Ford, Holder and Toyota — will likely bear a significant portion of the decline in vehicle sales. In an effort to starve off bankruptcy, GM is cutting its model lines, and this has seen the cancellation of imports of Australian made Commodores (which are rebadged as G8 Pontiacs in the US). It is estimated that the shutting down of the Pontiac brand will see Holden losing exports worth some A$1 billion to the North American market.[49]

Despite the GFC impacting on local sales and exports, tariff liberalisation is associated with the Australian automotive sector becoming more efficient, internationally competitive and a producer of world class passenger cars. The automotive industry is probably better placed than ever before to weather the downturn in local sales and exports.

Aluminium and light metals

Australia is blessed with significant natural resources, which has contributed to the domestic aluminium industry becoming one of the world's leading producers and processors of aluminium. Aluminium is a major contributor to the Australia

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46 See TheAge 'Holder hit by GM's cutbacks', 29 April 2009, http://business.theage.com.au/business/holden-hit-by-gms-cutbacks-20090428-akva.html, accessed 7 May 2009.

47 Productivity Commission, op. cit., page 3. Figure refers to the average number of cars produced in the five years to 2007 compared to the five years to 1988. (Taking a five year average abstracts from yearly fluctuations due to changes in the exchange rate and the business cycle.)

48 See FCAI media release 'Strong finish for new vehicle sales in 2008', 6 January 2009, http://www.fcai.com.au/news/all/all/200/strong-finish-for-new-vehicle-sales-in-2008, accessed 7 May 2009.

49 Op cit, TheAge.

economy generating in 2007-08 a combined export value for finished aluminium and alumina oxide of $11.1 billion.[50]

One of the major markets for Australia produced aluminium, alumina and bauxite remains the United States, with aluminium being a large share of the 20 per cent of total commodities exported to the United States.

However, until 2005, barriers to trade for Australia aluminium producers still remained. Tariffs on some aluminium alloy products imported into the US were imposed with a 6.5 per cent tariff.

That all changed in 2004 when Australia entered into a free trade agreement with the United States, with the agreement coming into effect on 1 January 2005. At that time, all tariff rates relating to the importation of aluminium were abolished, reducing one of the barriers to trade faced by the aluminium metals industry in the United States.

Australian producers stood to gain significantly from this change. In the years since the implementation of the free trade agreement and the removal of tariff barriers faced by Australia aluminium producers, the value of exports has increased substantially. In 2004 Aluminium exports were valued at $175 million, by 2007 that had increased to $195 million, an 11.4 per cent increase in the value of exports.[51]

As for other light metals, Australian exports of magnesium and titanium face tariff barriers of 8 per cent and 15 per cent respectively. After the implementation of the US free trade agreement these barriers were reduced to zero. Australia has a highly prospective magnesium industry and one of the world's richest titanium resources on which it can build a new industry. The reduction of trade barriers can help in the establishment of significant new light metal industries in Australia.

Trade liberalisation and services exports

While commodity exports are grabbing the headlines due to world record prices for our main mineral exports such as iron ore and coal, Australia's service sector exports have been quietly increasing in importance over time (albeit at a slower rate in recent years due to the higher dollar). In 2007-08 they were equivalent to 4.5 per cent of GDP — more than the value of iron ore and coal exports combined (3.9 per cent). Education providers have seen particular success in recent years with exports rising from $4 billion in 1999-2000 to $14 billion in 2007-08 (equal to 1.2 per cent of GDP).

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50 ABS (Australian Bureau of Statistics),*'International Merchandise Exports,* ABS Publication No. 5432.0, Canberra.

51 Department of Foreign Affairs and Trade 2007, *'Australia's Trade with the Americas'*, Australian Government, Canberra.

Unlike goods where border protection is usually easily recognised, trade in services is somewhat more complicated. Trade in services takes four main forms or modes: (1) cross border supply (for example, cross border freight or communications), (2) consumption by an individual who visits or temporarily resides in the country (for example, tourism); (3) supply within the foreign country provided by an Australian firm or entity with a commercial presence in that country (for example, a bank with a branch in a foreign country), and (4) supply provided by an Australian resident who travels to provide a service (for example, an architect or building consultant working on a project overseas).

Australian education services provide a good example of the sometimes subtle requirements and complexities of services trade. Australia's earnings from education exports come from all four modes of services trade. Education services can be provided electronically to students overseas (mode 1), students can come to Australia to learn (mode 2), an Australian university can set up a campus overseas (mode 3), and Australian professors can teach overseas (mode 4).

Australian education services are promoted throughout the world by Australian Education International, which has had particular success in attracting students from South-East Asia. Encouraging education exports also means reducing barriers to trade such as visa restrictions, mutual recognition of degrees granted by institutions and 'work permits' for educations in overseas countries. Education services are an example of a growing and successful services trade.