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The potential employment impacts of an Australia-China free trade agreement

By Jim Stanford Ph.D and Pat Conroy

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Executive Summary

The Commonwealth Government is currently negotiating a Free Trade Agreement (FTA) with China. Australia's trading relationship with China is deeply unbalanced. Australia's current merchandise trade with China can be described as follows: Australia harvests resources which are sold to China, to partly pay for a larger incoming flow of increasingly sophisticated value-added goods (which are made, in part, from the resources which Australia exported). Australia experiences a substantial trade deficit with China, exceeding $5 billion last year, despite our booming mineral exports to China. The present bilateral relationship leads to a net job loss in Australia of over 66,000 jobs -- partly because of that deficit, and partly because the products imported by Australia from China embody a higher job content than the products we export to China.

The Chinese government has pursued an explicit national industrial development strategy since 1978, strategically intervening to create markets where none exist, shape markets when they need shaping and to over-ride markets when they contradict the development objectives. The result of all this is that China is rapidly increasing its technological capabilities. The assertion that China produces low technology labour intensive goods that need our knowledge and capital is very wrong and any trade agreement based on this mistaken understanding will significantly damage our economy.

Australia has signed and implemented three new "free trade" in agreements as part of the Commonwealth government's current strategy to expand bilateral free trade relationships. In every one of the three FTAs, Australia's imports from the FTA partner have grown much more quickly than Australia's exports to that FTA partner. Since implementing FTAs with these three countries, Australia's bilateral merchandise trade deficit has widened by a combined annual total of over $11 billion. Were it not for the deterioration in bilateral trade balances under each of these three FTAs, Australia's trade would have been roughly balanced last year, instead of mired deeply in deficit.

The economic studies purporting to show the benefits of these FTAs (including the proposed agreement with China) are based on highly unrealistic assumptions and cannot be trusted. Some of the assumptions include full employment; all jobs pay the same wage; equal distribution of country's entire wealth and income; companies cannot flee the country in search of lower production costs; no trade deficits; and Australia is the only place in the world that can produce unique Australian varieties of goods and services that are demanded by consumers all over the world. These unrealistic assumptions mean that predictions of the effects of free trade based on computerized models are hypothetical and misleading, and can in no way be interpreted as "proof" that free trade will be so mutually beneficial. This suspicion is reinforced by a review

Doug Cameron
AMWU National Secretary

"The assertion that China produces low technology labour intensive goods that need our knowledge and capital is very wrong"

of Australia's negative experience in the three existing FTAs -- all of which have boosted Australia's imports far faster than its exports, and have promoted a significant widening of trade deficits.

Our more realistic efforts to simulate the economic and employment impacts of a comprehensive FTA with China indicate that it would have a negative and potentially very large impact on a wide range of manufacturing industries. Imagine a best-case scenario, in which Chinese tariffs and tariff-equivalent barriers are eliminated in all areas (including the sensitive agricultural sector), and Chinese imports from Australia respond fully and transparently to tariff elimination (something that has been demonstrated not to occur in East Asian economies, in which the impact of pro-active industrial and trade policy levers continues to be strongly felt -- even in a free trade setting). Imagine furthermore that there is no exodus of capital to China, and that the impact of tariff elimination is limited only to incremental and relatively modest shifts in consumer spending patterns (following the typical methodology of conventional economic models). Even in this best-case scenario, Australia would still suffer a net job loss of over 7,000 jobs (including 22,000 lost jobs in manufacturing)

In reality, however, the impacts of an Australia-China FTA (ACFTA) will not be so benign. The experience of Australia's three other FTAs has shown conclusively that aggregate trade flows grow much more quickly than expected in standard economic models, and that Australia's imports have consistently grown much faster than its exports. If we apply the actual historical experience of Australia's existing FTAs, extrapolated over a five-year adjustment period, then the net job losses for Australia are far worse.

Our simulations indicate a job loss of over 170,000 positions in manufacturing, offset only partly by limited new employment creation in agriculture and mining. Entire sectors of manufacturing, including textiles and apparel, would be virtually wiped out. The overall net employment impact in Australia would be a job loss of 158,500 positions.

"Our simulations indicate a job loss of over 170,000 positions in manufacturing, offset only partly by limited new employment creation in agriculture and mining"

Impact of ACFTA Based on Repeat of 3-FTA Experience

Trading Performance			Employment Changes (000)			
Growth Exports to China	Growth Imports from China	Change Bilateral Trade Balance	Agriculture	Mining	Manufacturing	TOTAL
29.7%	158.7%	-$34.4 bil.	5.6	6.8	-170.9	-158.5

Of course, the Australian economy would find ways to adjust to this massive, painful shock, so as to manage the large trade deficit and employment downturn that would be the first-order consequence of a bilateral FTA with China. This adjustment would likely involve a contraction in domestic incomes (in order to reduce import expenditure), along with potential adjustments in exchange rates and interest rates. Nevertheless, our simulations indicate quite strongly that when the extreme and unrealistic assumptions of computerised economic models (involving full employment, international trade balances, and other factors) are relaxed, it is clear that exposing Australian industry to the full force of competition from China's ultra-low-cost industries would have a devastating impact on tens of thousands, perhaps hundreds of thousands, of workers and their families.

The policy implications of this research are clear. Firstly, Australia must not sign a free trade agreement with China. More realistic economic simulations indicate it will have a detrimental effect on our economy and especially on employment in manufacturing – the future health of which is strategically important to our long-term economic well-being. More broadly, Australia must rethink its trading relationship with China, focusing on a more managed expansion of bilateral trade that is contingent on China ratifying the core International Labor Organization conventions and protecting the human and labour rights of its citizens, and contingent on Chinese purchases of value-added, higher-technology products from Australia (not just our resources).

Furthermore, in light of the significant negative impact the three current FTAs are having on the Australian economy, the Coalition government's current emphasis on signing more FTAs must be reversed. A serious rethink of overall Australian trade policy is required. Indeed, Australia should learn from China and the other North East Asian nations and implement more effective, pro-active industry and trade policies, rather than simply assuming that deregulated international commerce will automatically ensure a desirable economic structure. Strategic intervention is not only desirable to shape the industrial structure of Australia and boost investment and productivity, it is essential if we are to have a balanced, sustainable economy capable of competing globally on the basis of high skills-high value added trade rather than on low wages.

"In light of the significant negative impact the three current FTAs are having on the Australian economy, the Coalition government's current emphasis on signing more FTAs must be reversed"

Introduction

Prime Minister John Howard and Chinese Premier Wen Jiabao agreed on 18 April 2005 in Beijing to launch negotiations on a free trade agreement (FTA) between Australia and China. This followed the release of a feasibility study in March of that year arguing that significant economic benefits would accrue to each country from enacting a FTA. As a precursor to negotiations beginning Australia granted China market economy status.

The context of this is the decision of the Commonwealth Government to pursue a series of 'free trade agreements', which should be more correctly referred to as bilateral preferential trade agreements, rather than concentrate on multilateral trade negotiations. In 2003 a free trade agreement with Singapore became operational after 2 years of negotiations. On 1 January 2005, free trade agreements with the United States and Thailand began. The agreement with the United States was particularly controversial, creating a large public debate in the lead up to the 2004 Federal election.

These agreements are the centrepiece of the trade policy of the Federal Liberal-National Government. The debate around their effectiveness should be seen in the context of the current decline in manufacturing.

The key features of this decline are

- 100,000 manufacturing jobs have been lost since the current Liberal-National Government came to power.
- Manufacturing output shrank by 1.1% in 2004/05 and by 0.4% in 2005/06.
- Between 2001 and 2005 manufacturing exports actually fell by $1.3 billion and manufacturing imports grew by $28.4.billion. The manufacturing trade deficit has exploded by $29.7 billion to stand at $89.5 billion.
- Manufacturing's share of total business expenditure on research and development (BERD) has declined from 45.2% in 2000/01 to 40.9% in 2004/05.

This report will consider whether an Australia China Free Trade Agreement (ACFTA) will hurt or help our domestic industries. It will have a specific focus on manufacturing for a number of reasons, including:

1. Manufacturing is the sector most likely to be negatively affected by the ACFTA.
2. Maintaining a prosperous manufacturing sector is vital to having a balanced, sustainable economy.

Section I of the report details Australia's existing economic relationship with China. The current structure of our economic relationship with China helps determine the likely impact of the ACFTA.

Section II of the report will briefly summarise the Chinese economic strategy. China has experienced a phenomenal economic expansion that has fundamentally changed the global economy. How they have accomplished this is important to understand, as their commitment to active industry policy and rejection of neo-liberal market-driven economic prescriptions will significantly affect how the Chinese economy will respond to trade liberalisation under an ACFTA.

Section III sets out the experience of Australia's other free trade agreements. This report is unique in that it attempts to understand the impact of the ACFTA as if the two economies involved reacted in a similar manner to the experiences of the three other free trade agreements. This is the first time an attempt has been made to analyse the impact of the ACFTA based on real life FTA experience, rather than using the flawed, highly stylised, Computable General Equilibrium (CGE) models of the impacts of the FTAs.

"100,000 manufacturing jobs have been lost since the current Liberal-National Government came to power"

Section IV goes on to explore the nature of these CGE models and reviews in particular the study performed by the Centre of Policy Studies (CoPs) at Monash University that figured prominently in the two governments' feasibility study. This study used CGE techniques to find that a free trade agreement with China would deliver economic gains to both countries. In order to develop a more realistic portrayal of the impact of an ACFTA, Section IV also introduces an alternative input-output approach to estimating the first-order employment effects of a bilateral FTA.

Section V then details the likely employment effects of Australia's existing trade with China. If we are to understand the potential changes an ACFTA may deliver, we need to analyse what effect our current trade with China has on our economy.

The potential employment effect of an ACFTA is examined in Section VI. This is the nub of the report. A range of employment projections is provided, based on a set of alternative methodologies. Standard ''elasticities''-type projections are provided of the impact on trade flows (and hence employment levels) resulting from tariff elimination, under a range of assumptions regarding the effectiveness of Chinese tariff reduction in stimulating genuine import penetration. Two additional projections are provided on the basis of the application of real-world historical experience, both with past China-Australia trade flows, and with Australia's concrete experience with its three existing FTAs. These simulations indicate that the employment effects for Australia of an ACFTA will be negative, even under ''best-case'' assumptions, and the damage to Australia's manufacturing sector from an ACFTA could be immense.

The report concludes in Section VII with a summary of the findings and a discussion around the policy implications arising from the report.

''These simulations indicate that the employment effects for Australia of an ACFTA will be negative, even under 'best-case' assumptions, and the damage to Australia's manufacturing sector from an ACFTA could be immense''

Section I:

Australia's Existing Economic Relationship with China

China is Australia's second-largest trading partner (after Japan), second-largest export market (after Japan), and second-largest import source (after the U.S.). In 2006, Australia exported just over $20 billion in merchandise to China, and imported just over $25 billion in merchandise back from China. Bilateral trade flows have grown dramatically in the wake of China's economic opening, including its December 2001 accession to the World Trade Organization. Australia's exports to China have grown by 170 percent since 2001, while Australia's imports from China grew by 150 percent over the same period. Despite this slightly faster rate of growth of Australia's exports to China, Australia's bilateral merchandise trade deficit with China nevertheless doubled during this period: from $2.7 billion in 2001, to over $5 billion in 2006.[1] For each dollar of products which Australia imports from China, Australia exports about 80 cents worth of output to China.

Figure 1 - Composition of Australia's Bilateral Merchandise Trade with China 2006

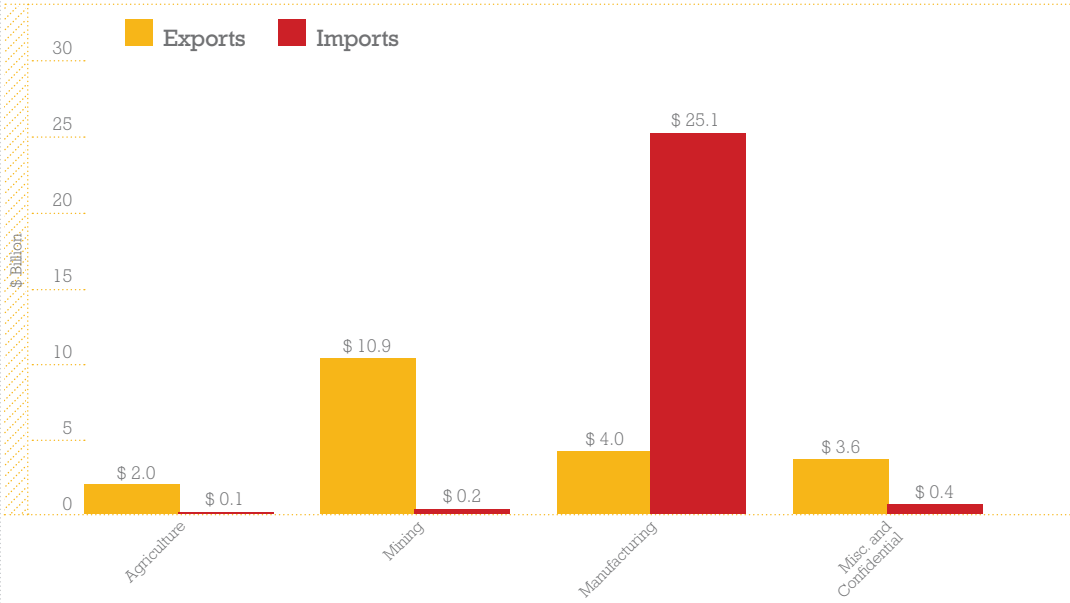


Figure 1 indicates the sectoral composition of bilateral merchandise trade, which is remarkably complementary. A more detailed sectoral breakdown of current exports and imports is provided in Table 1. Australia's exports to China consist almost completely of resource-based products.

"For each dollar of products which Australia imports from China, Australia exports about 80 cents worth of output to China"

Over half of total bilateral exports are produced by the metal mining industry alone. In contrast, Australia's imports from China consist almost completely of manufactured goods. Only about one-fifth of those manufactured imports fall within the textile, clothing, and leather category – stereotypically seen as "labour-intensive," or low-technology products for which low production costs are essential. Australia's imports of higher-technology machinery and equipment from China have become increasingly important. These imports grew five times faster since 2001 than textile, clothing, and leather imports. About 15 percent of Australia's exports to China, and a smaller proportion of its imports from China, are categorized as "miscellaneous and confidential" items, for which data is withheld due to confidentiality restrictions; it is suspected that mineral products account for the bulk of Australia's exports in this category, too.

Table 1 - Australia's Current Bilateral Merchandise Trade Flows with China 2006, $billions

	Exports to China	Imports from China	Balance
Agriculture	1.59	0.05	1.54
Hunting and Trapping	0.37	0.00	0.37
Forestry and Logging	0.03	0.00	0.03
Commercial Fishing	0.03	0.01	0.02
TOTAL AGRICULTURE	**2.03**	**0.06**	**1.97**
Coal Mining	0.60	0.00	0.60
Oil and Gas Extraction	0.37	0.21	0.16
Metal Ore Mining	9.90	0.00	9.90
Other Mining	0.04	0.02	0.02
TOTAL MINING	**10.91**	**0.23**	**10.68**
Food, Beverage and Tobacco	0.70	0.46	0.23
Textile, Clothing, Footwear and Leather	0.23	5.35	-5.12
Wood and Paper Products	0.23	0.42	-0.19
Printing, Publishing and Recorded Media	0.01	0.47	-0.46
Petroleum, Coal, Chemical Products	0.51	1.88	-1.36
Non-metallic Mineral Products	0.02	0.51	-0.49
Metal Products	1.55	1.98	-0.43
Machinery and Equipment	0.61	11.23	-10.63
Other Manufacturing	0.03	2.47	-2.44
TOTAL MANUFACTURING	**3.87**	**24.76**	**-20.89**
Miscellaneous and Confidential Trade	3.61	0.44	3.17
TOTAL TRADE	**20.42**	**25.49**	**-5.07**

Source: Authors' calculations from DFAT STARS data.

"The phenomenal expansion of the Chinese economy is not opening up proportionally more opportunities for Australian manufactured exports"

As indicated in Table 2, it is (not surprisingly) Australia's mineral exports to China which have grown most dramatically over the past five years, up by over 350 percent. Australian manufactured exports to China have grown by 79 percent in the same period – or by half as fast as Australia's overall exports to China. In other words, Australia's exports to China are becoming increasingly concentrated in resource-based commodities. The phenomenal expansion of the Chinese economy is not opening up proportionally more opportunities for Australian manufactured exports, which account for a shrinking share of total Australian exports to China.

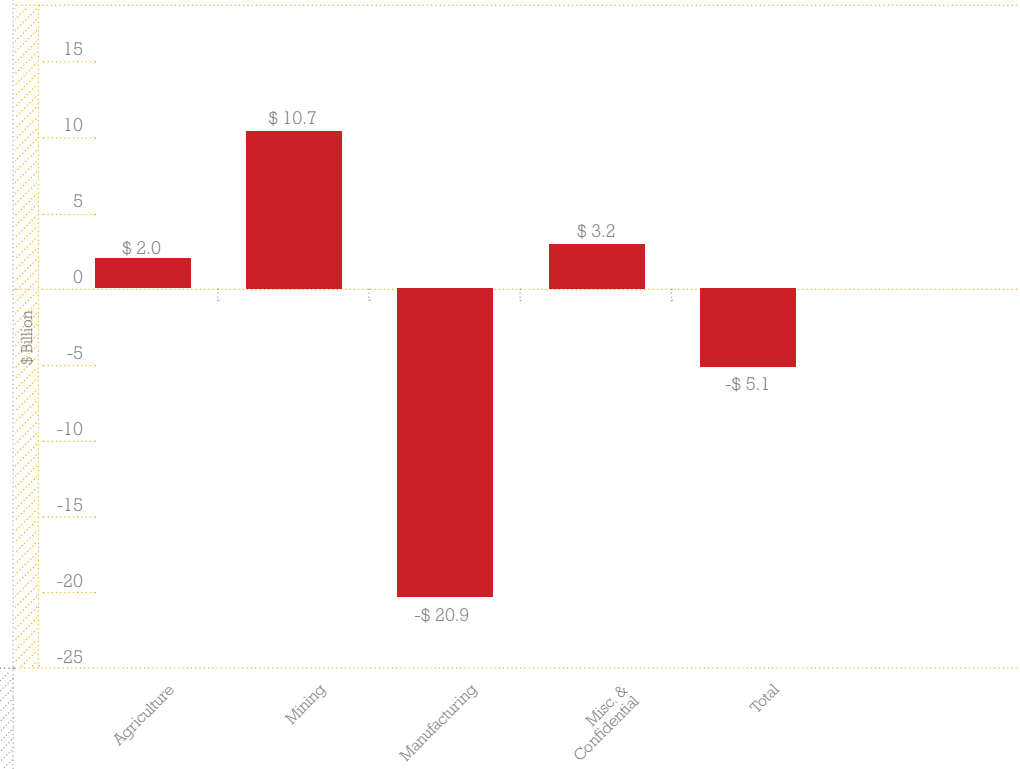
Table 2 - 5-Year Expansion of Bilateral Trade 2001-2006

	Exports to China (%)	Imports from China (%)	Balance ($bil.)
Agriculture	1.6%	88.9%	0.0
Hunting and Trapping	1048.2%	n.m.	0.3
Forestry and Logging	631.2%	-47.0%	0.0
Commercial Fishing	218.9%	115.0%	0.0
TOTAL AGRICULTURE	**25.8%**	**86.0%**	**0.4**
Coal Mining	772.6%	n.m.	0.5
Oil and Gas Extraction	-13.7%	600.0%	-0.2
Metal Ore Mining	442.8%	-10.6%	8.1
Other Mining	249.5%	-51.0%	0.0
TOTAL MINING	**368.5%**	**235.3%**	**8.4**
Food, Beverage and Tobacco	36.3%	126.0%	-0.1
Textile, Clothing, Footwear and Leather	-11.8%	53.4%	-1.9
Wood and Paper Products	106.0%	213.0%	-0.2
Printing, Publishing and Recorded Media	23.8%	282.3%	-0.3
Petroleum, Coal, Chemical Products	82.5%	92.5%	-0.7
Non-metallic Mineral Products	210.8%	100.0%	-0.2
Metal Products	131.4%	199.8%	-0.4
Machinery and Equipment	90.8%	248.6%	-7.7
Other Manufacturing	209.8%	137.8%	-1.4
TOTAL MANUFACTURING	**78.6%**	**145.3%**	**-13.0**
Miscellaneous and Confidential Trade	145.0%	282.5%	1.8
TOTAL TRADE	**169.3%**	**147.2%**	**-2.3**

Source: Authors' calculations from DFAT STARS data.
n.m.= not meaningful.

Australia's overall $5 billion trade deficit with China can also be allocated to the different sectors, as indicated in Figure 2. Australia uses trade surpluses in agriculture ($2 billion), mining (over $10 billion), and miscellaneous/confidential categories (likely consisting mostly of minerals, over $3 billion), to "pay off" a large deficit (over $20 billion) in manufactured products. This still leaves an unpaid $5 billion "bill." In essence, then, Australia's current merchandise trade with China can be described as follows: Australia harvests resources which are sold to China, to partly pay for a larger incoming flow of increasingly sophisticated value-added goods (which are made, in part, from the resources which Australia exported).

Figure 2 - Composition of Australia's Bilateral Merchandise Trade with China 2006



Source: Authors' calculations from DFAT STARS data.

"Australia harvests resources which are sold to China, to partly pay for a larger incoming flow of increasingly sophisticated value-added goods"

Bilateral trade flows between Australia and China have grown quickly in both directions over the past five years. In fact, as noted above, Australia's exports to China have grown slightly faster than its imports from China. However, this is in a context in which the Chinese economy has been growing far faster than Australia's: at an annual average rate (in real terms) of about 10 percent, more than 3 times as quickly as Australia's economy has been growing. Relative to the expansion of domestic purchasing power, therefore, Australia's exports to China have not grown nearly as quickly as its imports from China. This asymmetry is summarized in Table 3, which calculates a revealed income elasticity of import demand (for imports from the proposed ACFTA partner) as the ratio of the expansion of imports to the expansion of GDP (both measured in nominal terms) over the past five years. This analysis indicates that a proportional increase in Australian GDP has generated twice as much new demand for Chinese imports, as an equivalent expansion in Chinese GDP does for Australian exports. This asymmetry induces a powerful underlying tendency for the bilateral trade relationship to tilt in China's favour, especially when China's extremely fast GDP expansion begins to slow.

Table 3 - Revealed Income Elasticities of Trade Australia and China, 2001-2006

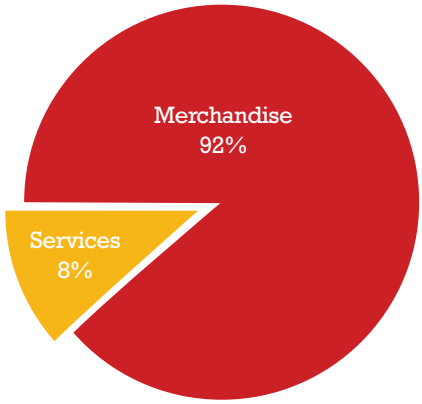
	Australia	China
Growth Nominal GDP	40.2%	89.1%
Growth Imports from ACFTA Partner	147.2%	169.3%
Apparent Income Elasticity	3.7	1.9

Source: Authors' calculations from ABS, IMF data.

Much has been made of the potential for an ACFTA to expand services trade between the two countries. At present, however, this services trade is extremely small as a proportion of total trade. Australia exported about $2 billion in services to China in 2005 (last year for which data is available), and imported about $1 billion in services in return. In 2005, therefore, merchandise trade accounted for 92 percent of all goods and services trade between the two countries (see Figure 3), and merchandise trade will continue to dominate the two-way trading relationship for the foreseeable future. (For this reason, the simulations reported below focus on merchandise trade only.) Most of Australia's services exports consist of Chinese tourism and Chinese students visiting Australia; these particular flows are likely to be unaffected by the terms of an ACFTA. Australia's $1 billion surplus in bilateral services trade with China offsets one-fifth of its merchandise trade deficit with China.

Foreign investment is another form of bilateral economic relationship that may be relevant in the context of an FTA. According to the Commonwealth feasibility study on an ACFTA (DFAT, 2005), bilateral foreign investment is very small: less than $1 billion in foreign direct investment going each way between the two partners. This reinforces the general conclusion that the bilateral relationship in general, and the effects of an ACFTA in particular, will be dominated by future developments in merchandise trade.

Figure 3 - Composition of Bilateral Australia-China Trade 2005



Australia's exports to China consist almost exclusively of resource-based products from the agricultural and mineral sectors. It is not at all clear to what extent those resource-based exports could actually grow, even with further liberalization in trade policies. Australia's production of both agricultural and mineral products face increasingly binding resource and infrastructure constraints (including constraints on the use of water in export-oriented agriculture). Reduction of trade barriers in China could have very limited impacts on Australia's export volumes, given these supply constraints.

Section II:

Chinese Economic Strategy

Following the examples of other East Asian nations, China has pursued an explicit national industrial development strategy since 1978. This strategy has been extraordinarily successful. China over the 24 year period of 1978 to 2002 has experienced average annual export growth rates of 11.9%. Since 1978 economic growth rates have averaged 9.5% annually.

The phenomenal rise of China has reshaped the global economy. It has seen huge shifts in investment and production from both developed and developing nations flowing to China. The manufacturing sector of every developed economy has been put under significant pressure due to the rise of Chinese manufacturing. This has had significant impact on the employment and wage levels of most economies throughout the world.

The flood of low-priced Chinese imports into developed economies has had macroeconomic impacts, as well as sectoral effects. In a context of rising private-sector indebtedness and generally tighter labour markets, the deflationary impact of Chinese imports has had a unique, but time-limited, impact in permitting central banks to keep interest rates relatively low. However, these import flows have had other impacts that will be costly in the long-run, including the erosion of the manufacturing base of Australia (and other economies), their contribution to growing foreign indebtedness, and the consequent risks of sharp adjustments in external accounts if and when China (and other trade-surplus economies) decide to stop accumulating foreign financial assets in return for their trade surpluse

A consistent theme throughout this quarter-century of successful development has been China's rejection of a blind faith that liberal market-driven policies will deliver the desired development objectives. The Chinese Government has strategically intervened to create markets where none exist, shape markets when they need shaping and to over-ride markets when they contradict the development objectives.[2]

Some of its goals are quite specific. For example 2 years ago the Chinese government set itself the ambitious goal of fostering 30-50 of its best state-owned firms into 'national champions' – world-class companies with global brands – by the year 2010

Despite joining the World Trade Organization (WTO) in 2001, China has and continues to use active industrial policies to strategically transform production and export patterns, effectively guiding its economy towards a dynamic competitive advantage that increasingly incorporates the use of technology and innovation. (Poon, 2006)

The Chinese Government has strategically intervened to create markets where none exist, shape markets when they need shaping and to over-ride markets when they contradict the development objectives.

Some of the policy tools China has used in preference to a blind faith in the market include:

Joint Ventures - Chinese-controlled foreign partnerships have been used to secure advanced technology and know-how in order to develop and export higher value-added goods. For example, in the automotive industry foreign assemblers are limited to a 50% stake in an enterprise (IMF 2004). This is seen as vital to increasing local content and transferring technology to the Chinese industry. Interestingly, there is no limit to foreign ownership of assembly plants that are for export purposes only.

Technology transfer agreements are among the documents a foreign party must file when seeking approval for a new production plant in China (USCC 2005).

Administrative Assistance - According to the U.S.-China Economic and Security Review Commission, the Chinese Central Government uses administrative 'guidance' to banks to direct loans on favourable terms to certain businesses and industries.

Corporate Taxation - China's tax system encourages foreign direct investment by applying 15 percent and 24 percent income tax rates to foreign-based affiliates operating in China while requiring domestic companies to pay a 33 percent tax rate. Government at all levels can use tax breaks to lure investments. The result is an allocation of resources in favour of manufacturing and export-oriented business. (USCC, 2006)

Value Added Taxation - In order to promote exports and deepen its technological capability, China has adopted similar tactics to Japan and South Korea, and uses duty and value-added tax (VAT) exemptions granted solely to imports that are processed and then re-exported. As early as 1992, processed exports comprised about 46% of total exports, rising to 55% in 1996 and continually accounted for over half of all Chinese exports in subsequent years. This policy is still used, for example the aerospace sector China imposes a low VAT of 4% on large aircraft (greater than 25 tonnes), which China currently cannot produce on its own, compared to a 17% VAT on regional aircraft – a sub-sector in which China is rapidly developing domestic production and design capabilities. Foreign regional jet makers, such as Embraer of Brazil, have avoided the higher VAT on regional aircraft by investing in production facilities and forming a joint venture in China. (Poon, 2006)

State Subsidies - China has used a range of subsidies to encourage the manufacture of goods meant for export over the manufacture of goods meant for domestic consumption, and to secure foreign investment in the manufacturing sector. In the WTO accession agreement, China agreed to eliminate certain government subsidies meant to encourage exports—specifically, tax incentives and preferential bank financing restricted to producers who agree to export their products. China also pledged to end government programs that encourage local sourcing for parts instead of using imported parts.

Despite this there are widespread reports that since joining the WTO, China has increased the use of such export subsidies. One such example is in the steel industry where the Chinese Government offers subsidies by:

- transferring facilities and land at below market prices;
- providing debt to equity swaps through state-owned banks;
- providing debt forgiveness through state-owned banks;
- providing tax benefits for export performance;
- controlling the prices of raw materials; and
- maintaining an undervalued currency.

Subsidies such as tax benefits based on export performance are clearly prohibited by WTO rules. By intervening in the steel industry, the Chinese government has created substantial new capacity and ''has skewed the entire world market for steel and for steel raw material.'' (USCC, 2006)

State management of exchange rates - Since 1995, China has maintained a broadly fixed exchange rate for currency relative to the US dollar. While there has been a slight appreciation in the Renminbi, the currency is still vastly undervalued (in light of China's massive trade surplus) giving Chinese exports a significant competitive advantage. Many economists have estimated that China's currency is undervalued by as much as 40% (USCC 2005).

Case Study –
The Chinese Automotive Industry

The automotive industry provides a classic example of the active policies followed by the Chinese Government. According to The U.S.-China Economic and Security Review Commission:

> *''Chinese industrial subsidies, undervaluation of currency, discriminatory tariff rates, tax breaks, and a host of other unfair trade practices will make the price of Chinese vehicle imports artificially low in foreign markets…Chinese regulations currently require automakers to exceed a 40 percent domestic content requirement or face higher tariffs on the imported auto parts. These discriminatory tariffs pressure China-based auto assembly companies to use parts manufactured in China rather than U.S.-manufactured parts. This violates the promises China made, and the legal obligations it assumed, as part of its accession to the WTO. These regulations are intended to force U.S. and other manufacturers to shift parts production to China, resulting in U.S. manufacturers losing business and U.S. workers losing jobs.''* (USCC, 2006)

If a car assembled in China is composed of more than 60 percent imported parts, a 25 percent tariff is to be levied on those parts rather than the usual 10 percent tariff. This is more than twice the normal tariff rate for auto parts, but equal to the tariff rate on a finished, imported car. United States authorities have argued that the higher tariff appears to have three purposes:

- to encourage the domestic sourcing of parts used by the Chinese auto industry;
- to discourage the purchase of imported parts; and
- to persuade parts makers based in the United States, Canada, and Europe to move their operations to China. (USCC, 2006)

Chinese Technological Capabilities

As a result of almost 30 years of strategic intervention by the Chinese Government, China has and continues to rapidly move upscale in technological capabilities. It would be a grave mistake to assume that China is just a source of cheap clothing and toys.

This is a result of concerted policy intervention. For example, under the 2004 Automotive Industry Strategy a new automotive production plant required a minimum investment of RMB 2 billion. More importantly, the new plant must include a Research and Development (R&D) facility, investment in which must be at least RMB 500 million. (USCC 2005)

China nearly doubled its annual output of science and engineering Ph.D.s between 1996 and 2001, to 8,153. Multinational corporations have been racing to set up research centres in the country and China's own private enterprises are now plunging into R&D, realising they must have their own proprietary technology to compete sustainably in global markets.

Combined private and public spending on R&D in China as a percentage of GDP has grown from 0.6 percent in 1996 to 1.23 percent in 2004. This is only slightly below the 1.64 percent of GDP spent in Australia. Using GDP on purchasing power parity basis, Australia spends $US10.5 billion on research and development compared to $US105.4 billion for China. China is the world's third-largest investor in R&D, after the U.S. and Japan, when measured in purchasing-power parity dollars. (Normille, 2005)

''Chinese industrial subsidies, undervaluation of currency, discriminatory tariff rates, tax breaks, and a host of other unfair trade practices will make the price of Chinese vehicle imports artificially low in foreign markets ...''

The result of this is that Chinese production and exports are increasingly being dominated by high value added, knowledge intensive goods. Table 4 provides a breakdown of Chinese exports to Australia in more detail than Table 1. The largest and fastest-growing categories consist of higher-technology products (such as computers, telecommunications equipment, and sound and video recorders), rather than more traditional labour-intensive goods.

Table 4 – Top 25 Chinese Exports to Australia, ($'000)

Principal Exports	2005-06	Percentage Change 1999-2000 to 2005-2006
Computers	2,478,235	695.3%
Telecommunications Equipment	1,289,085	852.3%
Toys, games, sporting	1,201,995	146.0%
Other textile clothing	1,130,787	95.6%
Furniture	1,039,680	501.3%
Women's clothing	796,539	136.0%
Sound and Video recorders	761,441	1473.9%
Footwear	739,528	63.8%
Computer Parts	619,008	422.3%
Chemicals and related products	608,451	217.8%
General industrial machinery	575,028	339.1%
Televisions	554,492	611.0%
Household Equipment	543,496	141.7%
Other plastic articles	516,527	119.5%
Men's clothing	501,247	50.0%
Non-metallic mineral manufactures	450,141	140.7%
Other textile manufactures	437,530	147.1%
Manufacturers of Metals	405,988	204.5%
Other Base Metal Manufactures	395,760	212.4%
Other electrical machinery	391,240	162.0%
Travel Goods	388,249	65.1%
Road Vehicles	384,359	208.1%
Food and live animals	378,797	203.5%
Electrical Machinery and Appliances	366,219	292.1%
Office Machines	284,248	322.5%

Source: DFAT-Composition of Trade Australia 2005-06

"It would be a grave mistake to assume that China is just a source of cheap clothing and toys"

Noted development economist Dani Rodrik has identified that the sectoral composition of China's exports are far more advanced than should be expected of a country with its level of industrial and economic development. China's export bundle typifies that of a country with three times China's per capita income levels (Rodrik, 2006). This is testimony to the effective use of strategic industrial and trade policy by the Chinese government, working powerfully to stimulate leading-edge industries rather than relying on the "market" to determine that country's role in world trade.

This point is supported by a cursory examination of the growth rates of Chinese exports into Australia, as Table 5 does below:

"China's export bundle typifies that of a country with three times China's per capita income levels"

Table 5 Chinese Exports to Australia 1999-00 to 2005-06, Ranked by Growth Rates

	Average Annual Growth Rate 1999-00 to 2005-06	Percentage Change 2004-05 to 2005-06
Sound and Video recorders	61.8%	10.8%
Telecommunications Equipment	46.8%	28.9%
Computers	42.2%	17.0%
Televisions	40.3%	41.3%
Furniture	35.5%	31.8%
Computer Parts	32.8%	19.3%
General industrial machinery	28.1%	21.8%
Office Machines	27.4%	24.5%
Electrical Machinery and Appliances	25.7%	22.2%
Chemicals and related products	23.9%	4.2%
Other Base Metal Manufactures	21.1%	18.0%
Road Vehicles	21.5%	18.7%
Manufacturers of Metals	20.7%	21.5%
Food and live animals	20.8%	12.4%
Other electrical machinery	18.4%	10.2%
Other textile manufactures	16.8%	10.2%
Toys, games, sporting	16.9%	16.9%
Household Equipment	16.2%	18.3%
Non-metallic mineral manufactures	15.9%	12.3%
Women's clothing	16.1%	13.5%
Other plastic articles	14.3%	17.0%
Other textile clothing	12.3%	13.5%
Travel Goods	8.9%	6.8%
Footwear	8.9%	12.9%
Men's clothing	7.3%	8.2%

Source: DFAT-Composition of Trade Australia 2005-06

The top of this list is dominated by knowledge intensive manufactured goods, such as computers and telecommunications equipment.

Some analysts dispute the apparent technological deepening occurring in China, arguing that the massive explosion in Chinese exports (especially ETMs) simply reflects the more advanced Asian nations shifting their labour-intensive final assembly production steps to China to take advantage of the extremely low wage rates.

In other words, we shouldn't worry about the rise of China's high-tech export capabilities, which reflect only the final production processes for imports normally originating in Japan, Taiwan, and South Korea. If this were true one would expect to see a reasonably stable level of imports from the North Asian nations as a whole to Australia, as some imports once classified as Japanese or Taiwanese are now listed as Chinese.[3] The trade

statistics do not support these claims as table 6 demonstrates. While imports from the North Asian economies other than China have grown at a slower pace than China, they have grown rather than rapidly declined as one would expect if the theory described above was accurate.

Emergence of a Large and Persistent Trade Surplus

As a result of these successful trade and industrial policies, China's global current account surplus is now over 7% of its GDP, up 5 percentage points in five years. Furthermore, there is evidence that China's own trade data may substantially underestimate its global trade and current account surpluses. Using data on Chinese imports and exports from its top 40 trading partners (covering 88-95% of China's total trade); the China Currency Coalition estimated that China's total trade surplus in 2003 was $203 billion, 341% more than China's officially reported trade surplus of only $46 billion. (Bivens 2006)

Table 6 – North Asian Exports to Australia

($ Billion)	1990-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	7 Year Trend Growth
Imports from North Asia	30.47	34.66	36.01	39.52	40.93	46.82	52.52	72.4%
North Asian Imports less China	22.96	24.78	24.74	25.73	25.59	27.01	29.32	27.7%

Source: DFAT-Composition of Trade Australia 2005-06

China's international reserves now exceed $1 trillion (U.S.), the cumulative result of its ongoing trade surplus. Financial analysts believe about 70 percent of these reserves are held in U.S. dollars, and that this share has remained stable over time. These international reserves constitute 36% of China's total GDP and are sufficient to finance over a year of Chinese imports. China's purchase of reserves in the form of dollar-denominated assets has propped up the value of the dollar, keeping the Chinese currency from gaining value. In short, these reserve purchases act as a de facto subsidy for Chinese exports. (Bivens 2006)

China's persistent trade surpluses are a structural imbalance in the global economy and must be dealt with eventually.

Continued Suppression of Labour Rights

China's low wage rates due to unpaid, underpaid, and repressed labour constitute another indirect subsidy to producers operating in China, including domestic, joint venture, and foreign-funded companies.

In this context, it is particularly concerning that the Chinese government has currently ratified only 4 of the 8 ILO conventions containing core labour standards. The Chinese government has not ratified the:

- Forced Labour Convention, 1930 (Convention 29)
- Abolition of Forced Labour Convention, 1957 (Convention 105)
- Freedom of Association and Protection of the Right to Organise Convention, 1948 (Convention 87)
- Right to Organise and Collective Bargaining Convention, 1949 (Convention 98)

Moreover, it is well recognised that core labour standards in China are not only not formally protected but not adequately observed as a matter of practice. For example, the U.S. Department of State's Country Report on Human Rights Practices 2006 recently found in relation to China that[4]:

- Workers are not free to organize or join unions of their own choosing. The only legal workers organisations are the Communist Party controlled All-China Federation of Trade Unions (ACFTU) and its subsidiaries. Independent unions are illegal.
- Labour activists continue to be detained and arrested.

- There is no right to strike or take other planned action.
- Prisoners are forced to work both inside gaols and in non-prison enterprises.
- There is no national minimum wage. Minimum wages at lower levels of government have not yet been fully implemented.
- Wage arrears to employees in state-owned and private enterprises remains common.
- It is reportedly common for employees to withhold several months' wages as security against unskilled workers departing early from labour contracts.
- There are other widespread illegal practices that reduce wages. These practices include employers arbitrarily fining workers for breaching company rules, standing or sitting improperly or talking back to supervisors.

These findings are confirmed by the International Confederation of Free Trade Unions (ICFTU, 2006), various NGOs and independent researchers such as Anita Chan (Chan, 2005). Chan draws attention to the use of dormitories to house migrant manufacturing workers in China. This leads to the enforcement of excessive hours and discipline – shielding these workers from any participation in the wider community and preventing, as in free trade zones, labour activists from penetrating these sites to protect these workers (Chan, 2004). The lack of enforcement of Chinese labour laws is compounded by the seemingly inexhaustible supply of migrant labour from the countryside to the costal industrial zones

Not surprisingly, the denial of decent labour standards in China takes place in the context of a very low wage economy with poor occupational health and safety standards. There are various estimates of the wage rates for Chinese workers – all of them low by world standards. According to the US Bureau of Labor Statistics, the total hourly compensation costs of manufacturing employees in China averages $US0.67 (BLS, 2006).

In relation to occupational health and safety, official Chinese figure show that for 2005 workplace accidents in China resulted in 14,382 deaths. Many factories that used harmful products, such as asbestos, not only failed to protect their workers against the ill effects of such products, but also failed to inform them about the hazards.[5]

By refusing to grant Chinese workers internationally recognised labour standards, including rights to freedom of association and collective bargaining, and by failing to ensure decent safety for Chinese workers, the Chinese government countenances low compensation of labour in violation of international standards, essentially subsidizing those firms that take advantage of this Chinese suppression of human rights.

In addition, the continued suppression of labour rights means that there is no guarantee that the massive expansion in production will translate into mass prosperity. While there is some evidence of moderate increases in the average wage rates for Chinese manufacturing workers (BLS, 2006), Dr. Anita Chan of the Australian National University's Contemporary China Centre has found that over the last 12 years real wages have actually been falling in Chinese export processing zones (Chan, 2005).

This is relevant because if wages don't rise significantly, domestic demand for imports will be limited, thus reducing the future potential of Australian exports to China. Secondly, there will be no automatic narrowing of China's current large cost advantage. Unless Chinese workers have the ability to form independent trade unions and collectively bargain, there is little scope for significant wage rises and China's competitive advantage built on labour suppression will continue.

In general, nations which have moved from low value added production to higher value added production, and achieved sharp productivity increases, have also facilitated the development of institutional forms which allow for a broader sharing of those productivity gains. This has included rapid growth in trade union organization and activity, and growth of democratic struggles and reforms around welfare programs and other citizens' rights. As a consequence, these successfully developing nations experienced sharp increases in real wage levels. This pattern of economic and social development was visible in Europe, North America, and Australia; the most recent examples include Japan's rapid development in the 1960s, and Korea's in the 1990s. In those countries, too, rapid economic development was accompanied by rapid growth in union membership and activity, and expansion of welfare and social programs and entitlements, so that economic development translated effectively into mass prosperity. Indeed, the growth of real wages in these two countries was dramatic. It is clear, however, that this parallel track of social development and wage increases is being artificially suppressed in China, despite that country's rapid economic progress, largely as a result of the political repression of the workers' movement.

Section III:

The Experience of Australia's Other Free Trade Agreements

Australia has signed and implemented three new free trade agreements as part of the Commonwealth government's current strategy to expand bilateral free trade relationships. The first of these was implemented with Singapore mid-way through 2003. The latter two were implemented with Thailand and the U.S. at the beginning of 2005. The broad features of these agreements are similar to those being proposed for an ACFTA: elimination of tariffs and tariff-equivalents, limitations on the use of non-tariff barriers, and certain measures to liberalize services trade and foreign investment. It is instructive to examine the experience of these other free trade agreements, in light of the similarly optimistic projections which were made of the economic effects of those deals.

Table 7 summarizes the experience of Australia's bilateral trade under those three FTAs. On the strength of recently-released 2006 trade data, we can consider four years of experience with the Singapore FTA (using 2002 as the pre-FTA base), and two years each with the Thailand and U.S. FTAs (using 2004 as the pre-FTA base year in those cases). Empirical data on the expansion of bilateral trade under these agreements reveals some very surprising results:

Table 7 - The Empirical Record of Australia's Previous Free Trade Agreements

	Singapore	Thailand	U.S.	Total/Average
Years Experience	4	2	2	n.m.
Growth Bilateral Trade	65.8%	54.2%	14.6%	n.m.
Avg. Ann. Trade Growth	13.5%	24.2%	7.1%	14.9%
Change Bilateral Balance	-$6.8 billion	-$1.3 billion	-$3.3 billion	-$11.4 billion

Average Annual Growth Since FTA

	Singapore		Thailand		U.S.		Total/Average	
	Austr. Exports	Austr. Imports	Austr. Exports	Austr. Imports	Austr. Exports	Austr. Imports	Austr. Exports	Austr. Imports
Agric.	-11.9%	-2.7%	+17.0%	+8.8%	-1.7%	+12.5%	+1.1%	+6.2%
Mining	+1.1%	+185.9%	+24.1%	+50.3%	-41.0%	+81.3%	-5.3%	+105.8%
Mfctrng.	-2.7%	+26.1%	+19.7%	+26.9%	+1.4%	+8.6%	+6.1%	+20.5%
Total	-1.9%	+25.8%	+18.2%	+28.8%	+2.8%	+9.0%	**+6.4%**	**+21.1%**

Source: Authors' calculations from DFAT STARS data.
Average growth rates in last column are unweighted.
n.m.= not meaningful.

Rapid expansion of trade: Bilateral merchandise trade has grown very quickly under each of these FTAs, by an average annual rate of about 15 percent per year. Bilateral trade grew especially quickly with Singapore and Thailand (by 65 percent over 4 years with Singapore, and 54 percent over 2 years with Thailand). Even with the U.S., however, bilateral trade grew by 15 percent in two years. As will be discussed below, quantitative economic models (such as the computable general equilibrium models popular in trade policy applications) tend to predict only relatively modest growth in trade following a FTA. For example, the Centre of Policy Studies model reviewed in detail below predicts a 12 percent increase in bilateral trade after 10 years of an ACFTA. Even in the *least* dynamic of Australia's three current FTAs (the one with the U.S.), bilateral trade grew more in two years than is predicted expected to occur after a decade in the Chinese case.[6] This reaffirms the suspicion (discussed in the next section) that economic models tend to underestimate the impact of FTAs on the scale of trade.

Unbalanced expansion of trade: In every one of the three FTAs, Australia's imports from the FTA partner have grown much more quickly than Australia's exports to that FTA partner. In the case of Singapore, Australia's exports have actually *declined* under the FTA (by 7.5 percent between 2002 and 2006). This compares starkly to a rapid 150 percent expansion in Australia's imports from Singapore over this same period. A similar asymmetry is visible in the first years of the Australia-U.S. FTA. Australia's imports from America have grown four times faster (by 20 percent between 2004 and 2006) than Australia's exports to America. The expansion of trade with Thailand under the FTA has been somewhat more balanced: Australia's exports to Thailand grew 40 percent from 2004 through 2006, while imports from Thailand grew 65 percent. Why have

Australia's imports consistently grown faster than its exports under the FTAs? Several possible explanations could be considered. In some cases, Australia's FTA partners may not have fully implemented the promised liberalization (the U.S. failure to make government procurement fully open to Australian products is an example), or may take offsetting measures to limit the impact of that liberalization on import penetration (in East Asian economies there is considerable evidence, for example, that formal tariff reduction does not translate into effective import penetration). This trend may also reflect the structural composition of Australia's exports: prices and the direction of trade for minerals and many other resource-based commodities are determined by global market pressures, and are much less sensitive to trade policy than manufactured goods.

Growing trade deficits: With Australia's imports from FTA partners growing so much faster than its exports to those same partners, bilateral trade deficits have widened significantly. Since implementing FTAs with these three countries, Australia's bilateral merchandise trade deficit has widened by a combined annual total of over $11 billion.[7] Almost two-thirds of this deterioration was due to the bilateral relationship with Singapore alone. That $11 billion deterioration in the trade balance under the three FTAs accounts for virtually all of Australia's entire estimated 2006 deficit on goods and services trade. In other words, were it not for the deterioration in bilateral trade balances under each of these three FTAs, Australia's trade would have been roughly balanced last year, instead of mired deeply in deficit.

Unexpected sectoral composition: Australia's general export performance under the three existing FTAs has been very disappointing. However, within those exports, the sectoral composition of what growth has occurred has been surprising. On average, Australia's manufactured exports grew faster (by 6 percent per year) than its agricultural exports (1 percent per year). As for mining exports, they declined under the U.S. FTA, and have been stagnant under the Singapore FTA; only in the Thai case did Australia's mining exports expand. This reinforces the suspicion that FTAs may have relatively minor effects on exports of resource-dependent products, which tend to be much more sensitive to global commodity market pressures than to trade policy.

Considering all three agreements, Australia's exports have grown by an average annual compound rate of 6.4 percent. Australia's imports have grown by an average annual compound rate of 21.1 percent. These summary average growth rates will be utilized in Section VI below, to generate one scenario regarding the potential impact of an ACFTA on bilateral trade flows and sector employment levels.

The deterioration in Australia's bilateral trade balances under these three FTAs (resulting from the much faster growth of imports than exports) has direct and negative implications for Australian employment in affected sectors. The following sections of this report describe a methodology for estimating those effects in the case of bilateral trade between Australia and China, which is the primary focus of this study. If this same methodology (in which sectoral bilateral trade surpluses or deficits are multiplied by sectoral average job content ratios) is applied to the deterioration in Australia's bilateral trade balances with its three FTA partners, then it appears that over 26,000 Australian jobs have been lost as a result of the three FTAs that have already been signed. All of these lost jobs are in the manufacturing sector, and half of those are in the higher-technology machinery and equipment manufacturing sector. There has been no significant job creation in Australia's agricultural and minerals sectors as a result of these three FTAs. Job losses arising from a free trade agreement with China would be much worse than this, as is discussed in the following sections.

"Since implementing FTAs with these three countries, Australia's bilateral merchandise trade deficit has widened by a combined annual total of over $11 billion"

Section IV:

Economic Models of the Effects of Australia-China Free Trade

CGE Models of Free Trade Agreements[8]

Traditional economic theory emphasizes the mutual gains that can be generated by trade liberalization, following the principle of comparative advantage: the notion that every region will benefit from freer trade, by specializing in producing those products which they can produce relatively most efficiently. More complex modern theories, such as those which incorporate increasing returns to scale in production, are not quite as unambiguous in their conclusions (under certain conditions in these theories, free trade can be harmful, and in every case there is indeterminacy about how the gains from trade are distributed), yet their conclusions also generally suggest that freer trade will almost always be mutually beneficial. Attaching numbers to these theoretical models allows economists to predict, with seeming scientific certainty, the scale of predicted benefits. That is the goal of computable general equilibrium (CGE) models of the impacts of free trade agreements.

Neoclassical economic theory rests on a notion of "general equilibrium," which is held to exist (in the long-run, at least) in all of the various markets which make up a modern economy: markets for produced goods and services, the market for labour, and the markets for other "factors of production" (such as natural resources, land, or produced capital goods). Neoclassical economists predict competitive market forces will ensure that every market tends to settle at an "equilibrium" position, where supply equals demand. Flexible prices will push each market toward its equilibrium position. When every market in the economy reaches its equilibrium point (both goods markets and factor markets), then the economy is said to be in a state of general equilibrium.

A CGE model is simply a group of mathematical equations which describe supply and demand forces and equilibrium conditions in all of those individual markets. Economists can "solve" very simple general equilibrium systems (usually involving no more than two factors of production and two different industries), using geometric or algebraic techniques, in order to study and understand how market forces interact with each other, and how changes or "shocks" in the economy will affect final equilibrium output and prices. But the system gets very complicated as the number of industrial sectors or factors is increased, the number of complicating variables is increased, or more than one region is introduced into the model. In these cases, the only way to "solve" the model is to build a numerical representation of the general equilibrium system, consisting of a large number of mathematical equations – one for each supply, demand, technology, or equilibrium condition which the modeller wants to consider. Modern CGE models typically contain hundreds of such equations. By attaching actual numbers to the equations, the modeller can then "solve" the system (as long as it is properly specified, with the number of equations equal to the number of variables) to replicate the actual state of any particular economy – in as much sectoral or regional data as the modeller cares to build in.

Numerical parameters are attached to each equation in the model using a process called "calibration": typically, benchmark values for certain key elasticities[9] are assumed (sometimes based on more pragmatic empirical or econometric studies reported in economics journals), and then other parameters (called scale parameters) are selected such that the model's equations exactly replicate a starting data set. It is important to remember that *any* CGE model can be calibrated to precisely replicate the outcome of *any* national economy. This does not mean that the CGE model is empirically accurate, only that the mathematical equations which comprise the model are sufficiently flexible that the modeller can precisely "fine tune" the model's output. In this sense, while CGE models allow for considerable structural detail and theoretical precision, they are quantitatively ungrounded: *any* CGE model can be calibrated to precisely replicate *any* real-world economic data set, and hence their quantitative predictions are highly ambiguous, completely dependent on both the theoretical specification and quantitative calibration that has been performed by the modeller. The quantitative detail which these models produce in their results should never be misinterpreted as empirical *reliability*.

The quantitative detail which these models produce in their results should never be misinterpreted as empirical *reliability*.

The model is typically calibrated to describe an initial "base case" solution: a snapshot of the economy before any assumed policy change or shock is applied. Then the modeller changes some parameter in the model to simulate the policy change in question, and re-solves the model. (In the case of free trade models, this usually involves setting tariffs to zero and taking other steps to portray the impact of a trade agreement.) The difference between the base case solution and this simulated "counterfactual" solution is then taken as the potential economic impact of the policy change. Again, this estimate is 100 percent contingent on the modeller's specification of the model: both its theoretical and behavioural structure, and the precise parameter values which were assigned to its numerous equations. A CGE model cannot "prove" anything. Its quantitative results are essentially a grand, numerical "if-then" experiment. *If* each of the equations and assumed equilibrium conditions in the model is an accurate representation of the real-world economy, *then* the model's estimate might be interpreted as an approximation of what would actually occur after the policy change in question.

Most CGE free trade models incorporate a very dubious mix of assumptions which essentially predetermine their optimistic findings – but which can hardly be interpreted as a realistic depiction of the workings of any real-world economy. Here are some of the most important standard assumptions of the neoclassical models:

Full employment of all factors (including labour): The models require that all labour be employed, both before and after trade liberalization. So there is no worry that anyone can lose their job as a result of shifting competitive pressures after free trade.

Uniform factor pricing: Competitive market forces also require complete equality in factor pricing. In this sense, there is never an issue of attempting to attract (or protect) a larger share of "good" jobs – since all jobs pay the same, anyway.

Purchasing power and macroeconomics do not matter: Competitive market-clearing pressures ensure that all of a country's economic resources will be fully occupied. Therefore, a country can never experience aggregate job loss or macroeconomic downturn (such as a recession) from *any* economic change.

Society can be described by a single "representative" household: Most CGE models summarize all the economic behaviour of a country's citizens through equations describing the tastes, purchasing habits, and factor supply decisions (including labour supply decisions) of a single "representative household." No explicit consideration is given to the impact of trade liberalization on income distribution between different groups of households: every family is assumed to share equally in all the income, wealth, and consumption of the whole nation.

Constrained capital mobility: Neoclassical CGE models describe the process of investment in a very odd manner. In most cases, there is a national stockpile of "capital" (described as if it were fully malleable "putty") that can move seamlessly and painlessly between industries. There is no explicit process of investment (or disinvestment): just a shift of capital from one industry to another, based on wherever it can be utilized most profitably. In some cases, the decision of the representative household to save out of their personal income (thus generating additional putty-like capital for the national economy) is also modeled. Most models describe capital mobility between countries in an equally odd manner. In many models, no capital flows between countries are allowed at all, thus missing entirely this critical dimension of globalization. In some cases, capital mobility is allowed via the actions of an aggregate capital market, whereby households of one country might lend additional savings for investment in another country (presumably because they are more "thrifty"). In almost no cases, however, do CGE models explicitly consider the investment location decisions of multinational companies, who are able to produce their product in whatever jurisdiction offers the highest return. Thus another of the major fears of free trade opponents – namely that liberalization will allow profit-maximizing companies to shift capital to low-cost jurisdictions – is simply assumed away.

Balanced trade: A corollary assumption is that each country's overall trade will remain balanced (or, if it was unbalanced in the base-case, then that imbalance will not change in the counterfactual simulation). With full equilibrium in the model between income and expenditures, the model enforces that a country's "representative household" can only buy in international markets

exactly what its earnings in international markets will allow it to. Thus, free trade can never undermine an economy's balance of payments or its overall competitive position – no matter how inexpensive may be the products imported from competing jurisdictions.

Products are differentiated by place of origin: Most CGE models incorporate some version of what has come to be known as the "Armington assumption" (Armington, 1968). This odd assumption was developed to explain an anomaly in world trade patterns: contrary to the predictions of neoclassical trade theory (that countries would specialize in products reflecting their comparative advantage, and hence their relative endowments of capital, labour, or other productive resources), in practice there is a great deal of *two-way* trade within broad classes of commodities. To allow CGE models to capture this two-way trade pattern, the Armington approach assumes that every product is inherently defined or distinguished by the nation where it is produced. A car produced in one country is inherently different from a car produced in another (even if it is produced by the same company); the consumer may try the car from the other country, but somewhat unwillingly (because they sense that it is different, and hence an "imperfect substitute" for their home-grown car). The modeling impact of this assumption is also odd: any country's share of any industry is, to some extent, inherently protected, since it is the only place in the world that can produce that *precise variety* of the product in question. This also grants every country a certain degree of monopoly power in pricing its unique, home-grown products. But once again, this approach – while mathematically convenient – mis-portrays the true issues at stake under free trade. Most products are differentiated not by the country where they are produced, but by the company which produces them. In real life, multinational corporations are able to shift location of their variety of a product to whatever jurisdiction offers them the highest profits; under the Armington assumption, however, this freedom is ignored.

Incremental versus structural change: CGE models interpret the existing "base case" starting point as a snapshot of an equilibrium position. Then they stimulate change in that position by altering certain parameters (in this case, tariff rates and other barriers to full economic integration). Existing trade and investment flows will grow or shrink incrementally in response to that policy change. These models are not capable, however, of portraying deeper, *structural* changes in response to globalization. They cannot describe a situation in which companies' investment outlooks, supply chains, or trade patterns are fundamentally shocked by virtue of a new global environment. For example, trade in automotive products between Australia and China is currently very small. Industry observers expect this to change dramatically in coming years, as China's auto industry begins to export large volumes of finished products to world markets (on the strength of both cost competitiveness and pro-active government efforts to develop this high-value industry). However, since existing Chinese automotive exports to Australia are very small, no CGE model can portray these coming structural changes. All they can do is imagine incremental change, in which China's existing (small) automotive exports to Australia grow slightly as a result of a slight decline in their landed prices due to the elimination of Australia's existing (small) tariffs; the same incremental change occurs in Australia's automotive exports to China. This is not a convincing depiction of the changes that have wrought global trade in recent decades, and will continue to do so. This inability to predict or describe structural change is a major reason why past CGE models of free trade agreements have almost universally underestimated the effects of those agreements.[10]

"CGE models of free trade agreements have almost universally underestimated the effects of those agreements"

Imagine if Australians could actually be assured, in real life, that each of these assumptions actually prevailed in the economy that they live and work in. They will always be employed – and they don't need to worry about holding an inferior job, since all jobs pay the same wage rate. They hold an equal share of the country's entire wealth and income, and will share equally in all wages, profits, and other income generated. Companies cannot flee the country in search of lower production costs. And Australia is the only place in the world that can produce unique Australian varieties of goods and services that are demanded by consumers all over the world.

This sounds more like some utopian form of "socialism," than an idealized free-market economy. Yet those are the assumptions that fundamentally determine the behaviour of the CGE free trade models which are held up to "scientifically" verify that continuing trade liberalization will indeed generate the mutual (and equally shared!) benefits predicted in neoclassical economic theory. If these assumptions actually prevailed in the real world, then few would question the wisdom of free trade. Unfortunately, however, they most clearly do not, and this throws into question the results of models which impose them as central conditions.[11]

"If these assumptions actually prevailed in the real world, then few would question the wisdom of free trade"

The Centre of Policy Studies CGE Model of Australia-China Free Trade

To date there has been one published attempt to estimate the effects of a bilateral free trade agreement between Australia and China using the CGE technique. This study was performed by several researchers at the Centre of Policy Studies (CoPS) at Monash University, under contract to the Department of Foreign Affairs and Trade (DFAT) of the Commonwealth government (Mai *et al.*, 2005). The results of this study figured prominently in the Commonwealth government's feasibility study which concluded that an ACFTA would be both feasible and mutually beneficial (DFAT, 2005).[12] This section will review the methodology, key assumptions, and main results of the CoPS CGE model.

Model structure: The CoPS CGE study utilizes a CGE model with three trading regions (Australia, China, and the Rest of the World). The model is *dynamic*, in that it reports a sequence of annual equilibrium results for a period running from 2005 out through 2015. The model considers 57 separate industries, grouped into 19 major industry groups and 4 sector aggregations (agriculture, mining, manufacturing, and services). Each country's spending and saving behaviour is modeled through a single "representative" household. The model considers three "primary" factors of production (capital, labour, and land), as well as inputs of raw materials and other intermediate goods. "Capital" in each country is itself an amalgamation of capital from the three trading regions, to take account of aggregate foreign investment flows between the regions.

Model assumptions: The CoPS model invokes most of the standard equilibrium assumptions of other CGE models. Full employment of labour is assumed, both before and after a FTA. Hence there is no change in employment.[13] This result is imposed by the modellers; it cannot be interpreted as "evidence" that no unemployment will result from free trade with China. The CoPS model assumes a single representative household, which shares equally in all income from all sources; hence the model takes no direct account of the distributional impacts of the FTA across households. (It does describe changes in the distribution of income across factors, as noted below.) The model utilizes an Armington assumption (of national product differentiation) in modeling consumer purchases, purchases of intermediate goods, and the creation of an amalgamated form of "capital" (that is itself composed of capital from all three trading regions). With assumed full utilization of all factors (including labour, land, and amalgamated "capital"), the model is continuously supply-constrained, such that aggregate purchasing power and other macroeconomic issues do not enter the picture. Also, since income-expenditure equilibrium is maintained, no significant aggregate trade imbalances can arise (other than what could be financed by an equilibrium inflow of foreign investment and the associated investment income generated by those flows).

Portraying liberalization: The CoPS model identifies three discrete aspects to the assumed ACFTA. The first and simplest is to remove (in both China and Australia) tariff-equivalent merchandise trade barriers (including both explicit tariffs, and the tariff-equivalent of non-tariff barriers that are imposed in certain sectors, such as quotas). But the model also attempts to capture two other sets of changes: the liberalization of services trade, and the FTA's liberalization of foreign investment policy. It turns out that these latter effects account for most of the total impact estimated by the model.

Novel modeling techniques: The model's attempt to portray assumed economic benefits from a FTA, beyond the usual benefits from "comparative advantage" specialization, lead the modellers to experiment with some unique modeling techniques. In the simulation of merchandise tariff reduction, the modellers assume that many industries will experience liberalization-induced improvements in average productivity.[14] These assumed improvements in productivity range up to 1.7 percent (for Australia's garment industry), and are justified by reference to other economic studies of trade liberalization and productivity. These assumed productivity improvements both reduce the adjustment challenge faced by key industries (such as Australia's garment sector) after an FTA, and enhance the predicted economic benefits of the FTA.

In the investment and services liberalization scenarios, the modellers' exogenous assumptions play an even more important role. Indeed, there is no place in the model's equations to directly simulate the impacts of the FTA on services trade and investment decisions. Recall, services trade between China and Australia is very small, and there are no formal tariffs to model. Therefore, these additional exogenous assumptions by the modellers *fully* account for all of the anticipated changes in these two scenarios.[15] Moreover, those changes do not actually depend on the bilateral relationship between Australia and China, but are assumed to affect the whole process of investment and productivity in part or all of the economy; they thus bear at most an indirect relationship to the policy change (an ACFTA) that is actually being considered. In the case of investment liberalization, the authors assume a reduction in the required rate of return for investment in Australia of 0.4 percentage points, and a 0.08 percent across-the-board improvement in productivity in all sectors of the Australian economy. For China, the modellers assume a 0.5 point reduction in the required rate of return on investment and a 0.12 percent productivity increase in all sectors. Exactly the same approach is taken to portraying the impacts of services liberalization: the modellers assume a 0.7 point reduction in required rate of return on services investment in Australia and a 0.15 percent productivity increase in all services sectors, and a 1.5 point reduction in the required rate of return on services investment in China and 0.3 percent improvement in services sector productivity.[16]

These novel simulation techniques are essential to the positive results which they report. In essence, the study's authors have assumed that an ACFTA will both increase productivity and elicit more investment in both Australia and China (from investors of all nationalities, in each case). These assumptions are not rooted within the assumed general equilibrium relationships built into the model itself; they are imposed on top of that framework. Without those assumptions, the model would generate only *some* of the benefits reported to result from the elimination of tariffs and tariff-equivalents, and *none* of the benefits reported to result from investment and services liberalization. The vast majority of the economic benefits reported in the CoPS study for Australia (in the neighbourhood of three-quarters[17]), therefore, are directly attributable to these additional, novel assumptions – not to the (already idealized) underlying working of the CGE model itself. Moreover, those benefits are not directly related to anything in the bilateral Australia-China relationship (such as bilateral trade or investment flows), and hence do not result from "free trade." Rather, they are benefits that are assumed to spill over to the broader economy as a consequence of the ACFTA.

The CoPS modellers justify the imposition of higher investment and productivity with reference to other studies of China's improved economic performance in the wake of the generalized opening of that economy over the past quarter-century, including its membership in the World Trade Organization. There is no doubt that China's economy has been dramatically transformed during this time, and that both the inflow of

"The study's authors have assumed that an ACFTA will both increase productivity and elicit more investment in both Australia and China"

foreign capital to China and China's increased reliance on global markets have played a crucial and beneficial role in that transformation. However, to extrapolate this historic shift, and assume that more of the same changes will now occur as a result of China entering into a free trade agreement with a single, relatively small economy like Australia's, does not seem overly convincing. Even more far-fetched is the application of the same historical relationship (albeit to a somewhat reduced degree[18]) to explain improved productivity and investment performance in Australia. Australia is a well-established market economy, with well-established property rights and competitive discipline. The notion that merely entering a FTA with China would somehow enhance investors' confidence in general in the security of their investments in Australia, and generate associated positive productivity spin-offs by virtue of enhanced global competition, is not credible. Australia recently entered a FTA with the U.S., which accounts for a larger share of trade and bilateral investment. Why would a FTA with China have any additional benefits for investor confidence in Australia that a FTA with the U.S. did not?

Major findings: In addition to the three separate liberalization scenarios described above, the CoPS study also reports a maximum FTA scenario which includes all three forms of liberalization. The results of this maximum scenario have received the most attention (for example, in the summary statements on p.4 of the Commonwealth feasibility study; DFAT, 2005). Table 8 summarizes the results of the three component forms of liberalization, and the sum of those changes (held by the authors to indicate the maximum impact of complete liberalization).[19]

Table 8 - Key Results of the CoPS Study of Australia-China Free Trade

	Removal of Tariffs and Tariff-Equivalents	Investment Liberalization	Services Liberalization	Total: "Maximum Change"
How Change is Simulated	Set tariffs and tariff-equivalents to 0; assume productivity growth in some sectors.	Assume more investment and productivity growth in all sectors.	Assume more investment and productivity growth in services industries.	Sum of all three.
Key Results (measured in 2015, relative to baseline scenario; dollar figures in $U.S.)				
Australia:				
• GDP	$0.9 bil.	$0.9 bil.	$1.2 bil.	$3.0 bil.
• Exports to China	$3.2 bil.	$39 mil.	$45 mil.	$3.3 bil.
• Net incoming investmt.	$1.1 bil.	$0.3 bil.	$0.3 bil.	$1.8 bil.
• Capital stock	+0.2%	+0.1%	+0.1%	+0.4%
Output by sector:				
• Agriculture	+1.2%	+0.1%	+0.1%	+1.3%
• Mining	+0.2%	+0.1%	+0.1%	+0.5%
• Manufacturing	+0.2%	+0.1%	+0.1%	+0.5%
• Services	+0.0%	+0.1%	+0.2%	+0.3%
China:				
• GDP	$1.6 bil.	$4.6 bil.	$5.9 bil.	$12.2 bil.
• Exports to Australia	$2.0 bil.	$58 mil.	$73 mil.	$2.1 bil.
• Net incoming investmt.	$0.8 bil.	$0.8 bil.	$1.8 bil.	$3.3 bil.
• Capital stock	+0.1%	+0.1%	+0.1%	+0.3%
Output by sector:				
• Agriculture	-0.1%	+0.1%	+0.1%	+0.2%
• Mining	+0.0%	+0.2%	+0.2%	+0.4%
• Manufacturing	+0.1%	+0.2%	+0.2%	+0.5%
• Services	+0.0%	+0.2%	+0.2%	+0.4%

Source: Mai *et al.*, 2005, Tables 4.1, 5.1, 6.1, and 7.1.

Since the CoPS model is dynamic and covers a 10-year forecast period, there are several different ways to present its key results. They could be measured as the difference in annual aggregate variables in 2015, compared to the level that would have prevailed in 2015 without the FTA. Or they could be portrayed as a cumulative difference between the base-case and FTA scenarios, summed over the intervening decade (perhaps presented in present-value terms). Or they could be portrayed as a difference in average growth rates over that intervening decade. In Table 8, the first of these methods is used, so that changes are measured as the difference in annual values for each variable in 2015, at the end of the intervening decade.

Australian GDP increases in the maximum change scenario by $3 billion (all values in the model are measured in U.S. dollars), or about one-third of one percent. This is well within the usual margin of error of statistical surveys of the value of economic output. In other words, even after ten years, and even with the highly optimistic assumptions embodied in the model (including the direct assumption of higher investment and productivity), an Australia-China FTA is predicted to generate aggregate economic benefits for Australia that would be statistically invisible. And, of course, the model can say nothing about the distribution of costs and benefits across households, since it assumes the entire country consists of a single representative household.

In the scenario which considers only tariff- and tariff-equivalent elimination (the most direct effect of an ACFTA), Australian GDP grows by $944 million (or just over one-tenth of a percentage point) after ten years. The large majority of the (very small) positive effects predicted by the model, therefore, are not due to the standard efficiency gains resulting from a trade-induced reallocation of economic resources. Instead, they are produced by the additional imposition of assumed growth in investment and productivity.

There is no change in aggregate employment in any scenario, of course, by virtue of the assumption of continuous full employment – although labour can be reallocated between sectors. (In Australia's case, jobs are created in goods-producing industries, especially agriculture, offset by a decline in employment in services industries.) Real wages increase slightly: partly because of the shift in jobs toward goods-producing sectors (which have higher average wages), partly because of lower import prices, and partly because of the model's assumption that a lower rate of profit is needed to elicit investment (which in turn redistributes income from capital toward labour).

Australia's exports to China grow by just over $3 billion in the maximum-change scenario (or about 15 percent). China's exports to Australia grow by just over $2 billion (or about 8 percent). The faster growth of Australia's exports to China mostly reflects the higher starting level of China's tariffs. Australia's present bilateral trade deficit with China narrows by $1 billion; this result depends on related adjustments in each country's trade balance with the Rest of the World, and international flows of foreign investment and investment income. (Each country's assumed overall income-expenditure equilibrium ensures that no country suffers an overall deficit.)

The predicted economic benefits of the ACFTA are shared broadly across the different sectors of the economy. Australia's agricultural sector enjoys the greatest boost: expanding output by 1.3 percent in the tariff-elimination scenario, and 1.5 percent in the maximum change scenario. All other sectors in both countries enjoy smaller gains – with just one possible exception. The only potential "loser" reported in any of the CoPS scenarios considered is China's agricultural sector, which is predicted to shrink in the tariff-elimination scenario due to increased penetration of Australian agricultural products. (In the maximum-change scenario, this contraction is eliminated by virtue of positive spin-off effects from the assumed increases in Chinese investment and productivity that are imposed under the services and investment liberalization scenarios.) The problem, however, is that about 700 million people work in that single negatively-affected sector. This raises some interesting questions, in light of the discussion in Section I above regarding the existing Australia-China trading relationship. Quite apart from potential environmental and resource constraints (including water) that may limit the trade-induced expansion of Australia's agricultural sector, Chinese officials already face a daunting challenge in managing the massive excess labour supply in its rural areas, and the coming migration (which some analysts have pegged as the largest in human history) from rural to urban areas in China. Would Chinese policy-makers really sign and implement an agreement in which the only simulated negative effects are experienced by that same troubled sector?

Both Australia and China experience a net inflow of foreign investment following an ACFTA, according to the CoPS results. There is a small net outflow of capital from Australia to China in the investment and services liberalization scenarios, and in the maximum-change scenario. (There is almost no shift in capital investment between Australia and China in the tariff-elimination scenario.) But that loss of foreign investment is overwhelmed by an inflow of capital from the Rest of the World to *both* China and Australia. In the maximum-change scenario, a total of $5.2 billion in foreign investment flows from the Rest of the World into the new free trade area. This inflow results largely from the assumptions of stronger investment and higher productivity in both Australia and China, and is crucial to the conclusion that the ACFTA will benefit both countries.

The agreement is less benign, however, for the Rest of the World – which experiences a net loss of investment (along with some of the other side-effects of a regional trade deal, including modest trade diversion – whereby some of its former exports to China and Australia are displaced by new trade within the free trade area). GDP in the Rest of the World declines as a result of the ACFTA.[20] This decline is small as a proportion of Rest of the World's GDP (less than one-tenth of one percent, rounded down to "zero" in the tables – with the direction of change not being indicated). But the gains from the deal are also small, measured as a share of Australian and Chinese GDP (which are much smaller denominators than Rest of the World GDP). The ACFTA is thus a "beggar-thy-neighbour" policy: even in this optimistic forecast, it imposes costs on the rest of the world economy that offset a portion (and perhaps a significant portion) of the predicted gains to the two signing nations.

Interpretation: In standard neoclassical language, free trade is expected to produce economic gains resulting from the more efficient allocation of resources, as each country pursues its respective comparative advantage. Most interpretations of the CoPS results will ascribe this rationale to the model's optimistic predictions. In reality, however, something quite different is occurring within this CGE model. It actually supports a different conclusion: if a country increases productivity and expands investment, its GDP will grow. The modellers have simply assumed that an ACFTA will improve productivity and strengthen investment; their model in no way proves that this will occur.

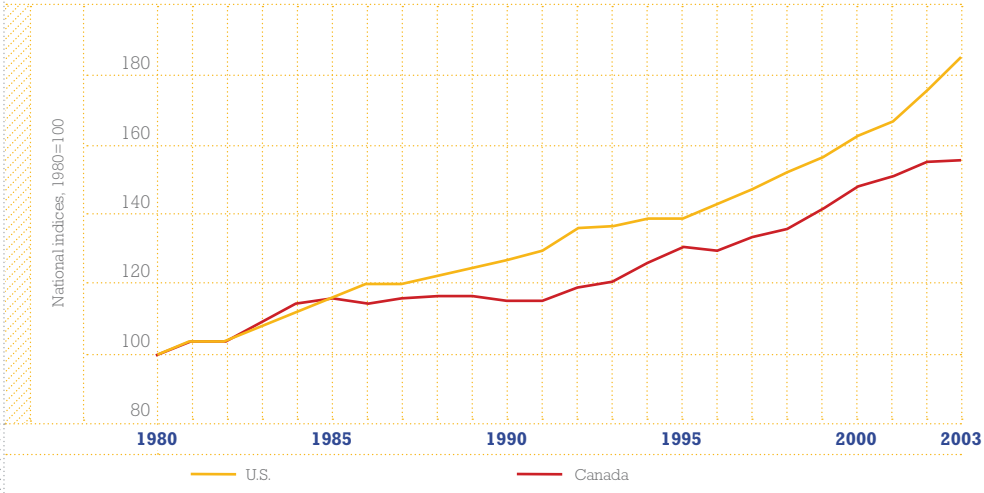
An interesting historical analogy is relevant here, to a similar issue that arose in the context of the 1989 Canada-U.S. Free Trade Agreement (which was subsequently folded into the NAFTA in 1994). As the Canada-U.S. deal was being negotiated and debated, CGE models were constructed in Canada that incorporated the belief among trade theorists that reduced tariff production would compel imperfectly competitive firms to operate at a higher scale of output, hence boosting productivity (and leading to a convergence in productivity levels between Canada and the U.S., where average productivity was 10-15 percent higher than in Canada).[21] Subsequent modeling efforts (often utilizing macroeconomic models, rather than CGE models) then simply *imposed* these assumed productivity gains.[22]

"The modellers have simply assumed that an ACFTA will improve productivity and strengthen investment"

Again, not surprisingly, any economic model in which productivity gains are simply assumed, will "predict" aggregate economic benefits – but those predictions are no more robust than the initial assumption which drives them. The reality of productivity performance in Canada under the FTA and the NAFTA has been very different. Far from leading to the predicted convergence in productivity levels between Canada and the U.S., Canadian productivity has

sagged further behind U.S. levels in the free trade environment (see Figure 4). In the 15 years after the bilateral FTA was implemented, Canada's relative productivity growth lagged behind U.S. rates by a cumulative total of over 10 percent. That decline in relative productivity may or may not be due to factors related to trade policy; but the Canadian experience certainly proves that productivity growth cannot simply be *assumed*, free trade or not. Productivity growth is something that must be *earned*.

Figure 4 - Canada-U.S. Productivity Comparisons, Output per Hour Worked, Business Sector, 1980-2003 *(national indices, 1980 =100)*



Source: Authors' calculations from Centre for the Study of Living Standards (2003)

"The extreme and unrealistic assumptions of neoclassical CGE models mean that their predictions cannot in any way be interpreted as 'evidence'"

In sum, therefore, the CoPS report on the impacts of Australia-China free trade, like other CGE exercises, is an interesting "if-then" modeling experiment, but not a convincing or robust guide to real-world economic policy. It verifies that productivity growth and stronger investment are important to economic progress – far more important, it turns out, than free trade *per se*. It casts little new light on the *determinants* of productivity growth and stronger investment. Even if the world operated according to the assumptions of CGE models (such as full employment, income-expenditure equilibrium, and the others) then free trade would produce mutual but only very small net economic benefits. And if each country were indeed composed of a single representative household that shared equally in all income, then each citizen would be assured a fair share of the costs and benefits that sum to those small net benefits. In the absence of these assumptions, however, the CoPS exercise and other CGE simulations can give us no such confidence.

A More Realistic Methodology

The extreme and unrealistic assumptions of neoclassical CGE models mean that their predictions cannot in any way be interpreted as "evidence" that real-world trade agreements will have the standard beneficial effects. In the following sections, we follow what we believe to be a more pragmatic and grounded approach to estimating the likely employment effects of free trade between Australia and China.

First, we concretely examine current trade flows between Australia and China – both their level, and their composition. Then we analyze the employment content of those trade flows, by examining the relationship between total sales and employment levels in each trading sector. Some jobs in Australia are created as a result of export sales opportunities to China; at the same time, imports from China displace Australian employment by substituting for domestic production. The net impact on employment will depend on both the overall balance of trade flows (that is, export sales relative to import sales) and on the composition of

those flows (since some industries have more intensive demands for labour, and hence a higher employment content, than others). This approach is akin to a simple "input-output" style of analysis, and is described in Section V of this report.

Then we consider how those trade flows (and their associated net employment impacts) are likely to change in response to an ACFTA. Various approaches can be taken to this task, based either on the application of assumed demand elasticities (in which consumer preferences respond to changes in landed prices) or on the extrapolation of historical experience (including Australia's experience with other FTAs, and the recent evolution of Australia's bilateral trade with China). These simulations are explained in Section VI of this report.

Analytically, this approach differs from the general equilibrium methodology embedded in CGE models. It does not assume full employment: instead, it recognizes that employment opportunities in each industry will depend on the output and sales of that industry. A trade agreement will influence employment conditions insofar as it enhances or undermines those production and sales opportunities. This impact of trade on employment can be considered as a "first-order" effect; it is certainly the case that follow-up economic adjustments (including in factor prices, such as wage levels; exchange rates; or interest rates) will lead to further changes in response to those first-order effects. But those changes will differ considerably from the benign, automatic market adjustments implied in the CGE methodology, and will be difficult to predict; the "input-output" methodology as least provides a more grounded perspective on the likely initial direction of change.

"The 'input-output' methodology as least provides a more grounded perspective on the likely initial direction of change"

A related, second feature of this approach is that it does not assume balanced trade (through the imposition of continuing income-expenditure equilibrium on a country and its constituent households). Trade imbalances regularly arise; those imbalances can be large, and they can persist. (Indeed, as noted in Section II, the deliberate creation and maintenance of a large and growing trade surplus is a crucial element of China's export-led economic strategy.) Trade imbalances arise for various reasons, including differences in macroeconomic performance, differences in absolute competitiveness, and fluctuation in exchange rates. By separately analyzing the impact of an ACFTA in terms of the changing trade balances of component sector trade flows (this might be considered a "bottom-up" approach to modeling the impact of a trade agreement), we recognize the possibility of trade imbalances. This differs from the CGE approach, which imposes an income-expenditure equilibrium (and hence balanced trade) at the "top" of the model, and then examines how the composition of trade and production adjusts within that overall balance. Again, the emergence of a trade imbalance may be a "first-order" effect, and eventually there are various adjustments that may serve to counteract that imbalance. In the case of a trade deficit, these adjustments would likely include downward pressure on growth and incomes, as domestic production contracts to reflect the reduced opportunities for competitive participation in global markets;[23] and employment shifts to non-tradable sectors which are relatively protected from that lack of competitiveness.

Section V:

The Employment Effects of Australia's Existing Trade with China

As described in detail in Section I of this report, Australia's exports to China are concentrated in sectors which rely on Australia's abundant natural resource base. Metal ore mining alone accounts for over half of Australia's total exports to China. Australia's imports from China, on the other hand, consist almost exclusively of manufactured products. This includes some traditionally "labour-intensive" commodities (such as textiles and clothing). But Australia's imports from China also consist increasingly of a range of higher-technology value-added manufactures, including machinery, electronics, and transportation equipment. Australia experiences a bilateral merchandise trade deficit with China that exceeded $5 billion in 2006 (despite the positive influence of the global commodities boom on the price of Australian resource exports). For each dollar of imports which Australia received from China, Australia exported only about 80 cents worth of domestically produced goods.

We can consider the first-order employment effects of this existing bilateral trading relationship in the following manner. We conduct the analysis for 18 specific sectors, identified at the 2-digit level, consistent with DFAT reporting of Australian trade flows. For each of these sectors, data describing industry sales, employment levels, and other key variables is assembled.[24] This data is reported in Table 9. An average job content ratio for each sector is defined as the ratio of annual sales to average annual employment levels; this ratio is expressed in terms of jobs created per billion dollars of industry sales. As we will see, cross-sector differences in those job content ratios are an important factor in explaining the net job loss that is associated in Australia with both existing bilateral trade flows and future trade liberalization. These ratios range from low levels (under 2000 jobs per billion dollars in sales) in mining and resource-related industries (such as coal mining, metal mining, and petroleum and coal products manufacturing), to high levels (approaching 10,000 jobs per billion dollars in sales) in labour-intensive agricultural sectors. Job content in manufacturing industries varies within a narrower range in between these two extremes.

Table 9 - Key Parameters of Australia-China Trade Sectors

Sector	Industry Sales ($bil)	Industry Employmt.	Job Content (per $bil. sales)	Average Australian Tariff (%)	Average Chinese Tariff (%)	Assumed Armington Elasticity
01 Agriculture	45,350	385,300	8,496	0.5	12.0	6.0
02 Hunting and Trapping	6,018	62,400	10,369	0.0	5.2	6.0
03 Forestry and Logging	3,572	22,100	6,187	0.4	2.2	6.0
04 Commercial Fishing	3,027	17,400	5,748	0.0	12.8	6.0
11 Coal Mining	14,733	22,752	1,544	0.0	4.7	6.3
12 Oil and Gas Extraction	15,745	6,552	416	0.0	6.3	4.4
13 Metal Ore Mining	18,981	34,842	1,836	0.0	3.0	6.3
14 Other Mining	4,026	10,934	2,716	0.0	3.0	6.3
21 Food, Beverage and Tobacco Manufacturing	72,970	184,996	2,535	3.0	14.0	5.4
22 Textile, Clothing, Footwear and Leather Manufacturing	7,176	52,170	7,270	12.4	9.7	4.5
23 Wood and Paper Product Manufacturing	17,778	70,532	3,967	2.6	5.8	6.4
24 Printing, Publishing and Recorded Media	17,684	105,197	5,949	1.8	4.9	4.1
25 Petroleum, Coal, Chemical and Associated Product Manufacturing	74,822	85,898	1,148	1.8	6.9	4.4
26 Non-metallic Mineral product Manufacturing	15,072	38,993	2,587	4.0	11.0	6.0
27 Metal Product Manufacturing	57,858	165,750	2,865	3.8	11.0	5.1
28 Machinery & Equipment Manufacturing	60,013	232,490	3,874	0.8	10.0	7.0
29 Other Manufacturing	9,221	65,629	7,117	2.5	13.5	6.6

Source: Sales and employment data from ABS; sales for agricultural sectors for 2004-05; for other sectors 4-quarter average ending spring 2006. Average tariffs from Mai *et al.* (2005), adjusted for sector composition. Armington elasticities adapted from Mérette *et al.* (2006), based on the GTAP database at Purdue University, U.S., again adjusted for sector composition.

Recall that Table 1 in Section I reported the existing bilateral trade flows between Australia and China for each of these sectors. Each flow of Australian exports can be multiplied by the average job content ratio for each sector, in order to estimate the number of Australian jobs which are dependent on continuing export sales to China. By the same token, each import flow is converted into an estimate of jobs which are displaced by incoming imports. The net balance of these two estimates (reported in the last column of Table 10) indicates whether there is a net gain or loss of jobs associated with bilateral trade in each sector.

"Australia's imports from China also consist increasingly of a range of higher-technology value-added manufactures"

Table 10 - Employment Content of Current Australia-China Trade

Sector	Job Content (per $bil. sales)	Australian Exports to China ($mil)	Australian Imports from China ($mil)	Jobs Gained from Exports	Jobs Lost to Imports	Employment Balance
01 Agriculture	8,496	1,590	53	13,509	451	13,057
02 Hunting and Trapping	10,369	373	0	3,872	0	3,872
03 Forestry and Logging	6,187	32	1	197	5	192
04 Commercial Fishing	5,748	32	9	186	49	137
11 Coal Mining	1,544	599	1	925	1	924
12 Oil and Gas Extraction	416	366	207	152	86	66
13 Metal Ore Mining	1,836	9,904	3	18,180	6	18,174
14 Other Mining	2,716	39	17	107	46	61
21 Food, Beverage and Tobacco Manufacturing	2,535	695	462	1,763	1,171	592
22 Textile, Clothing, Footwear and Leather Manufacturing	7,270	229	5,348	1,665	38,877	-37,212
23 Wood and Paper Product Manufacturing	3,967	226	415	897	1,647	-750
24 Printing, Publishing and Recorded Media	5,949	8	470	49	2,796	-2,747
25 Petroleum, Coal, Chemical and Associated Product Manufacturing	1,148	513	1,876	589	2,154	-1,565
26 Non-metallic Mineral product Manufacturing	2,587	17	507	44	1,312	-1,268
27 Metal Product Manufacturing	2,865	1,547	1,978	4,431	5,666	-1,235
28 Machinery & Equipment Manufacturing	3,874	607	11,234	2,351	43,520	-41,170
29 Other Manufacturing	7,117	31	2,469	217	17,573	-17,356
98 Miscellaneous and Confidential Trade		3,607	437			
TOTAL		20,415	25,486	49,134	115,361	-66,228
PER $BILLION				2,923	4,605	

Source: Authors' calculations from ABS and DFAT STARS data, as explained in text.

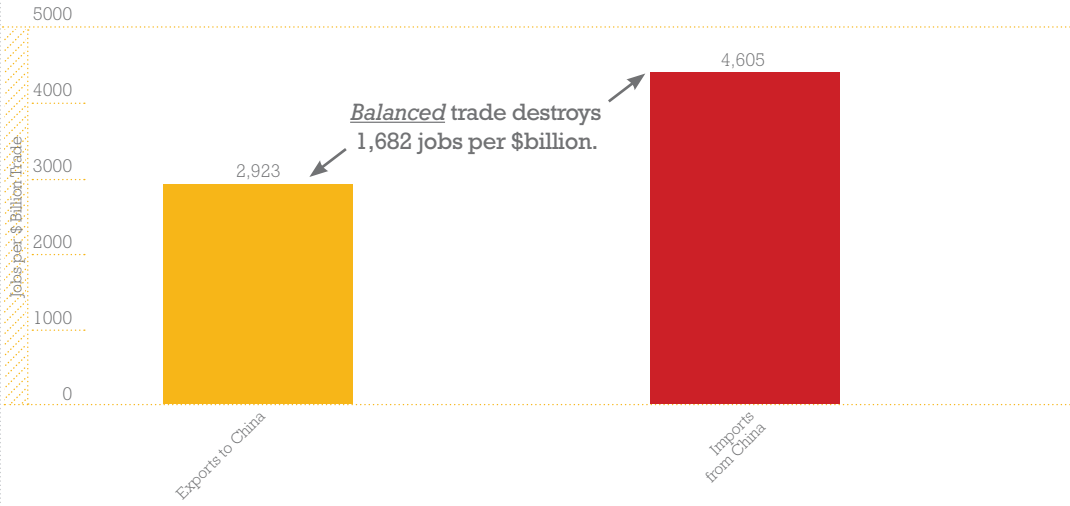
Of the 18 individual sectors listed in Table 10, 10 experience bilateral trade surpluses with China, while 8 experience trade deficits.[25] However, the deficits, on average, are larger than the surpluses (explaining Australia's net merchandise trade deficit with China). Moreover, the trade deficits tend to be concentrated in sectors with relatively higher job content ratios, compared to the trade surpluses. In particular, half of Australia's exports to China are concentrated in metal mining, which has a very low job content ratio (1,836 jobs per billion dollars in sales). Hence, this huge export flow generates a relatively small number of total jobs: just over 18,000 positions. In contrast, Australia's large trade deficit in machinery and equipment is roughly equal in value to its surplus in metal mining. However, each billion dollars in net machinery and equipment imports displaces more than twice as many jobs (3,874 per billion dollars) as is supported by a billion dollars of metal ore exports. Hence, the employment loss associated with the deficit in machinery and equipment is much larger (over 41,000 positions) than the gain associated with the trade surplus in metal mining.

Agricultural goods are the other major identifiable sector in which Australia enjoys a trade surplus with China, and this industry is relatively more labour-intensive than the mining sector. Hence the smaller aggregate trade surplus in agriculture (less than one-fifth as large as the bilateral surplus in mining) supports almost as many net jobs as the much larger mining surplus. However, jobs in the agricultural sector generate significantly lower incomes than in mining or manufacturing.

Summing across sectors, a net total of over 66,000 Australian jobs have been lost as a result of the current bilateral merchandise trade relationship with China. We can consider two separate factors as contributing to that bottom-line total:

- On average, Australia's exports to China support less jobs than are displaced by Australia's imports from China. Each billion dollars of bilateral exports supports an average of 2,923 jobs, while each billion dollars of bilateral imports displaces 4,605 jobs. This imbalance is illustrated in Figure 5. Even if trade were balanced, then, Australia's bilateral trade with China would be a net job destroyer in Australia, by virtue of these differences in the job content of trade. Each billion dollars in bilateral, balanced trade destroys 1,682 jobs because of this difference in average employment content.
- Even balanced trade with China reduces Australian employment on a net basis. However, Australia's trade with China is not balanced. The trade deficit (which exceeded $5 billion last year) exerts a purely negative impact on Australian employment – since the "downside" (jobs displaced by imports) is not offset by any upside.

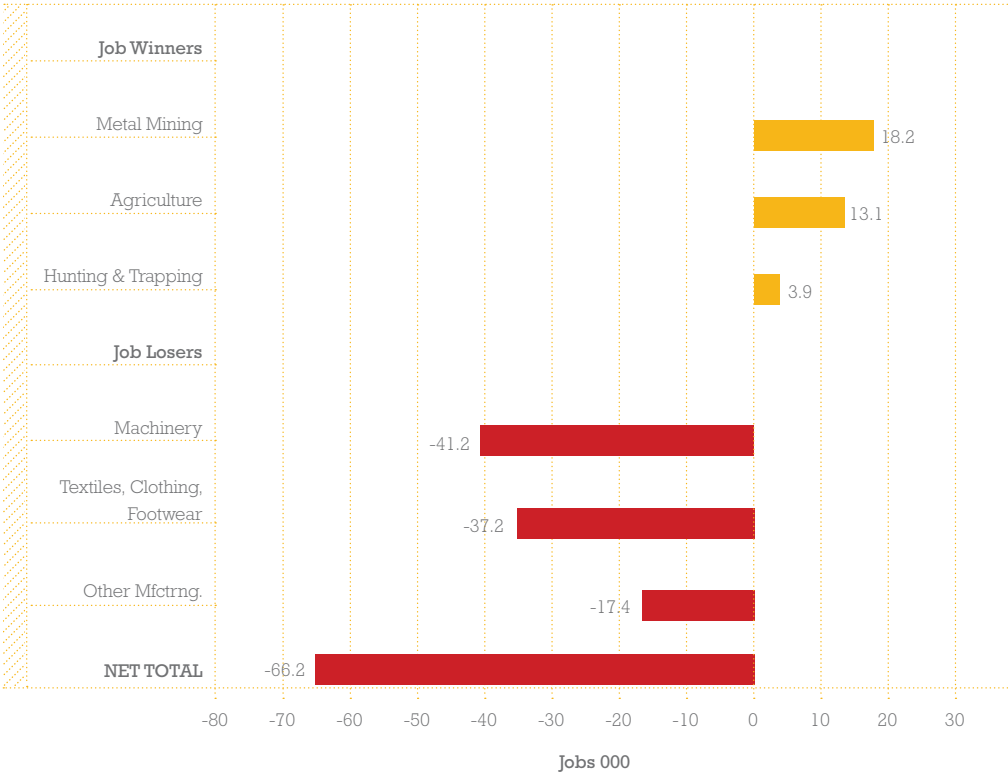
Figure 5 - Job Content of Bilateral Trade Flows Australia and China, 2006
(jobs per billion dollars trade)



"A net total of over 66,000 Australian jobs have been lost as a result of the current bilateral merchandise trade relationship with China"

The largest individual industries affected by bilateral trade flows between Australia and China are indicated in Figure 6. The biggest job winners include metal mining; agriculture; and hunting and trapping industries (which have a very high job content per billion dollars of sales). The biggest job losers are machinery and equipment; textiles, clothing, and leather goods; and other manufacturing. The jobs lost due to imports from China are not solely concentrated in more labour-intensive industries; the machinery and equipment sector, which accounts for the largest single sectoral job loss, is relatively high-technology and capital-intensive.

Figure 6 - Major Job Winners and Losers from Current Bilateral Trade With China 2006
(thousand jobs)



Source: Authors' calculations from ABS and DFAT STARS data as explained in text

"The jobs lost due to imports from China are not solely concentrated in more labour-intensive industries"

Section VI:

The Potential Employment Effects of an ACFTA

The foregoing section has utilized existing data to provide a snapshot of the employment impacts of Australia's current trading relationship with China. We will now utilize a similar approach to consider the potential employment impacts arising from the expansion of that bilateral relationship under an ACFTA.

Two broad approaches are adopted in this analysis, in order to provide a range of estimates regarding the likely employment effects of further liberalization. One approach parallels the counterfactual merchandise trade liberalization simulations utilized in CGE and other quantitative economic models: each existing bilateral trade flow is adjusted to reflect the impact on sales of tariff elimination. We call this approach the "elasticities" approach, as it relies upon the product of proportional tariff reductions and assumed price elasticities of demand for specific national varieties of different products. Typically, the reduction in prices resulting from lower tariffs is multiplied by some assumed elasticity of demand (whereby the degree to which consumer purchases of that particular national variety of product respond to lower prices depends on some assumed price sensitivity).[26] For this approach, we need to know the extent to which prices will decline in each sector following the elimination of tariffs or tariff-equivalents. Table 6 (above) listed, for each of the sectors, the current prevailing average bilateral tariff or tariff-equivalent rate; these rates were reported in the Centre of Policy Studies model that was reviewed above (Mai *et al.*, 2003), which were adjusted for the composition of our sectors.[27] We must also specify the assumed elasticity of substitution between national varieties (also called simply the "Armington elasticity"), which will determine the final impact of tariff reduction on consumer patterns. For this purpose we adapt elasticities used within the widely-cited Global Trade Analysis Project (GTAP) at Purdue University, as cited by Merette *et al.* (2006), again adapted to reflect the sectoral make-up of our data. The higher is the Armington elasticity, the more consumers are believed to be willing to switch between national varieties of a particular product in response to relatively minor changes in relative prices.

The impact of tariff-elimination on trade flows and hence on sectoral employment levels is then estimated by escalating each bilateral trade flow (both imports and exports) by the product of the proportional reduction in prices assumed to result from tariff-elimination and the Armington elasticity. If the Armington elasticity is greater than one (as is generally held to be the case), then the increase in each component trade flow will be more than proportionate to the decline in import prices resulting from tariff-elimination.

In conducting this analysis, we must be mindful of the fact that import flows to the East Asian economies tend in practice to be relatively insensitive to tariff reduction. This reflects the continuing influence of non-tariff barriers, pro-active industrial strategies (such as China's compulsory joint venture laws and import licensing schemes discussed in Section II of this report), active exchange rate management, and other policy interventions. For example, Stanford and Poon (2006) find that Korean imports are not statistically sensitive to tariff rates, and Japanese imports are only partially sensitive. This concern is further underlined by the real experience of Australia's bilateral FTA with Singapore, under which Australia's exports to Singapore have actually *declined* – indicating an extreme lack of sensitivity of Singapore imports to formal tariff reductions.[28] China's participation in the WTO and the other mechanisms of international trade is relatively recent, and it is too early to determine the extent to which tariff reduction will indeed be associated with genuine increased import penetration.[29] Chinese imports have grown significantly under its more open economic strategy, but not as quickly as exports; moreover a large proportion of Chinese imports are inputs to export-focused manufacturing plants, and hence are subsequently re-exported.[30] As was indicated in Table 3 above, Australia's exports to China have not grown nearly as quickly, relative to the growth of China's economy, as have Australia's imports from China. Finally, given China's pressing challenge to manage rural-urban migration and provide for the sustenance of its huge excess rural labour supply, it is quite likely that policy-makers will continue to carefully manage agricultural imports.

It is quite likely that the elimination of formal tariffs on China's part will not have nearly the same bottom-line effect on imports as would be the case in a more transparent, liberal economy such as Australia's.

For all of these reasons, it is quite likely that the elimination of formal tariffs on China's part will not have nearly the same bottom-line effect on imports as would be the case in a more transparent, liberal economy such as Australia's. To reflect this underlying asymmetry, the simulations below consider three cases: one in which Chinese tariff-elimination is equally powerful as in Australia, one in which it is half as powerful, and one in which it has no effect whatsoever on imports from Australia. (This latter, pessimistic case would presumably correspond to the extreme failure of Australia's FTA with Singapore to stimulate any growth in Australian merchandise exports whatsoever.)

The first three columns of Table 11 summarize the findings of these three "elasticity" cases. Every scenario considered – even the one in which Chinese tariff-elimination has a full impact on imports – results in a net job loss for Australia. Australia's imports from China are expected to grow by 19 percent. Australia's exports to China grow by 28 percent in the full-sensitivity scenario, half as much in the partial-sensitivity scenario, and not at all in the pessimistic zero-sensitivity scenario. Under full sensitivity, Australia's exports to China grow more strongly than its imports from China because of the higher average tariff levels currently prevailing in China. This produces a slight narrowing of the existing trade deficit with China (by less than $1 billion). However, due to the heavy weighting of those new exports in mining, which has a relatively low job content per billion dollars of sales, this scenario still results in a net job loss (of over 7,000 positions) for Australia. Even this "best-case" scenario, therefore, in which Australian exports grow more quickly than its imports (something that has not occurred in any of the three existing FTAs), Australia still experiences a net job loss. In contrast, if we allow for imperfect sensitivity of Chinese imports to formal tariff-elimination, then the bottom-line impact on Australia's labour market gets worse. In these scenarios, the existing bilateral trade deficit widens (by between $2 and $5 billion), and a net job loss of 18,000 to 29,000 jobs is experienced in Australia.

Like other simulations of free trade agreements which utilize the "elasticities" methodology, these estimates almost certainly underestimate the true ultimate impact of trade liberalization on bilateral trade flows. Total bilateral trade grows in these simulations by only 10-20 percent (depending on the sensitivity of Chinese imports to formal tariff levels).[31] In the real world, free trade agreements have been associated with a much larger expansion of gross trade, as companies adjust their sourcing and investment decisions to reflect the changed policy context, and other structural changes (which cannot typically be portrayed in CGE and other models) occur. For example, bilateral trade between Singapore and Australia grew by 66 percent in the first four years of that FTA; bilateral trade between Thailand and Australia grew by 54 percent in just the first two years of that FTA. So simulations following the "elasticities" methodology almost certainly underestimate both the extent to which trade will expand after an FTA, and the degree to which that expansion of trade may not be balanced.

Table 11 - Potential Trade and Employment Effects of Australia-China Trade Liberalization

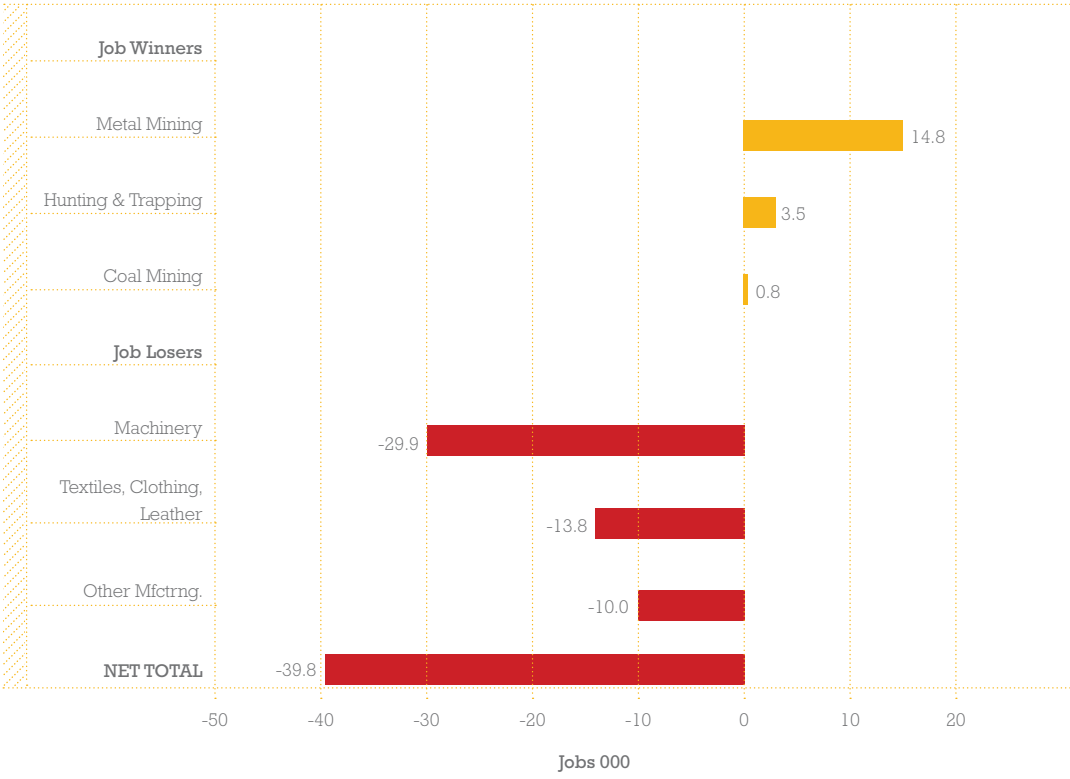
	Elasticities Approach			Historical Extrapolation Approach	
	Full Chinese Tariff Sensitivity	Partial Chinese Tariff Sensitivity	No Chinese Tariff Sensitivity	Repeat 5-Year Bilateral Trend	Repeat 3-FTA Actual Experience
Growth Exports to China	+27.7%	+13.8%	0.0%	+62.9%	+29.7%
Growth Imports from China	+18.9%	+18.9%	+18.9%	+59.5%	+158.7%
Change Bilateral Trade Balance	+$0.8 bil.	-$2.0 bil.	-$4.8 bil.	-$2.3 bil.	-$34.4 bil.
Employment Changes (000):					
• Agriculture	+11.1	+5.5	-0.0	+3.8	+5.6
• Mining	+3.8	+1.9	0.0	+15.7	+6.8
• Manufacturing	-22.2	-25.7	-29.1	-59.3	-170.9
Total	**-7.3**	**-18.2**	**-29.1**	**-39.8**	**-158.5**

Source: Authors' calculations from ABS and DFAT STARS data as described in text.
Totals may not add due to rounding.

An alternative approach, therefore, is to consider what might occur in the wake of an Australia-China free trade agreement, on the basis of real observed shifts in historical trade patterns. The last two columns of Table 11 provide two such historical extrapolations. The first indicates the employment impact that would prevail in Australia if bilateral trade flows within each sector simply repeat the five-year growth that has been experienced in practice since 2001. In other words, this scenario assumes that export and import flows within each sector grow by the same amount (measured in absolute dollars, not percentage changes) as has already occurred even without a free trade agreement.

A repeat of the past five years of bilateral trade expansion would produce significant, negative impacts on Australia. Exports and imports both grow by roughly about 60 percent. However, since Australia is starting with a significant trade deficit with China, this deficit widens (by over $2 billion) even though both imports and exports are growing at a similar rate. New export-driven jobs are created in agriculture and mining; but a much larger number of jobs is eliminated by a surge of manufactured imports. The net employment impact is a loss of some 40,000 Australian jobs. The sectoral composition of these effects is illustrated in Figure 7, and are similar (not surprisingly) to the employment effects of existing Australia-China trade flows (illustrated in Figure 6, above). Almost 15,000 new jobs are created in metal mining (assuming, of course, that the mining industry has the resource capacity to expand its output to this degree), and a smaller amount in agriculture. Almost 30,000 jobs are lost, however, in the machinery and equipment sector; 14,000 in textiles, clothing and leather; and tens of thousands in other manufacturing sectors.

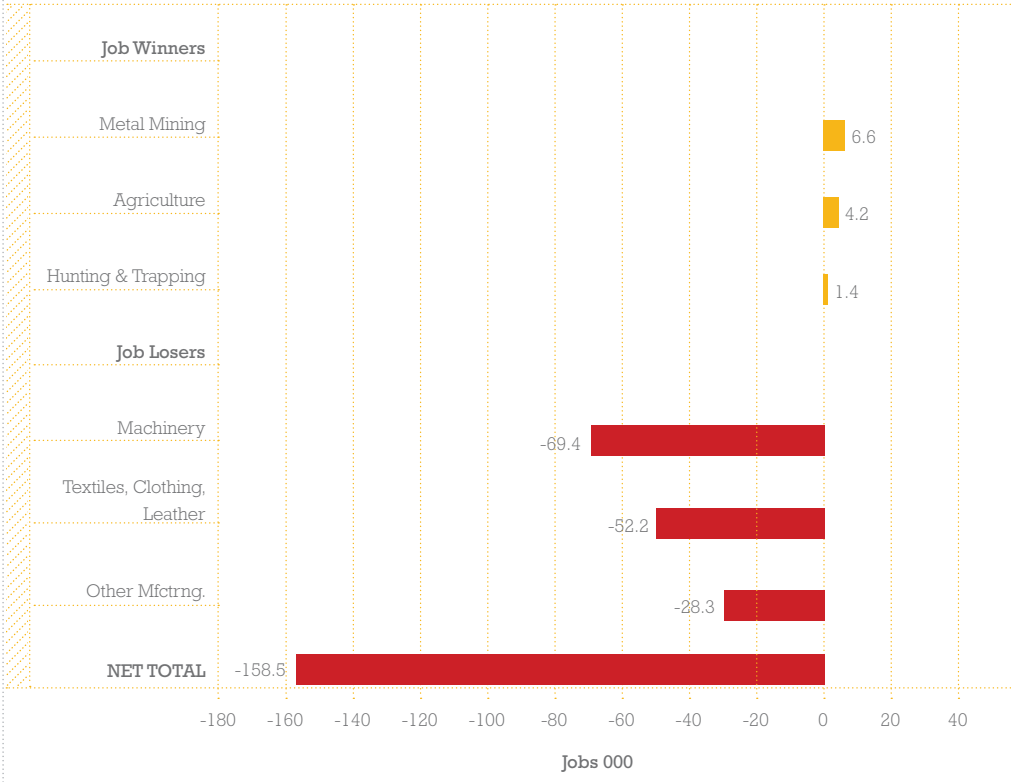
Figure 7 - Major Job Winners and Losers from Repeat of 5-Year Bilateral Trade Growth
(thousand jobs)



The last column of Table 11 assumes that trade flows will expand in the wake of an ACFTA in a similar manner to the real-world evolution that has been observed in Australia's existing three FTAs. Recall from Table 7 that Australia's exports to its three FTA partners have expanded at an annual average rate of 6.4 percent since the FTAs were implemented. Australia's imports from those same trading partners grew by 21.1 percent per year(three times as fast) following the FTAs. We apply these same average growth rates of exports and imports to all sectors. We also assume that it takes five years of adjustment at this pace before the effects of the ACFTA are fully accounted for. What would be the employment impacts in Australia of this expansion of bilateral trade with China, in line with the real-world experience that is visible in Australia's other FTAs?

This scenario produces very large and negative impacts on Australian employment. Australia's exports to China grow by $6 billion per year (or about 30 percent), while Australia's imports from China grow much faster: by $40 billion per year (or over 150 percent).[32] The growth in Australian exports to China is weaker in this scenario, than in the case which simply replicates the growth over the last 5 years in bilateral trade between China and Australia; this is because Australia's exports to China have performed better over this time (*without* an FTA), than did Australia's exports to its three new FTA partners. This in itself may imply something about the usefulness of FTAs in stimulating exports. Some new positions are created in Australia's agriculture and mining sectors (about 6,000 and 7,000 new jobs, respectively). However, the massive inflow of imported manufactured goods from China wipes out over 170,000 jobs in that sector – equivalent to over 15 percent of current Australian manufacturing employment. In the textile, clothing, and leather sector, this expansion in Chinese imports eliminates over 50,000 jobs – essentially eliminating the domestic industry.[33] In the broad machinery and equipment sector, the job loss approaches 70,000 positions. The sectoral impact of this scenario, in which the real-world experience of Australia's existing FTAs is applied to the Chinese case, is summarized in Figure 8.

Figure 8 - Major Job Winners and Losers from Repeat of Actual 3-FTA Trade Growth Rates
(thousand jobs)



This latter case demonstrates that an FTA with China could indeed impose dramatic – and in some sectors, crushing – losses on Australian manufacturing, even if trade expands in the wake of that agreement in a parallel fashion to the real-world experience of Australia's existing three FTAs.

"This expansion in Chinese imports eliminates over 50,000 jobs – essentially eliminating the domestic industry"

Section VII:

Conclusions and Policy Implications

As this report has shown, Australia's trading relationship with China is vital to our economic performance. However, it is currently imbalanced with a $5 billion trade deficit at the height of the minerals boom. And the present bilateral relationship leads to a net job loss in Australia of over 66,000 jobs -- partly because of that deficit, and partly because the products imported by Australia from China embody a higher job content than the products we export to China

As Section II of this paper demonstrated, China is steadily increasing its technological capability and is intent on concentrating its production on high value added, knowledge intensive manufactured goods. This is due to China pursuing an explicit national industrial development strategy since 1978. This strategy has been extraordinary successful.

It is in this context we examined the potential impacts of an Australia China Free Trade Agreement. The economic studies purporting to show the benefits of the three current FTAs and the proposed agreement with China are based on highly unrealistic assumptions and cannot be trusted. These unrealistic assumptions mean that predictions of the effects of free trade based on computerized models are hypothetical and misleading, and can in no way be interpreted as "proof" that free trade will be so mutually beneficial. This suspicion is reinforced by a review of Australia's negative experience in the three existing FTAs -- all of which have boosted Australia's imports far faster than its exports, and have promoted a significant widening of trade deficits.

Our more realistic efforts to simulate the economic and employment impacts of a comprehensive FTA with China indicate that it would have a negative and potentially very large impact on a wide range of manufacturing industries. Even in this best-case scenario (in which Chinese tariffs are genuinely eliminated in all sectors, and bilateral trade expands in a perfectly balanced manner), Australia would still suffer a net job lost of over 7,000 jobs (including 22,000 lost jobs in manufacturing).

In reality, however, the impacts of an Australia-China FTA (ACFTA) will not be so benign. The experience of Australia's three other FTAs has shown conclusively that aggregate trade flows grow much more quickly than expected in standard economic models, and that Australia's imports have consistently grown much faster than its exports. If we apply the actual historical experience of Australia's existing FTAs, extrapolated over a five-year adjustment period, then the net job losses for Australia are far worse. Our simulations indicate a job loss of over 170,000 positions in manufacturing, offset only partly by limited new employment creation in agriculture and mining. Entire sectors of manufacturing, including textiles and apparel, would be virtually wiped out. The overall net employment impact in Australia would be a job loss of 158,500 positions.

"The overall net employment impact in Australia would be a job loss of 158,500 positions"

Impact of ACFTA Based on Repeat of 3-FTA Experience

Trading Performance			Employment Changes (000)			
Growth Exports to China	Growth Imports from China	Change Bilateral Trade Balance	Agriculture	Mining	Manufacturing	TOTAL
29.7%	158.7%	-$34.4 bil.	5.6	6.8	-170.9	-158.5

The policy implications of this research are clear. Firstly, Australia must not sign a free trade agreement with China. More realistic economic simulations indicate it will have a detrimental effect on our economy, and especially on employment in manufacturing -- the future health of which is strategically important to our long-term economic well-being. More broadly, Australia must rethink its trading relationship with China, focusing on a more managed expansion of bilateral trade that is contingent on China ratifying the core International Labor Organization conventions and protecting the human and labour rights of its citizens, and contingent on Chinese purchases of value-added, higher-technology products from Australia (not just our resources).

It is important to note that we are not trying to demonize Chinese workers, or blame them for our losses, or even promote protectionism. We are trying to understand the factors behind China's successes, and point out that to the extent it relies on trade surpluses with countries like Australia it imposes costs on our workers (on top of the fact that Chinese workers do not adequately share in the gains over there).

In addition, in light of the significant negative impact the three current FTAs are having on the Australian economy, the Coalition government's current emphasis on signing more FTAs must be reversed. A serious rethink of overall Australian trade policy is required. Indeed, Australia should learn from China and the other North East Asian nations and implement more effective, pro-active industry and trade policies, rather than simply assuming that deregulated international commerce will automatically ensure a desirable economic structure. Strategic intervention is not only desirable to shape the industrial structure of Australia and boost investment and productivity, it is essential if we are to have a balanced, sustainable economy capable of competing globally on the basis of high skills-high value added trade rather than on low wages.

A first step will be for the Commonwealth Government to implement the recommendations of the National Manufacturing Forum, a body formed out of the 2005 National Manufacturing Summit with representatives of State Governments, Manufacturers, Manufacturing Unions, Research Institutions and Industry Associations.

Furthermore, the Commonwealth should adopt the policy package developed by the National Institute of Economic and Industry Research. This was a recurrent $1 billion package consisting of:

- $300 million investment allowance to help manufacturers update their capital equipment;
- $300 million research and development assistance scheme to help manufacturers innovate;
- $225 million increase in support for export market development;
- $75 million program to help benchmark manufacturers and encourage them to adopt world's best practice and technologies;
- $50 million incentive program to attract foreign investment into small and medium sized manufacturing businesses; and
- $50 million strategy to attract and train highly skilled labour for the application of advanced manufacturing technologies.

We emphasize in making these recommendations that our goal is not to reduce international trade, or to somehow close off Australia from international markets and competition. To the contrary, our goal is to maximize the benefits accruing to Australia from international exchange, and in particular to ensure that we are not ascribed a narrow and unsustainable role in world trade as a supplier of raw materials to other, more technologically dynamic economies. This will require pro-active efforts to manage the patterns of international trade, and nurture desirable, strategic industries in Australia. Similarly, our concerns about the potential negative consequences of a free trade agreement with China should not be interpreted as "anti-Chinese" in any manner. We value the potential benefits accruing to Australia from a more balanced and reciprocal trade relationship with China. And as trade unionists, we are determined to work in cooperation and solidarity with Chinese workers and unionists to ensure that they ultimately receive a fair share of the tremendous wealth being produced by China's economic expansion

"Australia must not sign a free trade agreement with China"

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Footnotes

[1] Since Australia began this period with a bilateral deficit, its exports would have to grow much faster than imports to shrink the absolute size of the deficit in the course of a substantial increase of two-way trade; measured as a proportion of two-way trade, however, the bilateral deficit has diminished.

[2] In this analysis of Chinese economic strategy we draw on the research contained in Poon, (2006).

[3] North Asia consists of China, North Korea, South Korea, Hong Kong, Japan, Macau, Mongolia and Taiwan

[4] U.S. Department of State, "Country Reports on Human Rights Practices – 2004: China", February 25 2005.

[5] Ibid.

[6] Of course, not all the growth in bilateral trade with the three FTA partners was due to the FTA; by the same token, the CoPS modellers expect bilateral trade with China to grow significantly even in their no-FTA baseline scenario. Hence the two numbers (15 percent growth in bilateral trade with the U.S. in two years of real-world experience, versus 12 percent predicted growth in bilateral trade with China due solely to the ACFTA) are not strictly comparable. Nevertheless, it is clear that trade flows with Australia's FTA partners have responded far more powerfully than expected in the models, probably because of the many structural and strategic changes that are not captured in those models.

[7] This figure represents the combined difference, across the three FTA partners, between the bilateral merchandise trade deficit in 2006, and the balance that prevailed in the base year prior to the FTA implementation in each case.

[8] The discussion in this section draws on Stanford (2006).

[9] An "elasticity" is the measure of how responsive one variable is to changes in another, related variable – for example, how much would demand for a product change in response to changes in its price.

[10] Trefler (1993) describes this record of underestimation and provides one possible explanation for it.

[11] For more detailed critical review of the methodology and predictions of CGE models in previous real-world trade liberalization scenarios (including the North American Free Trade Agreement and the Doha round of World Trade Organization negotiations), see Ackerman (2005), Stanford (2006), and Taylor and von Arnin (2006).

[12] Additional CGE research into the impacts of an ACFTA has also been undertaken by the Centre for International Economics on behalf of the Victoria state government; at time of this writing, however, no published results from that research were available.

[13] Curiously, this key result was misrepresented in the Commonwealth feasibility study's review of the CoPS results (DFAT, 2005). That review claims (on p. 126) that "the positive impact of an FTA on … employment is significant in both countries." In fact, by assumption, there is no change in employment in either country. The Commonwealth report's error may be based on a misreading of Table 7.3 in the original CoPS study (Mai *et al.*, 2005). This table reports sectoral employment impacts (which are positive in goods-producing industries, and apparently zero in services industries). In fact, the employment impact is *negative* in the service sector; given its dominant share of total employment, even a small contraction in services employment (less than one-tenth of a percentage point, and hence seemingly "zero" – although the table should have clarified that the direction of change was negative) perfectly offsets (again, by assumption) the growth of employment in goods-producing sectors. This point was clarified verbally by the CoPS study's authors.

[14] Productivity in this context is measured in terms of output per unit of composite "primary input" (consisting of a bundle of labour, land, and capital). The CoPS report (example, Table 4.2) refers to these productivity changes as "endogenous," but in fact they are imposed exogenously by the modeler, and assumed to result "endogenously" from trade liberalization; this point was clarified verbally by the study's authors.

[15] In contrast, the standard tariff-elimination scenario can be directly portrayed in the model by adjusting tariff terms in each region and sector's import price equation to zero.

[16] The reduction in the required rate of return on investment is akin to an assumed outward shift in the investment function. It applies to all sources of capital in each country (whether from Australia, China, or the Rest of the World).

[17] Of the $3.007 billion increase in Australian GDP expected by the CoPS model in 2015, 69 percent is due to the services and investment liberalization scenarios which are entirely dependent on the exogenously assumed productivity and investment improvements. A portion of the remaining 31 percent gain ($0.944 billion) is due to the assumed productivity improvements; the rest reflects the normal post-FTA factor reallocation resulting from the underlying working of the core CGE model.

[18] The assumed productivity growth for Australia is one-half to two-thirds of the increases assumed for China, while the assumed shift in investment is about one-half to four-fifths as large as in the Chinese case.

[19] The CoPS study's estimates of the impact of the maximum change scenario simply equals the sum of the simulations associated with each of the three component forms of liberalization. This approach excludes potential interaction effects among the three forms of liberalization. The authors cite several potential positive interactions in Section 7.1 of their report. There are also potential negative interactions, such as diminishing returns to the increased investment which is the key driving force behind both the investment and the services liberalization scenarios. These negative interactions could result in the impact of the maximum change scenario being smaller than the sum of the three component forms of liberalization.

[20] This result is not obvious in the CoPS report, but was confirmed verbally by the study's authors.

[21] The most influential of these models was the work of Harris and Cox (see Harris, 1991; and Cox and Harris, 1992).

[22] These models included Dungan (1985), Dungan and Wilson (1991), and Magun *et al.* (1988).

[23] This is precisely the sort of adjustment analyzed in Thirlwall's theory of balance-of-payments constrained growth, which has received wide empirical support (Thirlwall, 1979); see Palley (2006) for a modern application of that approach.

[24] A similar methodology has been utilized in other research, such as Scott (2005) and Rowthorn and Coutts (2004).

[25] In the case of the last sector grouping listed in Table 10, "miscellaneous and confidential trade," no job content can be estimated since the actual composition of this trade flow is suppressed for confidentiality reasons. Hence this sector is excluded from the job content calculations performed in this section and the next.

[26] Again, because we do not know the content of the "miscellaneous and confidential" trade flow, it is excluded from this analysis.

[27] In cases in which the more disaggregated sectors reported in Mai *et al.* (2005) did not correspond to one of our 18 sectors, a weighted average tariff rate was calculated on the basis of sectoral trade flows reported at the 3-digit level by DFAT.

[28] Singaporean tariffs were already zero in many sectors before the FTA with Australia, although tariffs in some sectors were eliminated under the terms of the FTA, and that (along with normal economic growth) should have stimulated some growth in Australian exports to Singapore. FTA advocates argued that the FTA would be more important for services trade than merchandise trade (although Australian merchandise imports from Singapore have grown dramatically since the FTA). In services trade, too, Australia's imports from Singapore have grown twice as fast (by 5.3 percent in the five years ending in 2005) as Australia's services exports to Singapore (2.7 percent), with the emergence of a bilateral services trade deficit; DFAT (2006), pp. 70-71.

[29] The unavailability of consistent data on Chinese average tariff collections prevent formal empirical testing of the relationship between effective tariffs and import penetration in the Chinese case.

[30] Some observers, such as Bowles (2005), suggest that these export-processing imports account for over half of all Chinese imports.

[31] It is interesting to note that even this modest impact is greater than the predicted growth in bilateral trade held to result from an ACFTA in the CoPS model of Mai *et al.* (2005). In that model, bilateral trade grows by only about 11 percent, even in the maximum-change scenario which incorporates exogenously-assumed improvements in investment and productivity.

[32] The application of the average growth rates from Table 7 for 5 years produce expected compound growth totals of 36 percent for exports and 161 percent for imports; however, since we have excluded the miscellaneous and confidential trade category from our analysis, the growth rate for total exports is somewhat smaller.

[33] In the scenario summarized in Table 11, the job loss in this sector was capped at the current total employment level; in fact, the import flow would have translated into an even larger job loss in this sector, if there were any additional jobs present in Australia.

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