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Quantifying the benefits of services trade liberalisation

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Prepared for

Department of Foreign Affairs and Trade

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*Centre for International Economics
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Executive summary

The service sectors account for around 70 per cent of economic activity in most developed economies, and an ever increasing share of activity in low and middle income countries. Despite the importance of the service sectors to the global and Australian economies, their contribution to economic performance is not well understood, and this extends to the economic gains that could follow from liberalisation of service trade and investment flows.

The World Trade Organization identifies four modes through which service exports can be delivered, these being:

- cross border supply (Mode 1) – services are delivered from the territory of one country into the territory of another country (for example, an Australian firm who sells insurance to consumers residing in Indonesia);
- consumption abroad (Mode 2) – where an individual or firm provides services to an international visitor (for example, tourism services provided within Singapore to visiting New Zealand tourists);
- commercial presence (Mode 3) – where a service provider sets up operations in a foreign country (for example, an American bank opening a branch in China); and
- presence of natural persons (Mode 4) – where an individual offers their services while in the destination country (for example, an IT consultant from South Korea travels to India to fulfil a contract).

The share of total trade accounted for by service trade has remained relatively constant at around 20 per cent for OECD countries, 15 per cent for middle income countries, and 15-20 per cent for lower income countries. While there are challenges in terms of the coverage and accuracy of service trade statistics, the service sectors do appear to be less trade intensive than do other areas of economic activity. One factor that may contribute to the apparent reduced intensity of service trade is the barriers encountered by that trade.

This report saw development of a methodology for quantifying barriers to services traded via Mode 3 (commercial presence), and then use of the developed methodology to quantify global barriers to Mode 3 service trade. Barriers to Mode 1 service trade were taken from estimates prepared by the Productivity Commission.

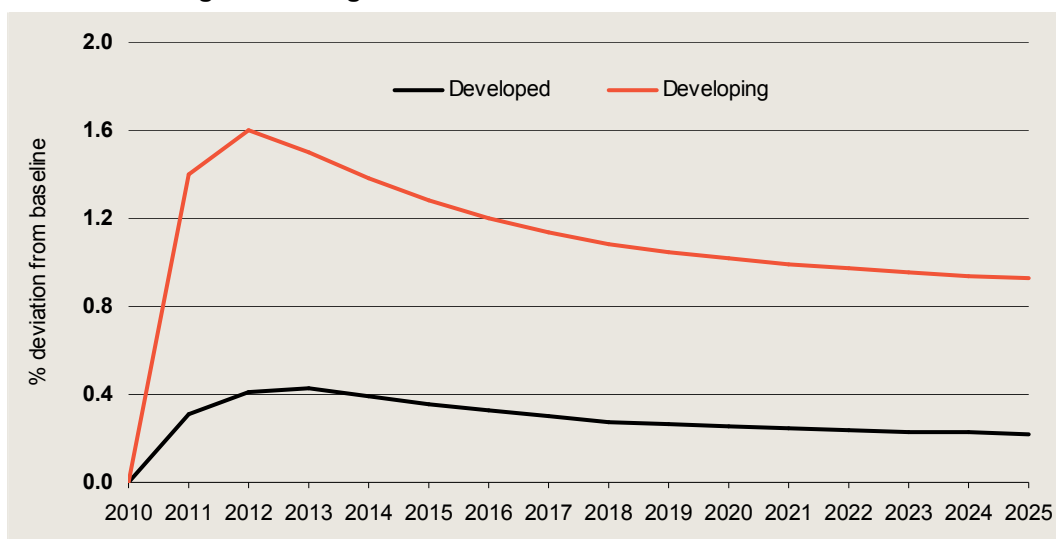
The CIE's economic model of the global economy – CIEG-Cubed – was then modified so as to be able to better model services trade liberalisation. An

independent assessment of the potential economic gains arising from global service trade liberalisation was then undertaken.

Economic impacts of global services trade liberalisation

- The main modelling simulation conducted saw the overnight liberalisation (on 1 January 2011) of all barriers to Mode 1 and Mode 3 services trade, with all countries/regions liberalising their service trade.
- The time profile of real GDP gains for developed and developing country groupings are reported in chart 1. As can be seen, developing countries are estimated to experience a 0.9 per cent gain on average to real GDP over the long term, while developed countries experience an average gain of 0.2 per cent.
- The difference in GDP gains between developed and developing countries primarily reflects developing countries having larger barriers to foreign direct investment (FDI), and hence have the more to gain from service trade liberalisation.
- In present value terms (year 2010), the cumulative GDP gains over 2011 to 2025 are worth around A\$1.7 trillion to developed countries and A\$3.6 trillion to developing countries. This equates to an annual (simple average) gain of around A\$116 billion per year over 2011–25 for developed countries and A\$238 billion for developing countries.
- The modelling results suggest that liberalisation of services delivered via commercial presence has potential to deliver greater economic gains than does liberalisation of services delivered via cross border supply (however, this may also reflect poor coverage of estimated barriers to Mode 1 services trade). For

1 Real GDP gains arising from Mode 1 and Mode 3 service trade liberalisation^a



^a Aggregate GDP impacts for the developed and developing country groupings have been derived from individual country results, aggregated using GDP weights.

Data source: CIE-GCubed modelling simulation.

example, Mode 3 liberalisation is estimated to account for 52 per cent of the real GDP gain experienced by developed countries, and 89 per cent of the GDP gain experienced by developing countries.

- Given the distribution of benefits across developed and developing countries, the developing countries have the most to gain from service trade liberalisation.
- Several other modelling simulations were conducted, with the following results:
 - phased liberalisation of developing country Mode 3 equity barriers – global cumulative GDP gains over 2011–25 of A\$1.2 trillion (present value terms);
 - Australia’s WTO Mode 3 liberalisation requests are met – global cumulative GDP gains over 2011–25 of A\$1.5 trillion (present value terms); and
 - global Mode 1 and Mode 3 barriers increased by 10 per cent – global cumulative GDP losses over 2011–25 of A\$920 billion (present value terms).
- In each of these additional modelling simulations the developing countries consistently benefited more than the developed countries from service trade liberalisation (or experienced the largest losses if service barriers were increased).
- The Australian macroeconomic impacts of the main modelling simulation (overnight global liberalisation on 1 January 2011 of all barriers to Mode 1 and Mode 3 service trade) are overwhelmingly positive, as was the case globally. Australian real GDP is estimated to be 0.8 per cent above baseline in year 2025, with the present value of GDP gains over 2011–25 being worth A\$155 billion, or around 2.9 per cent of global GDP gains. This equates to Australian real GDP being higher by around \$10.3 billion (in present value terms) each year, on average, over 2011 to 2025.

Implications of findings

- As the economic importance of the service sectors grows over time, the impost of barriers to service trade will likewise increase. Given the importance of the service sectors to the global economy, liberalisation of service trade therefore offers the potential to deliver substantial economic gains.
- The economic modelling results suggest that countries should be more active in pursuing (and undertaking) services trade liberalisation, as large gains could be realised.
- A key finding arising from the modelling simulations is that both developed and developing countries benefit from the services trade liberalisation, with the developing countries standing to benefit more than the developed countries. It is therefore more in the interests of developing countries to strongly pursue service trade liberalisation.
- The report’s findings support the need for an ambitious outcome on services as part of the Doha Round. The fact that developing countries benefit more from services trade liberalisation supports the Doha Development Agenda.

- Ideally, any Mode 3 liberalisation would be accompanied by other microeconomic reforms targeted at improving the wider investment location offer. For example, improving the quality of infrastructure, improving the skills and education of the workforce, improving access to regional and export markets, improving transparency in decision making, eliminating sovereign risk and maintaining an open trade and investment regime. Such improvements would constitute ‘good policy’ even in the absence of service trade liberalisation.

About this report

The latest ABS data suggest that the service sectors account for over 80 per cent of Australian GDP, nearly 85 per cent of employment, 21 per cent of exports (plus another 24 per cent if embodied service exports are counted).¹ Despite the importance of the service sectors to the Australian economy, their contribution to economic performance is not well understood by the wider public, and this extends to the economic gains that could follow from liberalisation of service trade and investment flows.

The first step to improving understanding of the importance of service trade to Australia's, and global, economic performance is to develop an economic model that can adequately simulate the impacts of service trade and foreign direct investment (FDI) liberalisation. Not only will quantifying the gains from service trade and FDI liberalisation focus debate around the importance of the service sectors and trade policy settings, but it may also serve as a useful vehicle to encourage other countries to seek and successfully negotiate extensive liberalisation of their service sectors under the Doha Round of the WTO.

The objective of this study is, therefore, to develop an economic model that adequately deals with service trade, and to use the model to quantify the possible economic benefits that service and investment liberalisation can deliver to Australia and globally. Knowing the potential gains from service and investment liberalisation is a first step towards promoting the importance of the service sectors to the Australian (and global) economy.

This report was prepared by specialist consultants from the Centre for International Economics, with team members comprising:

¹ The 'service sectors' in this report is defined as all services industries including construction and electricity, gas, water and waste services, government and ownership of dwellings. Depending on the definition of the 'service sectors' used, differing results will be obtained, which can range between 60 per cent to 80 per cent of Australian GDP. Definitions differ around whether electricity, gas, water and waste services, construction and ownership of dwellings sectors are considered to be service sectors. For example, the Department of Treasury defines services as 65 per cent of Australian GDP (excludes construction and ownership of dwellings), the Department of Foreign Affairs and Trade defines services as 73 per cent of GDP (excludes ownership of dwellings only), while ABS figures suggest over 80 per cent of GDP (no exclusions). A suitable compromise is to report that the 'service sectors' account for around 70–75 per cent of Australian GDP.

- Lee Davis (Director)
- Kevin Hanslow (Quantitative Analyst)
- Clare Saunders (Economist).

The report was managed and overseen by the Services Trade and Negotiations Section of the Department of Foreign Affairs and Trade.

1 *Modes of services trade*

The World Trade Organization identifies four modes through which service exports can be delivered, these being:

- cross-border supply (Mode 1)
- consumption abroad (Mode 2)
- commercial presence (Mode 3)
- presence of natural persons (Mode 4).

The approach taken to defining services trade is provided in box 1.1.

The fact that there are four modes of service delivery makes observing and valuing service trade a much more difficult proposition than is the case for merchandise trade, which is relatively easy to observe and value as goods move across borders.

The difficulty in measuring service exports is compounded by the fact that the Balance of Payments approach to measuring service trade does not capture services exported via commercial presence (Mode 3).² This sees Mode 3 exports being required to be estimated on an ad hoc basis. The difficulty in measuring service exports also sees some large increases in service exports between years, reflecting not only actual growth in service exports, but also methodological improvements and 'catch-up' on previous underreporting of service exports.

On a global basis, and measurement problems aside, it is estimated that most service trade occurs via Mode 3, with the WTO reporting:

1. cross-border supply (Mode 1) – estimated to account for 35 per cent of global services trade;
2. consumption abroad (Mode 2) – 10–15 per cent of service trade;
3. commercial presence (Mode 3) – 50 per cent of service trade; and
4. presence of natural persons (Mode 4) – 1–2 per cent of service trade.³

² Although the Balance of Payments and International Investment Position statistics do not measure services provided via Mode 3 (as it is considered to be a non-resident to non-resident transaction), the income flows (or return to investment) arising from Mode 3 exports is reported in the Balance of Payment's income account statistics.

³ Estimated shares for trade in services by Mode taken from WTO (2005), *Symposium of Cross-Border Supply of Services, World Trade Organization, 28–29 April 2005*, WTO Economic Research and Statistics Division, Geneva.

1.1 Defining services trade

Until recently, service trade has routinely been defined within a Balance of Payment (BoP) framework and covered only transactions in services between residents and non-residents. Service trade, when defined in this way, can be broken down by the type of activity to include transportation, travel, communications, construction, insurance, financial, computer and information, royalties and licence fees, business, personal, cultural and recreational, and government services. The Australian Bureau of Statistics reports service trade on this basis as part of its BoP statistics. In practice, service trade defined in this way can involve some transactions in goods (for example, where an international visitor purchases goods in the country to which he or she travels).

Wider definitions encompassing international service trade are also in use and are being reflected increasingly in analyses of international delivery of services. The framework, used in the WTO GATS identifies, for negotiating purposes, four modes of supply through which services can be traded, and include the following.

Mode 1: Cross border supply

Services are delivered from the territory of one WTO Member into the territory of another WTO Member. The service supplier and consumer generally do not meet. For example: a consultant located in country A provides advice to a client in country B by email, fax or phone.

Mode 2: Consumption abroad

Services are delivered in the territory of one Member to the consumer of any other Member. It is the consumer who travels abroad to consume the service. For example, nationals of country A travel abroad as tourists, students or patients to consume tourism, education or healthcare (respectively) services overseas.

Mode 3: Commercial presence

Services are delivered by a service supplier of one Member, through commercial presence in the territory of another Member. For example, an insurance company in country A establishes a branch or office in country B.

Mode 4: Movement of natural persons

Services are delivered by the movement of a service supplier as a natural person from the territory of one Member into the territory of any other Member. This mode covers natural persons who are themselves service suppliers as well as natural persons who are employees of services suppliers. In this mode, it is the

(Continued on next page)

1.1 Defining services trade (continued)

individual service supplier who travels abroad to deliver the service. Mode 4 covers only temporary entry and stay of service providers. For example, an IT consultant from country A travels to country B to fulfil a contract.

Modes 1 and 2, and parts of Mode 4, are captured as service exports and imports in BoP statistics. Mode 3, however, is not recorded in this way. However, profits from affiliates operating abroad are recorded in the income account of the BoP. Parts of Mode 4, relating to some compensation of employees providing services abroad, are also included in the income account.⁴

A number of statistical agencies, including the ABS, are increasingly seeking to identify and measure transactions arising from commercial presence abroad, as well as other transactions within the GATS framework.

Source: Department of Foreign Affairs and Trade.

However, while these mode trade shares might be true on a global basis, there will be substantial variation between countries and between service sectors. For example, it is estimated that most of Australia's service exports – nearly 65 per cent – are currently via commercial presence (see chapter 2), while the presence of natural persons is estimated to account for 18 per cent of legal service exports.⁵

Australia's estimated large reliance on service exports via Mode 3 does not reflect an unusually high outward FDI position (when measured as a share of GDP). For

-
- ⁴ In Australia's BoP statistics, if a person remains an Australian resident while overseas, services can be provided either (1) as an employee of an Australian business that is providing a service overseas, or (2) an employee of a non-resident business.
- In case (1), the receipts of the business would be captured by the ABS and appear as a credit under trade in services in the BoP. (The wage or salary cost component of the service paid to a person providing the service is a resident to resident transaction and out of scope of BoP. This includes the case where the individual is a consultant providing the service as a business.)
 - If the employee is working for a non-resident business (case 2), the salary paid to the person is captured as an income credit under 'compensation of employees' in the current account (and nothing is recorded under trade in services).

If, however, a person is overseas for more than a year, he/she becomes a non-resident. Case (1) would appear as a debit under compensation of employees in the current account (as well as the credit for trade in services) while case (2) would be out of scope of BoP statistics.

- ⁵ International Legal Services Advisory Council (2007), *Survey of Australian Export Market for Legal Services 2006-07*, ILSAC.

example, Australia's stock of outward FDI in 2008 was equivalent to 19.2 per cent of GDP, versus 31.6 per cent in the case of the (other 29) OECD countries. Rather, it appears as Australia is underperforming in terms of service exports via Mode 1; and this underperformance is materialising in Mode 3 exports accounting for a large share of total service exports. Chart 1.2 reports the shares of exports accounted for by the various modes of service delivery for the global economy (as reported by the WTO) and for Australia.

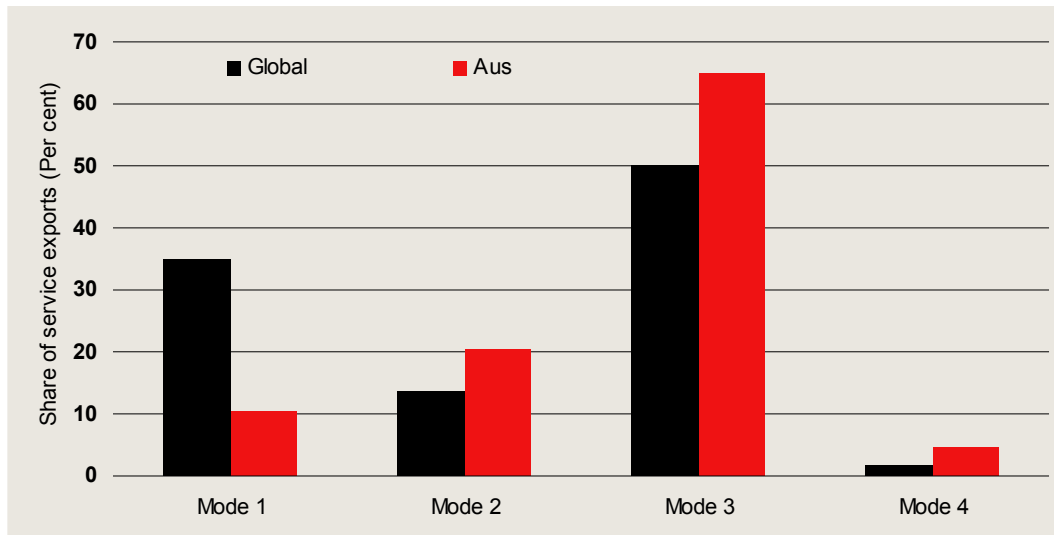
The (apparent) underperformance in Mode 1 service exports will likely reflect a number of factors. For example, Australia's geographical location and the associated 'tyranny of distance' may hinder Mode 1 exports, especially when compared with the situation facing nations that share (often numerous) common borders.

Barriers to service trade will also hinder service exports.

To the extent that policy initiatives can assist the service sectors to improve their export performance, including service trade liberalisation, then there is potential to substantially increase service exports.

Chapter 2 details Australia's services trade and the growing importance of the service sectors to the Australian and global economies.

1.2 Service exports by mode of delivery



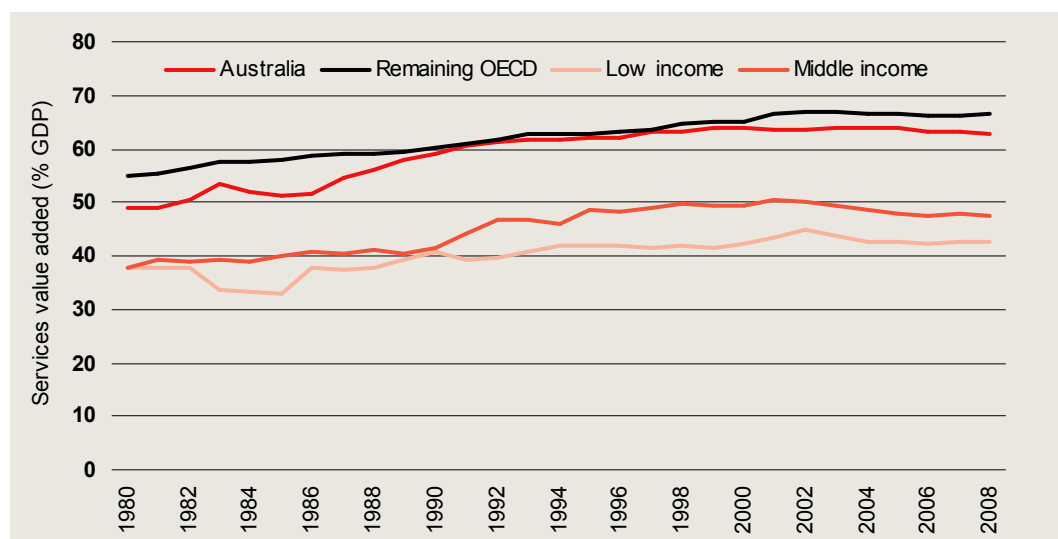
Data sources: WTO; DFAT (2009), *Trade in Services 2008*, Market Information and Research Section Department of Foreign Affairs and Trade (July 2009); and CIE calculations.

2 Growing importance of the service sectors & service trade

The service sectors are an important and growing sector of the global economy, contributing over a staggering A\$40 trillion to global GDP. The importance of services has grown over time, and now, particularly for developed countries, is the most important area of economic activity (see chart 2.1). The service sectors also dominate Australian economic activity, where they account for around 65 per cent – over A\$650 billion – of Australian GDP.⁶

To feed this growing sector, employment in the service sector has correspondingly grown. The service sector now accounts for over 70 per cent of employment in OECD economies (chart 2.2).⁷

2.1 Contribution of services to GDP



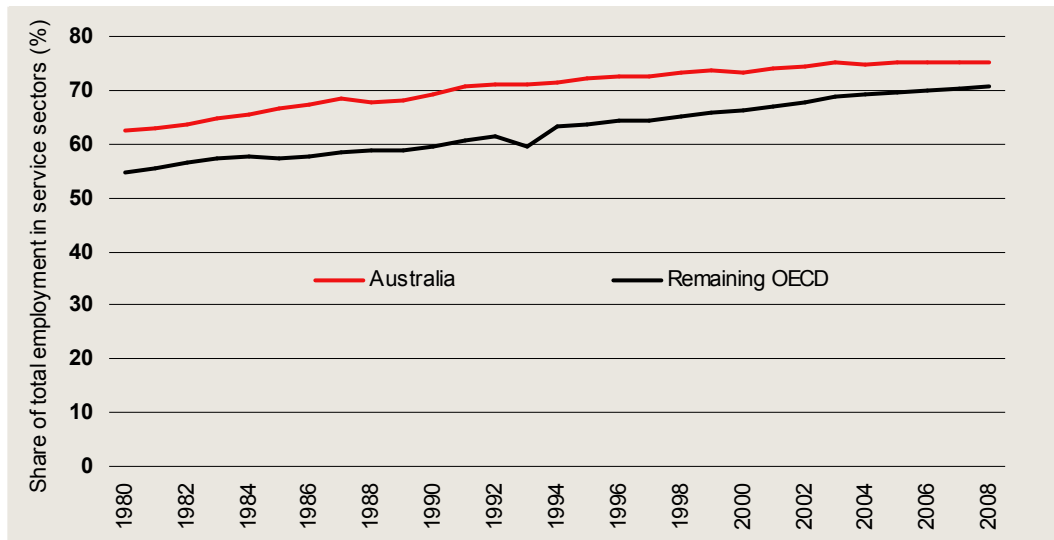
Note: for country groupings see World Bank website: www.worldbank.org

Data source: World Bank World Development Indicators online database and CIE estimations.

⁶ This share is based upon the definition of services used by World Bank, and does not include the electricity, water, gas and construction sector (which are typically included in Australian service statistics). Consequently, the service sector share reported here for Australia is somewhat lower than what is presented in other Australian studies or reported by the ABS. For the purposes of comparing Australia's service sectors to the international situation, the World Bank definition of service sectors has been used.

⁷ No employment data was available for developing economy groupings.

2.2 Contribution of the services sector to employment

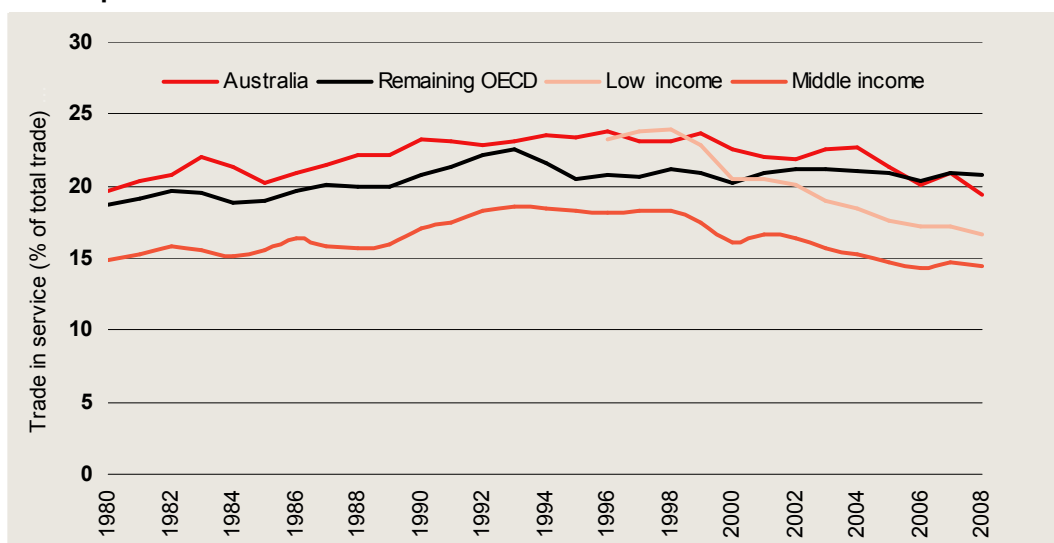


Note: Data not available for low and middle income country groupings.

Data source: World Bank World Development Indicators online database and CIE estimations.

While the service sector is the most important to Australia's and other developed countries' economies, trade in services only accounts for approximate 20 per cent of total trade (see chart 2.3), which has remained relatively constant across time. This observation suggests that service trade and merchandise trade in OECD and middle income countries has been growing at approximately the same rates over the last 30 years. In contrast, services trade is becoming a smaller share of total trade in the low income countries. While service trade for low income countries increased by a substantial 200 per cent between 1996 and 2008, merchandise trade increased by an even larger 355 per cent.

2.3 Importance of trade in services



Data source: World Bank World Development Indicators online database.

It should be appreciated that, according to World Trade Organization data, the importance of service trade grew in 2009, with the share of global trade accounted for by commercial services trade increasing by 2 percentage points (from 18.4 to 20.4 per cent).⁸ While actual commercial service exports fell by some 12 per cent globally between 2008 and 2009 (as a result of the slowing global economy following the Global Financial Crisis), merchandise exports contracted by a substantially larger 22.6 per cent. Hence as a share of total trade, services became relatively more important in 2009. Given these figures, it could be expected that countries that were more heavily orientated towards services trade (as opposed to merchandise trade) would have fared better during the GFC, all else the same.

The change in global exports of commercial services between 1999 and 2009 for a number of countries/regions is reported in table 2.4. As can be seen, over the last decade it is the developing countries that have typically experienced the fastest growth in service exports, with India and China leading the way with service exports growing at nearly 20 per cent annually. The more developed economies of Australia, EU(25), Japan, New Zealand, South Korea and the US recorded average annual growth of around/under 8 per cent.

2.4 Global exports of commercial services

Country /region	1999		2009		Average annual growth rate
	Value of exports	Share of global exports	Value of exports	Share of global exports	
	US\$ billion	Per cent	US\$ billion	Per cent	
Australia	19	1.3	41	1.3	8.4
China	26	1.9	129	3.9	17.3
EU(25)	627	44.9	1 362	41.1	8.1
India	14	1.0	86	2.6	19.9
Indonesia	4	0.3	13	0.4	11.2
Japan	61	4.4	124	3.8	7.3
Malaysia	12	0.8	28	0.8	9.0
New Zealand	4	0.3	7	0.2	5.3
Philippines	3	0.2	9	0.3	10.5
Rest of ASEAN	4	0.3	6	0.2	4.6
Rest of World	296	21.2	875	26.4	11.4
Singapore	25	1.8	74	2.2	11.5
South Korea	26	1.8	56	1.7	8.1
Thailand	15	1.0	30	0.9	7.7
United States	259	18.6	470	14.2	6.1
Global	1 395	100.0	3 312	100.0	9.0

Source: World Trade Organization's Trade in Commercial Services online database and CIE calculations.

⁸ The WTO defines 'commercial services' as services trade excluding government services (in other words, private sector services trade).

Given the rapid growth in service exports experienced by developing economies, it could be expected that developing countries' attention will eventually turn to the liberalisation of service trade; especially if growth rates are to be maintained (or enhanced).

Quantifying services trade is problematic

The data presented above is based on service trade as measured through the Balance of Payments approach. As was discussed in chapter 1, the BoP approach does not capture trade in services delivered through a commercial presence (Mode 3). Given the magnitude of Australia's inward and outward FDI stocks, there is potential for the exclusion of Mode 3 exports and imports to see a substantial underestimation of services trade.

Consequently, a methodology for estimating Australia's service trade via Mode 3 was devised, based on national accounts data and Australia's outward and inward FDI positions (see box 2.5 for detail on the methodology). This series is presented in chart 2.6 alongside trade in services delivered through Modes 1, 2 and 4. This chart shows that the Mode 3 component of trade in services is the most important mode of delivery, far in away exceeding the traditional measure of trade in services. Also presented in chart 2.6 is the aggregation of Mode 3 services and Modes 1, 2 and 4 services to form an alternate measure of total trade in services.

2.5 Technical note: Deriving Mode 3 exports and imports

Balance of Payment statistics capture the trade in services delivered by Modes 1 (cross-border supply), 2 (consumption abroad) and 4 (movement of natural persons). However, Mode 3 (commercial presence) exports and imports are not captured by the BoP statistics. Furthermore, the actual outward (or inward) FDI position of a country cannot be used to proxy Mode 3 exports (or imports), as the FDI flows represent the actual investment in plant and machinery etc, rather than the value of services (the trade) originating from that FDI. Consequently, to estimate the total value of Australian service trade it is necessary to construct a measure of Mode 3 trade.

With respect to Mode 3 exports, the value of exports is taken to be the return on the stock of outward FDI, with the return to FDI being the average of the economywide return to capital where the FDI is located. The ABS reports the stock of Australian FDI abroad (see ABS 5352.0, table 4), with the average return to capital in a particular country being taken from national input-output tables (as reported in the GTAP database).

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2.5 Technical note: Deriving Mode 3 exports and imports (continued)

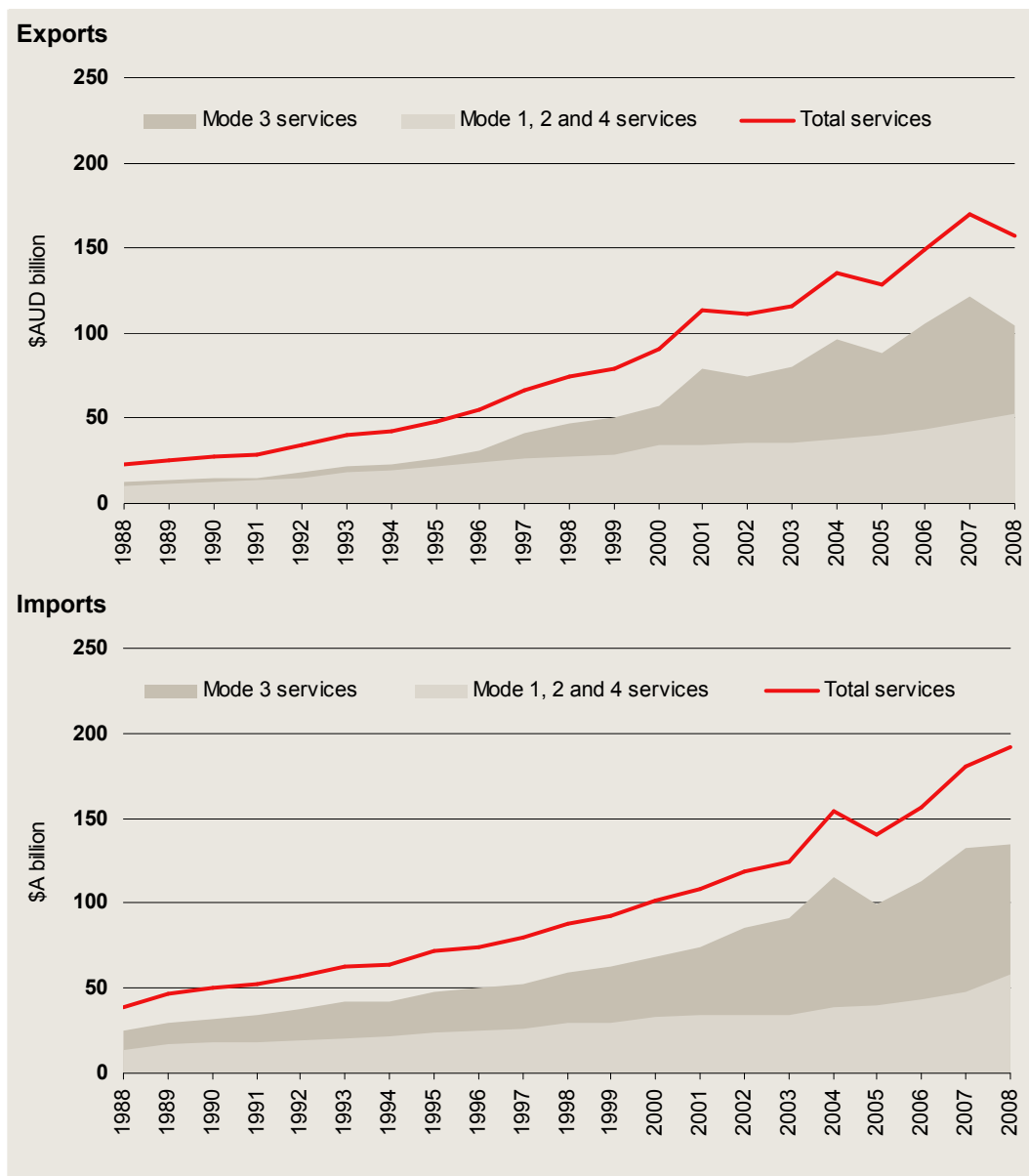
Using national input-output tables sees the average return to capital varying across countries. Knowing the stock of Australian FDI in a particular country, and the (average) return to capital in that country, allows calculation of the return to Australian FDI located in that country. This figure is then pro rated down by the share of Australian outward FDI that is located in the service sectors (FDI by sector shares were obtained from the OECD).

Input-output tables are once again used to derive a relationship between the value of output (sales) and a \$1 return to capital in the service sectors for a particular economy. This relationship is combined with the return to Australian FDI in the service sectors in that economy to arrive at an estimate of the value of sales due to Australian FDI. These estimates are then combined across economies hosting Australian FDI to arrive at an estimate of the value of Australian Mode 3 exports.

Unfortunately, input-output tables are only revised intermittently. Consequently, it is not possible to derive a time series of Mode 3 exports via the above approach. Rather, the above approach was used for the latest available data, with these results being combined with results from a 2002-03 ABS investigation into the value of Australian Mode 3 exports (see ABS 5495.0). From the above approach it was calculated that every dollar of outward Australian FDI located in foreign service sectors resulted in \$0.35 in Mode 3 exports, while from the ABS study it was estimated that every dollar of outward FDI stock saw \$0.39 in Mode 3 exports resulting. These two 'Mode 3 exports to FDI stock' ratios were averaged, and then applied to a time series of Australia's outward FDI stocks to arrive at a time series of Australian service exports via Mode 3.

The same approach was adopted when estimating Australia's service imports via Mode 3.

2.6 Australian service exports and imports by mode of delivery

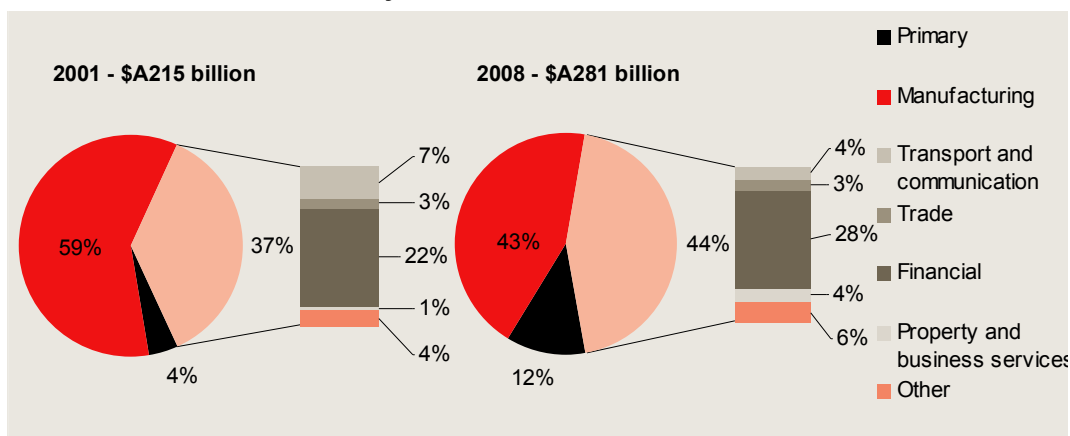


Note: Data on modes 1, 2, and 4 are from Australia's Balance of Payment statistics (noting that the ABS does not break down service trade by mode). Australia classifies their services slightly differently to the definition used internationally; Based upon BPM 5.

Data sources: Australian Bureau of Statistics (ABS), Cat. no. 5368.0, tables 3, 4 and 9; Cat. no. 5302, tables 26 and 27; and CIE calculations.

To delve deeper into Mode 3 exports, a snap shot of Australia's outward FDI position in 2001 and 2008 is presented in chart 2.7, with FDI broken down by its destination sector. The value of outward FDI has increased by nearly 31 per cent over the 7 year period, with the composition of outward FDI shifting notably. Australian investment in primary activities has increased by almost 200 per cent between 2001 and 2008 (likely in response to the commodity boom); with investment in foreign service sectors now accounting for 44 per cent of outward FDI in 2008, up from 37 per cent in 2001. The increase in importance of the service and primary sectors as a destination

2.7 Australian outward FDI by sectors



Data source: ABS Cat. no. 5352.0, table 15a.

for Australia’s outward FDI has come at the expense of foreign manufacturing sectors, with 44 per cent of Australia’s outward FDI in 2008 being in the manufacturing sectors, down from 59 per cent in 2001. The finance (and insurance) sector is the most important destination service sector for Australian FDI, accounting for nearly 28 per cent of outward FDI in 2008 (up from 22 per cent in 2001).

While there still remain constraints with the collection and availability of data, it is clear from the information that is available, that the service sectors are a critical part of the Australian and global economies. Consequently, barriers to trade in services have the potential to be substantially constrain economic growth. These barriers, their nature and magnitude, are discussed in the following chapter.

3 *Barriers to service trade & negotiating service trade liberalisation*

From chapter 2 it is clear that Australia relies heavily on the service sectors for employment, GDP and export performance. Importantly, the reliance on the service sectors for economic prosperity is increasing over time, with the service sectors accounting for nearly 81 per cent of Australia's GDP in 2009, up from 70 per cent in 1975.⁹ Accounting for nearly 81 per cent of GDP in 2009 shows how resilient the service sectors are to external factors, such as the recent commodity boom and Global Financial Crisis, both of which would have acted to 'squeeze' the share of GDP accounted for by the service sectors.

Despite the strong overall performance of the Australian service sectors, service exports do appear to be of a smaller magnitude than is the case for the (other 29) OECD group of countries. For example, in 2008 Australian service exports (as measured by the Balance of Payments) were equivalent to 4.6 per cent of Australia's GDP in that year, versus 6.4 per cent in the case of the remaining OECD countries. As can be seen from chart 3.1, the divergence between OECD and Australian service exports, when measured as a share of GDP, is not a recent phenomenon.

Over the period 1980 to 2008, Australian service exports via Modes 1, 2 and 4 were, and when measured as a share of GDP, lower than OECD service exports by an amount equivalent to 0.7 per cent of GDP per annum (on average). While 0.7 per cent of GDP might not seem a substantive figure, given the size of the Australian economy, it is actually a large dollar amount. For example, if Australia's service export performance had matched that of the (other 29) OECD countries, then Australian service exports would have been nearly A\$66 billion higher over 1980–2008.

One possible explanation for the apparent reduced intensity of Australian service exports (compared to other OECD countries) is the trade barriers encountered by those service exports in trading partners. Others contributing factors to the apparent reduced intensity of Australian service exports may include things such as Australia's geography (and lack of common physical borders), lack of a common regulatory regime with trading partners (compared to that prevailing in say the

⁹ ABS (2010), *Australian National Accounts: National Income, Expenditure and Product, Dec 2009*, Cat. no. 5206, table 6 data cube, ABS, Canberra.

European Union), and the extent to which an economy is orientated towards the tradable service sectors.

It should be appreciated that trade, whether it be merchandise or service trade, is a two-way street. And hence while Australian service exports will be facing trade barriers in foreign markets, Australia itself imposes barriers on service imports. Given the importance of the service sectors to the Australian and global economies, liberalisation of services trade offers the potential to deliver substantial economic gains.

In this chapter barriers to services trade are estimated/reported.

3.1 Australian and OECD merchandise and service exports (as measured by the BoP)



Note: Merchandise trade and service trade exports as measured by the Balance of Payments, hence only include services exported via Modes 1, 2 and 4. Also note that the World Bank definition of ‘service sectors’ differs from that typically used in Australia; with the World Bank definition excluding electricity, water, gas and construction services.

Data source: World Bank World Development Indicators online database and CIE calculations.

Barriers to service exports

The fact that service trade can occur via four very different modes makes estimating barriers to that trade a challenging exercise – there is no easily observable ‘tariff’ levied on service imports.

Barriers to service trade are essentially nationalistic type treatments that hinder or prevent market entry and price competition between foreign and domestic service providers. Service barriers can comprise things such as restrictions on FDI, restrictions on the recognition of professional qualifications, residency/local

presence obligations and limitations on the scope of activities that can be undertaken by foreigners. Barriers to service trade are therefore typically of a ‘behind the border’ and regulatory nature. And while the effect thereof will be similar to a tariff applied to merchandise imports – the service barriers will act to increase the cost of those service imports and reduce competition in the local market – the tariff (or tariff equivalent) of service barriers are not easily observable. The absence of a tariff schedule for service imports means the tariff equivalent of service barriers need to be estimated using a range of approaches and data sources.

It was estimated in chapter 2 that Mode 3 exports account for around 65 per cent of the total provision of Australian services abroad. Given the importance of Mode 3 exports to Australia (and globally), attention has been focused in this study on estimation of barriers to service delivery via commercial presence (that is, barriers to FDI).

Barriers to the cross-border supply (Mode 1) of a range of services have been drawn from previous work carried out by the Productivity Commission.¹⁰ By restricting competition, some service barriers will allow domestic and incumbent foreign providers to earn quasi-rents by permitting these firms to charge a mark up of price over the cost of production. Alternatively, barriers may increase the real resource cost of providing services (for example, compliance with onerous regulations and red tape). Removing such barriers would in some cases increase competition, improve efficiency and allow for the service to be provided locally at more competitive prices. The Productivity Commission research saw frequency indexes being constructed for service restrictions, with the associated price and cost impact thereof being determined econometrically.

While service delivery via consumption abroad (Mode 2) is an important mode of service delivery, such service exports do not typically face substantial barriers. For example, there is little in the way of barriers to Australians taking holidays in other countries, or to foreign students wishing to study in Australia. Given the already open education and tourism markets, barriers to services exported via Mode 2 are not considered further.

¹⁰ See Doove, S., O. Gabbitas, D. Nguyen-Hong, and Owen, J. (2001), *Price effects of regulation: International air transport, telecommunications, and electricity supply*, Productivity Commission, Staff research paper, AusInfo, Canberra, October; Nguyen-Hong, D., and R. Wells (2003), *Restrictions on trade in education services: Some basic indexes*, Productivity Commission, Staff working paper, AusInfo, Canberra, October; Nguyen-Hong, D., (2000), *Restrictions on trade in professional services*, Productivity Commission, Staff research paper, AusInfo, August; and Kalirajan, K. (2000), *Restrictions on trade in distribution services*, Productivity Commission, Staff working paper, AusInfo, Canberra, August. The Productivity Commission has made spreadsheets containing estimated service barriers freely available online.

Service delivery via the movement of natural persons (Mode 4) is thought to only account for a fraction of global services trade (however, it should be appreciated that for some sectors, such as professional services, exports via Mode 4 will account for a substantial share of total sector exports). Incorporating movement of natural persons (MNP) into a general equilibrium model of the global economy is extremely difficult and requires extensive model development and data collection, some of which may not be currently available. Given these factors, estimation of barriers to Mode 4 exports and the impacts of Mode 4 liberalisation have had to be overlooked. (Note that in chapter 5 some results from other researchers' investigation of the impacts of Mode 4 liberalisation are reported.)

MNP is becoming an increasingly important topic of trade liberalisation negotiations between/among developed and developing countries, given the importance of temporary migration (and remittances) to developing countries and apparent labour shortages in some developed countries. Hence going forward, the CIE strongly believes that attention should be given to the economic modelling of Mode 4 liberalisation.

Estimation of barriers to Mode 3 service exports

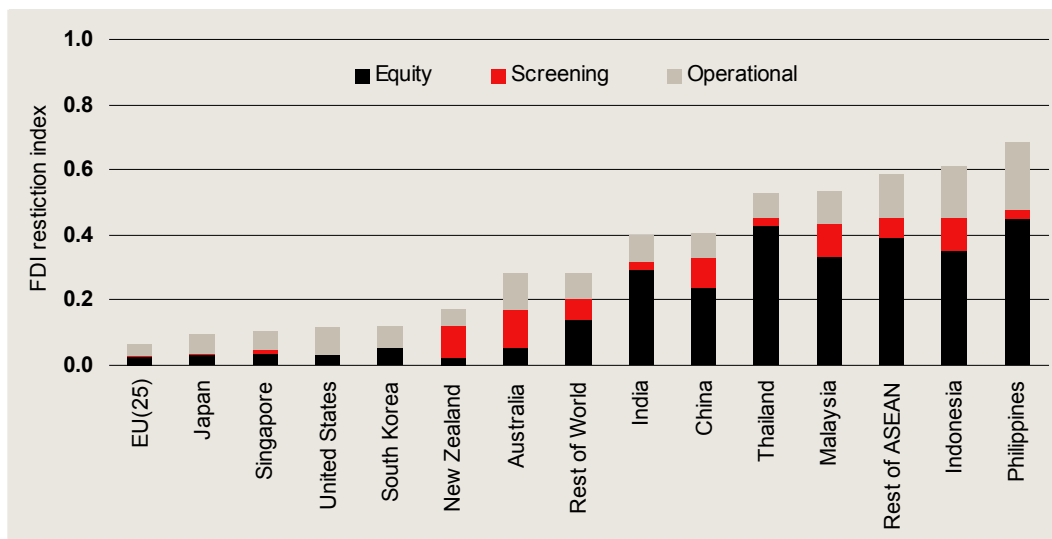
Over the last 5–10 years bodies such as the Organisation for Economic Co-operation and Development (OECD) and the United Nations Conference on Trade and Development (UNCTAD) have been conducting research into barriers to (inward) FDI.

The estimation of FDI barriers by the OECD and UNCTAD is based on an approach developed by Stephen Golub for the OECD.¹¹ This approach saw overall FDI restrictiveness being measured on a 0–1 scale, with 0 representing full openness and 1 a de facto or actual prohibition of FDI. Three types of FDI restriction were identified – equity (ownership) limits, screening requirements and operational restrictions – with weights being assigned to each type of restriction as evidenced by importance. For example, equity restrictions receive a significant weight – if there is a ban on foreign ownership then other restrictions become irrelevant/obsolete. Golub's approach, which was later adopted by UNCTAD, determines FDI barriers at the sectoral level (and by type of restriction), which can then be aggregated up to a country level score.¹² Chart 3.2 reports the FDI restriction index for a range of countries/regions.

¹¹ Golub, S. (2003), 'Measures of Restrictions on Inward Foreign Direct Investment for OECD Countries', *OECD Economic Studies*, No. 36, Paris, OECD.

¹² Golub used FDI weights to aggregate from sectoral scores to a country level score. However, and as noted by Golub, using FDI weights raises the problem of endogeneity – highly restricted sectors may receive less FDI and hence receive too low a weight. Golub addressed this problem through using an average of FDI and trade weights. However,

3.2 FDI restriction index



Data sources: Golub personal communication 13 March 2007, unpublished data (data underlying paper OECD 2006, *OECD's Regulatory Restrictiveness Index: Revision and Extension to More Economies*, Working Paper on International Investment number 2006/4, OECD, Paris) and UNCTAD, personal communication 29 June 2006, unpublished data (data underlying paper UNCTAD 2006, *Measuring Restrictions on FDI in Services in Developing Countries and Transition Economies*, UNCTAD/ITE/IIA/2006/1, United Nations, Switzerland).

The OECD/UNCTAD approach to measuring FDI restrictions is not without its limitations. For example, the barriers measured are those reported by countries to the OECD (or UNCTAD), and hence rely on the self reporting of restrictions. This may give rise to the situation where countries' with the higher index scores are not actually more restrictive to FDI, just more transparent and thorough in the reporting of their FDI barriers. A related issue is the fact that the OECD approach does not assign scores to screening restrictions based on national security tests, which may see 'semantics' being responsible for some countries receiving too low a score.

European Union countries are also believed to receive FDI restriction index scores that are too low due to account being taken of inter-regional liberalisation, which saw adjustments to EU scores for preferences granted to intra-EU investment. These adjustments consisted of scaling down (by 0.44) European country scores in cases where such intra-European preferences were granted, even though this favourable treatment is not available to investors from other countries. The same approach is not extended to non-EU countries offering improved FDI access negotiated through trade agreements. For example, the Australian FDI index does not reflect the fact that

Golub does note that using FDI rather than value added (or GDP) weights tends to slightly lower most countries' restriction scores. UNCTAD also investigated the issue of GDP weights versus FDI weights, and while opting to use GDP weights, noted that 'the choice of weights is of little importance in most cases'. (UNCTAD (2006), *Measuring Restrictions on FDI in Services in Developing Countries and Transition Economies*, UNCTAD/ITE/IIA/2006/1, page 5, United Nations, Switzerland).

Australia offers improved access to FDI from the United States, negotiated as part of the Australia-United States Free Trade Agreement.

Furthermore, the approach does not take account of any non-policy institutional or informal restrictions, nor the degree of enforcement of statutory restrictions. Finally, the weights assigned to the types of restriction have been subjectively determined.

Despite these limitations, the OECD and UNCTAD work provides the currently best available framework/index for quantifying restrictions to inward FDI, with the approach having been applied to over 80 economies. UNCTAD reports that the FDI restriction index accounts for around 40 per cent of the variation in FDI stocks and flows in the service sectors; giving assurance that the restriction indexes are well formulated.¹³ (Note that the remaining 60 per cent of variation in FDI would be accounted for by the other factors that influence the decision to invest in a (foreign) country – macroeconomic and political stability, the quality of infrastructure, the skills and education of the labour force, size and wealth of the local market, attitude to trade, transparency in decision making etc.)

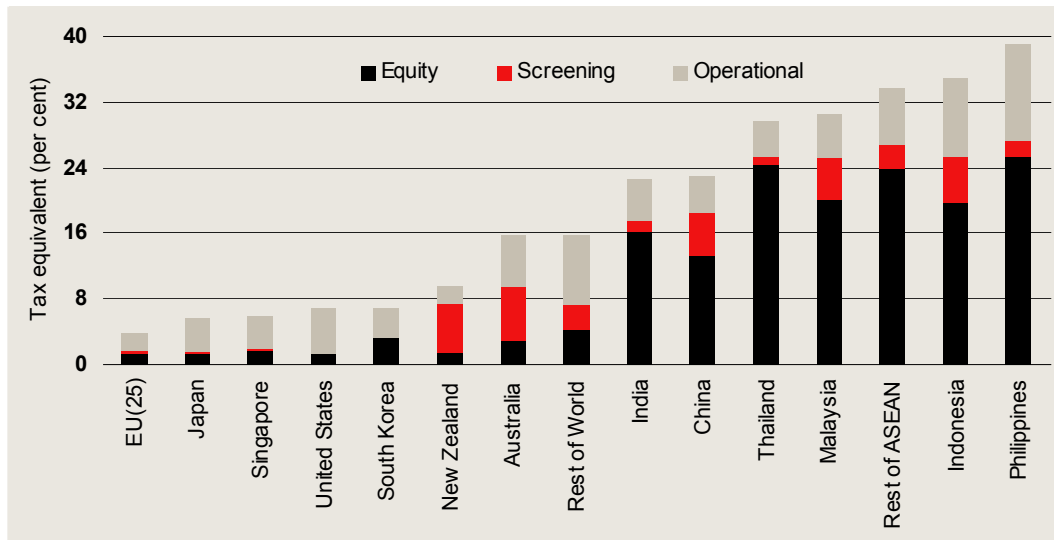
The FDI restriction indices are used, in conjunction with observed FDI positions, to derive the required ad valorem 'tax' equivalent of barriers on FDI to arrive at the observed FDI positions. A detailed exposition of the approach taken to deriving the tax equivalents of FDI barriers can be found in appendix A.

The equivalent taxes are estimated at the country level, at the sector level within each country, and by type of FDI restriction (equity, screening and operational restrictions). Chart 3.3 shows the derived tax equivalents of barriers to inward FDI, by barrier type, at the country/region level. Calculated FDI barriers are reported in full in appendix B.

Note that some FDI restrictions will be 'rent creating' (such as screening requirements), while others will be 'cost escalating' (equity and operational restrictions). By restricting entry, screening requirements enable already entrenched (foreign) investors to earn higher returns; whereas operational restrictions raise costs for foreign investors. FDI liberalisation, therefore, has two effects. Firstly, it allows greater foreign investment and, therefore, loss of those rents accruing to incumbent foreign investors. Secondly, it lowers the cost of FDI to the host country.

¹³ UNCTAD (2006), *Measuring Restrictions on FDI in Services in Developing Countries and Transition Economies*, UNCTAD/ITE/IIA/2006/1, United Nations, Switzerland, pp. 17-18.

3.3 Tax equivalent of barriers to inward FDI



Data source: CIE calculations.

Estimated barriers to Mode 1 service exports

As noted above, the Australian Productivity Commission has attempted to estimate barriers to services exported via cross border supply. The Productivity Commission research saw construction of trade restrictiveness index measures, which show the height of the barriers applying to domestic and foreign supply of a range of services in various economies. Index measures have been constructed for the education, distribution (wholesale and retail trade), international air, telecommunication, electricity supply, financial and professional business service (architecture, accounting, engineering and legal) sectors.

Economies with a higher overall score have more restrictive trading regimes than economies with a lower score. The indices incorporate detailed information on the number and type of restrictions and the extent that restrictions are applied in each economy. Each restriction category receives a score, ranging from 0 (least restrictive) to 1 (most restrictive). Each restriction category also has a weighting that reflects a (subjective) assessment of the economic significance of the restriction on trade and activity.

Foreign and domestic indices are created. The foreign index measures the restrictions facing foreign service providers in seeking to provide services in the local market, including those measures that discriminate against them. The domestic index quantifies the restrictions affecting domestic service providers, including those policies that target only domestic producers. The difference between the foreign and domestic index is a measure of the discrimination against foreigners. The foreign and domestic indexes also distinguish between barriers to establishment and barriers to ongoing operations. Note that not all of the service sectors for which trade restrictiveness indices have been created will be amenable to cross border trade. For

example, and in the case of Australia, export of electricity supply and financial services will typically be undertaken via commercial presence (Mode 3).

The trade restrictiveness indices were then combined with detailed company data from a number of economies to econometrically estimate the price and cost impacts of the service trade restrictions (in those countries). This has been done for the banking, distribution, engineering, telecommunication, and international air passenger transport sectors; with the latter three services being amenable to trade via cross border supply. Table 3.4 reports barriers to cross border supply of international air transport, telecommunication and professional business services as estimated by the Productivity Commission.¹⁴

3.4 Barriers to cross border supply

Country/region	Tariff equivalence/cost impost of barriers to cross border supply of:		
	Telecommunication services	Professional business services ^a	International air services ^b
	Per cent	Per cent	Per cent
Australia	0	2	15
China	248	na	na
EU(25)	2	2	7
India	290	na	22
Indonesia	41	3	20
Japan	0	2	18
Malaysia	6	5	18
New Zealand	0	na	12
Philippines	32	na	21
Rest of ASEAN	222	na	na
Rest of World	78	2	15
Singapore	0	1	17
South Korea	2	na	20
Thailand	14	na	16
United States	0	4	9

^a The Productivity Commission estimated the cost impact of regulations on engineering services. The engineering results are used as a proxy for the wider professional business services sector.

^b The Productivity Commission, using OECD restriction indices and methodology, estimated the price impact of various regulations contained in air service arrangements for three types of passenger airfares — business, economy and discounted economy. Data needed to arrive at a weighted average price impact (which also includes air freight) is not readily available. The lowest price impact (discount economy airfares) is reported here and used in the economic modelling. As the impact on discount economy airfares is around 10 per cent and 25 per cent of the impact on economy and business class airfares (respectively), the assumed cost impost of regulation is conservative.

Note: The Productivity Commission work did not span all of the countries/regions identified in table 3.4. For countries/regions not covered by the Productivity Commission, the country's/region's tariff equivalence (or price impost) was arrived at by taking an average across comparable countries (or a subset of the region). For example, Other ASEAN comprises Brunei, Cambodia, Lao PDR, Myanmar and Viet Nam; with the Productivity Commission reporting Mode 1 barriers to telecommunication exports for Brunei, Cambodia and Viet Nam. An average was taken across the Brunei, Cambodia and Viet Nam barriers, with the assumption made that this average barrier (222 per cent) reflects the wider Other ASEAN barrier to the cross border supply of telecommunication services.

Source: Various Productivity Commission reports (as already cited) and CIE calculations.

¹⁴ Barriers to the cross border supply of engineering services have been taken as a proxy for barriers to the cross border supply of the wider professional business services.

It should be noted that the trade barrier estimates reported in table 3.4 were calculated using data that is now approaching ten years of age, and hence may not reflect the situation today. However, in the absence of more recent estimates of barriers to cross border supply, there is little choice but to use the Commission's estimates.

When viewing the figures in table 3.4, it is important to appreciate that the barriers act in different ways across the sectors. The telecommunications results are essentially a tariff equivalent, reflecting the extent to which imports of telecommunication services are hindered by nationalistic policies that see the cost of those imports being higher. The professional business service and international air service figures reflect how the cost of those services is inflated by domestic regulation. For example, air service agreements see the cost of international air passenger services in Australia being some 15 per cent higher than the benchmark price. If domestic regulation sees costs being higher, then this will hinder sectoral exports.

Implications of liberalisation of rent creating versus cost escalating barriers

It is important to appreciate that the rent creating and cost escalating (cost impost) barriers are two very different types of barrier. The rent creating barriers effectively limit entry and competition in a sector, thereby allowing incumbent capital (firms) to earn an economic rent. Liberalisation sees the rent creating barrier being eliminated, and with it the economic rents. Hence comprehensive FDI/service liberalisation will be associated with some countries losing economic rents, with a consequential decline in gross national product. The loss of economic rent will be countered by removal of cost escalating barriers, which will see inward FDI/services being available at lower cost to the liberalising country. The decline in cost (equivalent to a productivity gain) will in turn increase demand for those imported services/inward FDI. Whether a country 'benefits' or 'loses' from, for example, comprehensive FDI liberalisation will depend on the country's outward FDI position (versus the inward position), and the type of barriers that outward FDI incurs (whether rent creating or cost escalating).

Barriers are only one thing that influences FDI

It is important to appreciate that many factors influence the level of FDI in a country. Obviously, barriers to FDI will be an important factor. However, a particular country could totally eliminate all FDI barriers and see no change in FDI if the country's 'economic fundamentals' are lacking. Some of the more commonly cited factors said to influence the decision about where to locate FDI are reported in table 3.5.

Liberalisation of Mode 3 barriers will lower the cost of accessing FDI. To take full advantage of the opportunities offered by Mode 3 liberalisation, it is important that

countries are competitive in the areas listed in table 3.5 (noting that depending on the sector FDI is being made in, some factors in table 3.5 will be more important than others).

The attractiveness of a country to FDI will, therefore, reflect a number of things. Just because a country has relatively high barriers to FDI does not necessarily mean that it is an unattractive investment location. For example, over the last decade China has attracted considerable FDI, despite having one of the more restrictive FDI environments. In this instance, foreign investors obviously believe the other attributes of China's location offer – cost of labour, large local market, infrastructure etc – outweigh the costs associated with the restrictive FDI environment. Of course, what this example overlooks is the fact that FDI in China would likely have been higher if China's barriers to FDI were lower.

3.5 Factor's influencing an investor's location decision

Macroeconomic stability of the country	Law and order
Political stability (and absence of sovereign risk)	Access to labour with necessary skills/education
Access to regional and other export markets	Cost of labour
Size, nature and purchasing power of local market	Access to land/property
Openness to trade and investment	Access to adequate infrastructure at acceptable cost
Size of any investment incentives provided	Access to adequate utilities at acceptable cost
Transparency in decision making, absence of corruption	Access to cost effective raw materials/production inputs
Local laws and regulation, red tape	Environmental and quality of life factors

Source: CIE.

4 *Negotiating services trade liberalisation*

Service liberalisation

The World Trade Organization's Doha Round of trade negotiations represents an opportunity to open global markets for internationally competitive service suppliers. A services outcome that delivers commercially meaningful results is critical to a balanced overall result to the Doha Round.

As shown in chapter 2, a strong services outcome in the Doha Round is not just in Australia's interests – services play a major role in all modern economies. It would be difficult for any economic activity to take place without enabling services such as telecommunications, banking, insurance, legal services and freight logistics. An efficient, competitive and flexible service sector is crucial to the development of vibrant and resilient economies.

In the wake of the Global Financial Crisis and a global slowdown in economic growth, the service industries will have a key role to play in the return to economic stability and recovery. Reliance on the service sectors to drive economic recovery will likely present new opportunities for global service trade and investment.¹⁵

The quality of service offers submitted to date in the Doha Round remains disappointing by most accounts.¹⁶ Following two rounds of request-offer negotiations (2003 and 2005) and the decision of the Hong Kong Ministerial meeting (2005) to endorse sectoral collective (plurilateral) discussions, the overwhelming view of WTO Members is that on market access negotiations more needs to be done.

Many developing economies have made commitments or offers in less than half of the 160 sub-sectors classified under the General Agreement on Trade in Services (GATS). Key trading partners, and particularly developing countries, are reluctant to offer more on services until it is clear that developed WTO Members will substantially cut agricultural tariffs and farm subsidies. Hence service liberalisation is being used as a bargaining chip to secure agricultural liberalisation. Yet the Doha

¹⁵ Borchett, I. and Mattoo, A. (2009), *The Crisis-Resilience of Services Trade*, Policy Research Working Paper no. 4917, World Bank.

¹⁶ Gootizz, B. and Mattoo, A. (2008), *Services in Doha: What's on the Table?* Development Economics Research Group, World Bank.

Round will only deliver its promise of a boost to the global economy if all of the areas of market access – agriculture, industrial products and services – deliver substantial new opportunities for openness.

A reasonable minimum goal in the Doha service negotiations would be that WTO members lock in existing levels of market access (akin to WTO Members' bound tariffs for merchandise trade). This would provide service exporters and investors confidence that the regulatory frameworks affecting their business in overseas markets would not be rolled back. Service traders are likely to welcome such certainty. Such an outcome, known as standstill, is consistent with the outcomes of previous service negotiations (Uruguay Round (1995)), and stand alone negotiations on Basic Telecommunications (1996) and Financial services (1997). A commitment to lock-in existing regulatory practices would provide a strong base on which to build future liberalisation and would provide a significant incentive to conclude the Round.

Of course, securing that liberalisation is no simple task. The number of WTO Members involved in the negotiations, the diversity of the sectors and the complexity and variety of barriers which apply to service trade are all factors. For example, professional and business service providers face very different barriers to firms operating in network-based sectors such as telecommunications, transport and mining and energy services. Improved commitments on business mobility (services traded via Mode 4) are a key demand of developing countries.

The WTO General Agreement on Trade in Services sets out the fundamental architecture for addressing trade-restrictive services regulation. The GATS includes a methodology by which countries can schedule – and thereby commit to not make more restrictive – measures that conform to a list of market access requirements that impede service trade. Such limitations to market access include foreign equity limits, restrictions on the organisational form for the establishment of a commercial presence by a foreign service supplier, or requirements for economic needs tests. The GATS also provides for the scheduling of measures that result in less favourable treatment for foreign service suppliers than for like domestic suppliers (national treatment limitations).

Regional trade agreements (RTAs) can also provide opportunities to pursue targeted 'WTO-plus' service liberalisation with trading partners. Possible service objectives in an RTA can include:

- securing the binding of existing levels of market access;
- negotiating new market access in sectors of priority commercial interest;
- most-favoured-nation commitments to access the benefits offered to future RTA partners;
- improved transparency through disciplines on domestic regulation (standards, licensing, recognition of qualifications);

- commitments to treat service investors at least as well as investors in the merchandise sectors;
- separate chapters on sectors of particular interest, such as telecommunications, financial services, education and movement of natural persons;
- use of negative lists rather than the more restrictive positive list approach to service trade liberalisation; and
- use of a 'ratchet' mechanism to ensure future autonomous liberalisation by RTA partners is locked in.

A core focus of service negotiations in RTAs is not to dismantle or remove the regulatory regimes of trading partners, but rather to identify and seek to address any trade-restrictive or discriminatory elements of such regulatory regimes. Consistent with the differences in types of regulation applied to different service sectors, requirements will vary considerably across the economy. For example, the types of requirements that exist in a country's banking sector that may have an impact on trade (foreign equity limitations, lending and borrowing restrictions) will be quite different from the requirements in the telecommunications sectors (where access by new entrants to network facilities on reasonable terms and conditions may be a key issue) or in the professional services (where requirements often relate to discriminatory licensing practices, prohibitions on the right to practise, and temporary entry restrictions).

A key objective of service trade negotiations in RTAs is, therefore, to seek to ensure that foreign service suppliers are placed on the same competitive footing as domestic suppliers in the trading partner's domestic market.

Investment liberalisation

There is no comprehensive, multilateral agreement on investment in the WTO. The WTO Agreement on Trade-Related Investment Measures prohibits certain investment measures, such as performance requirements, in relation to trade in the goods sector. The GATS covers market access for investment in service sectors indirectly, but only insofar as the investment results in the supply of services through the establishment of a commercial presence in another WTO member.

The GATS does not contain any post-establishment legal protections for investors and their investments, such as guarantees of compensation in the event of expropriation, the minimum standard of treatment at customary international law or national treatment for compensation for losses incurred through armed conflict or civil strife. Such legal protections are commonly found in bilateral investment treaties.

Including investment provisions in a RTA can provide a stable, predictable and transparent framework for attracting foreign direct investment and maximising the

benefits to both FDI source and FDI hosting countries. Many of the same considerations relating to the benefits that can be delivered through RTAs to service suppliers apply equally to investment. RTAs can also provide a framework for harvesting future liberalisation in the trading partner's investment regime, either automatically (through a ratchet mechanism) or by negotiation through 'built-in' agendas.

Countries wishing to attract FDI could always choose to unilaterally offer all foreign investors and their investments improved access to the local market and suitable/appropriate legal protection, rather than solely relying on RTAs (or the WTO should an investment agreement be reached). However, while unilateral action may improve a country's ability to attract FDI, negotiating FDI liberalisation through a regional trade agreement or multilaterally also improves a country's ability to access investment opportunities in trading partners.

5 *Modelling the liberalisation of services trade*

In liberalising service trade, countries must decide on the rate at which trade barriers are removed and the sectors subjected to the trade liberalisation. The pace and scope of liberalisation will be key factors in determining the magnitude of any economic gains arising from the liberalisation.

As yet, no country has tabled, as a starting point for future negotiation, a program of service trade liberalisation. Hence at this point in time we are not in a position to know what the pace and scope of (any) future service trade liberalisation may be. A range of service trade liberalisation scenarios has therefore been modelled.

Before discussing the service trade liberalisation scenarios investigated, the model used to evaluate the economic impacts is briefly discussed.

The economic model used

The computable general equilibrium model of the global economy to be used in simulating the effects of service trade liberalisation is CIE-GCubed. CIE-GCubed is a multi region, multi commodity (sector), fully dynamic model that incorporates the real and financial sectors. CIE-GCubed is the most appropriate global economic model currently available with which to analyse the welfare implications of a trade and investment liberalisation. The features of CIE-GCubed include:

- identification of trade flows between countries/regions;
- identification of investment flows between countries/regions, including bilateral inward and outward FDI positions;
- incorporates an integrated financial sector (comprising money, bonds, interest rates, lending, borrowing, expectations, financial flows, and wealth);
- it is a fully dynamic model that can capture the time path of adjustment for each of the economies/regions modelled, and as such can report yearly results for the short, medium and long term;
- consumers and producers are allowed to borrow and lend money over time, with decision influenced by the return on capital versus other assets;
- inclusion of (capital) adjustment costs and expectations;

- dynamic productivity gains (arising from increased import competition, learning by doing in export markets and FDI related transfer of technology and know-how) has been endogenised within the model;
- identification of up to 57 sectors of production and 15 countries/regions (if doing FDI liberalisation simulations) or 113 countries (if doing trade liberalisation); and
- is a single model thus eliminating the difficulties associated with getting 'linked' CGE models to produce comparable results.¹⁷

Barriers used in the modelling simulations

The barriers to delivery of services via commercial presence (Mode 3) used in the modelling simulations are those reported in appendix B (with barriers being reported at the country level, at the sectoral level within each country, and by type of FDI restriction). Note that as the focus of this study is liberalisation of service trade, only those FDI barriers in the service sectors are to be liberalised in the various modelling simulations.

Table 3.4 reported barriers to cross border trade in the telecommunications, engineering and international air service sectors (with engineering services taken as a proxy for the wider professional business service sector) as estimated by the Productivity Commission. As is seen from the table, data on barriers to services traded via Mode 1 was only available for a few service sectors and countries. It was also noted in chapter 3 that the Productivity Commission estimated those barriers using data that is now around ten years of age, meaning that the estimated barriers might not be applicable today.

For example, when the analysis was done in 2001, India was estimated to levy a tariff equivalent barrier of 290 per cent on telecommunication services delivered into India via cross border trade. However, while that may have been the tariff equivalence of barriers to the cross border supply of telecommunication services into India, reforms post 2000 in the telecommunication sector may have acted to lower barriers. For example, post 2000 India has deregulated international long-distance (ILD) calls and allowed unrestricted entry in the provision of ILD services, and has substantially lowered ILD entry and licence fees.¹⁸ What these (and other) reforms have done to the estimated tariff equivalent on cross border supply of telecommunications services

¹⁷ More details on the APG model (the predecessor of CIEG-Cubed) can be found at www.msgpl.com.au and in McKibbin, W.J. and Vines, D. (2000), 'Modelling Reality: The Need for Both Intertemporal Optimization and Stickiness in models for Policymaking', *Oxford Review of Economic Policy*, vol. 16, no. 4; and McKibbin, W. and Wilcoxon, P. (1998), 'The Theoretical and Empirical Structure of the G-Cubed Model', *Economic Modelling*, 16, 1, pp. 123–48.

¹⁸ WTO Secretariat (2007), *2007 Trade Policy Review of India*, WTO, pp. 133–36.

in India is unknown; however, it would not be unreasonable to assume that such reforms have lowered the tariff equivalent of the barriers.

Given the age of the calculated barriers and reforms over the last decade, it is assumed that the tariff equivalent of barriers in 2010 to the cross border supply of communication services in the high barrier recording countries of China, India, Rest of ASEAN and Rest of World is one-fifth (or 20 per cent) of the barrier estimated by the Productivity Commission in 2001.¹⁹ This sees the assumed tariff equivalent barriers being 50 per cent in China (down from 248 per cent), 58 per cent in India (down from 290 per cent), 44 per cent in the Rest of ASEAN (down from 222 per cent) and 16 per cent in the Rest of World (down from 78 per cent). Barriers for other countries/regions remain unchanged from the figures provided in table 3.4. Note that if the barriers used in the modelling simulations are higher than those in place today, then the gains from service trade liberalisation will be overstated.

Service trade liberalisation was modelled via:

- Mode 1 (cross border supply):
 - telecommunications – eliminating the tariff (as reported in table 3.4 and adjustments noted above) on imported communication services (with ‘tariff revenue’ being modelled as a rent accruing to the private sector);
 - professional business services – productivity gain of appropriate magnitude to eliminate the cost impost (as reported in table 3.4) of domestic regulation on business service exports;
 - international air services – productivity gain of appropriate magnitude to eliminate the cost impost (as reported in table 3.4) of domestic regulation on imported air services; and
- Mode 3 (commercial presence) – eliminating the tax equivalent of barriers (as reported in tables B1 to B8 of appendix B) levied on foreign direct investment:
 - rent creating barriers (screening restrictions) are modelled as a loss of rent accruing to the investing country;
 - cost escalating barriers (ownership and operational restrictions) are modelled as FDI productivity gains of the appropriate magnitude to see the cost of FDI falling by the amount of the equivalent tax.

The modelling baseline

To estimate the potential economic impacts of service trade liberalisation, an appropriate counterfactual (the ‘baseline’) needs to be established. The baseline

¹⁹ Note that the decision to lower (some country’s) barriers to the cross border supply of telecommunication services by 80 per cent was arbitrarily made, and not based on any available data or other research.

represents the business-as-usual scenario — that is, what we can expect to happen in the absence of service trade liberalisation.

The baseline needs to encompass views about the future structure of the economy and include other (relevant) policy decisions (and where announced and legislated), such as scheduled trade liberalisation attributable to previous commitments made elsewhere (for example, WTO commitments and unilateral reductions).

A key consideration in developing the baseline concerns the future structure of the 15 economies identified in CIE-GCubed (with the focus being on the Australian economy). In developing the baseline, the following factors have been assumed/taken into account:

- the economies meet IMF medium term forecasts for major macroeconomic indicators;
- Australia meets its unilateral tariff liberalisation commitments as already specified/announced;
- trade liberalisation proceeds as negotiated under the recently announced ASEAN-Australia-New Zealand FTA (AANZFTA);
- Australia meets its phased bilateral trade liberalisation commitments as negotiated in the 2005 commenced trade agreements with Thailand and the United States (as do Thailand and the US);
- as a large and important trading partner of most economies, China's unilateral merchandise trade liberalisation — a condition of its WTO accession — is incorporated into the baseline;
- inclusion of bilateral trade liberalisation between New Zealand and China, as negotiated under the New Zealand-China FTA, with the negotiated timeline for tariff liberalisation being met;
- as the respective tariff reduction paths to meet the APEC Bogor commitment of complete unilateral trade liberalisation by 2010 for developed country members and by 2020 for developing members are voluntary and unknown, any resulting trade liberalisation has been overlooked; and
- no trade liberalisation results from any other trade agreements currently being negotiated/under consideration by Australia.

Finally, it needs to be appreciated that the baseline represents what is known about the future trade policy environment at the time the economic modelling was conducted. As soon as a new (and significant) policy announcement is made that has the potential to influence trade flows — such as an emissions trading scheme — or the occurrence of some other economic 'disruption' — such as the recent sub-prime inspired financial crisis — the baseline used in the modelling is immediately out-of-date. The question then turns to whether or not the modelling results are still applicable given the new baseline. What can be said in response to this question is

that unless the new policy/disruption sees a significant and fundamental change in the sectoral composition of the economy over the long term, then the modelling results still hold in terms of direction and likely magnitude. That is, if the trade liberalisation is found to have a beneficial impact on GDP, then that finding will likely still hold under an alternative baseline (assuming that there is not a significant change over the long term to the composition of the economies modelled).

It is important to appreciate that CIE-GCubed is a model

While CIEG-Cubed is the best available global economic model, it must be appreciated that the CIEG-Cubed model, like all computable general equilibrium models, is not perfect. By definition, economic models are a simplification of reality and rely on numerous assumptions about economic parameters, behaviour and relationships. As such, modelling results should only be used to infer the outcome of trade liberalisation (positive or negative) and the magnitude of such impacts (small or large). It would be inappropriate to, for example, report modelling results to the 3rd decimal point and claim that as the unambiguous impact of any service trade reforms. That is, only broad messages and trends should be taken from the modelling results.

Modelling simulations to be conducted

There are three key decision areas concerning the nature of the modelling simulations to be conducted:

- the barriers to services trade being liberalised, to what extent and how rapidly;
- the sectors of the economy in which the liberalisation occurs; and
- the countries undertaking liberalisation, noting that different liberalisation schedules can be implemented in each economy.

The possible permutations across these areas mean that there is a huge range of potential service trade liberalisation scenarios that could be simulated. For example, all types of FDI barriers could be liberalised, or only FDI screening barriers; liberalisation could be restricted to select sectors (such as banking, telecommunications) or be economywide; barriers could be partially or totally removed; liberalisation could happen ‘overnight’ or be phased in over 5 or 10 years; with differing liberalisation schedules being implemented in different countries.

Given the objective of this study to quantify the possible economic benefits that service and investment liberalisation can deliver to Australia and globally, the main modelling simulation considered is the complete, and immediate, liberalisation of all barriers (as estimated/reported here) to service trade. This main modelling simulation is supplemented by three ‘what if’ type simulations that have a reduced scope and/or pace of liberalisation. The various modelling simulations are detailed below.

1. Overnight and comprehensive services trade liberalisation – all countries/regions identified in CIE-GCubed eliminate all barriers to services delivered via cross border supply and commercial presence, with service trade liberalisation occurring overnight on 1 January 2011.
2. Developing countries – liberalisation of FDI barriers that restrict foreign ownership (as the most important barriers to Mode 3 imports in developing countries, see chart 3.3), with barriers being phased out over five years starting 1 January 2011.
3. WTO – one possible outcome of Australia’s and other countries’ WTO Doha Round Mode 3 liberalisation requests (as they pertain to services trade liberalisation) are met.
4. Return to protection – all countries raise their barriers to services traded via cross border supply and commercial presence by 10 per cent, with barriers being raised on 1 January 2011.

Results for simulation 1 can be found in chapter 6. Key results for simulations 2–4 are reported in chapter 7.

It should be appreciated the liberalisation of services delivered via cross border supply and commercial represents a significant change to policy. As such, and over the short term, the economic impacts thereof may be quite large and fluctuate. However, when gauging the impact of the trade liberalisation, it is perhaps more prudent to focus on the impacts over the longer term (say 10–15 years post liberalisation). That way the policy changes will have worked their way through the economy and any changes to GDP (etc) will have settled down to a constant deviation from baseline.

Potential impacts from liberalisation of Mode 4

Liberalisation of services delivered by the temporary movement of natural persons (Mode 4) by WTO Members has only occurred to a very limited extent, with further liberalisation subject to current WTO negotiations (the Doha Round of negotiations).²⁰ Due to the limited liberalisation, barriers to Mode 4 services could be high. Indeed, some researchers suggest that the relatively small 1–2 per cent of total services trade accounted for by the temporary movement of natural persons may reflect the high barriers that restrict the movement of workers between countries.²¹

²⁰ WTO (2004), *The Impact of Mode 4 on Trade in Goods and Services*, Economic Research and Statistics Division, Staff Working Paper ERSD 2004-07, World Trade Organization, November 2004, page 21.

²¹ Deardorff, A., V. and Stern, R., M. (2004), *Empirical Analysis of Barriers to International Services Transactions and the Consequences of Liberalisation*, Research Seminar in International Economics, Discussion Paper no. 505, University of Michigan, page 3.

Of late, countries have shown interest in greater openness of Mode 4 trade. From the point of view of developing countries, Mode 4 exports provide the opportunity for labour to earn higher incomes (and hence remittance flows) in foreign markets, as well as that labour gaining skills and expertise that can then be used in the home country. Apparent labour shortages in developed countries have sparked debate over policies that would stimulate the supply and employment of temporary foreign workers.

Economic modelling undertaken by other researchers suggests that the liberalisation of services delivered via Mode 4 can be beneficial, under certain conditions, for both the liberalising country and the country (temporarily) supplying the labour.

For example, a recent paper investigated, through computable general equilibrium modelling, the impact of liberalising Mode 4 in the South Pacific (comprising Australia, New Zealand and Oceania).²² The simulation saw (unquantified) barriers to the temporary movement of labour being relaxed to the extent that the labour supplies of Australia and New Zealand were increased by 1.5 per cent, with the 'guest workers' being sourced from Oceania. It should be appreciated that due to differences in the size of the Australian/New Zealand and Oceania economies, the 1.5 per cent increase in labour in Australia and New Zealand sees large declines in skilled and unskilled labour in Oceania (of the order of 6 per cent and 4 per cent respectively).

The modelling results suggest that Australian (and New Zealand) real GDP is higher as a result of greater access to foreign skilled and unskilled labour. Indeed, Australian GDP is estimated to be some 0.7 per cent higher. However, while Australia (and New Zealand) benefit from the increased labour supply, the same is not the case for the Pacific Islands. The reduction in the supply of skilled workers in the Pacific Islands reduces production, and despite the increased inflow of remittances from these workers, welfare in Oceania falls by US\$2.5 million. The loss of unskilled labour actually raises the welfare of Oceania's permanent residents (US\$1.8 million); in this case the loss of unskilled labour on the Pacific Islands' economies is more than offset by their remittances. This is not the case for skilled labour because skilled workers are relatively scarce in the Pacific Islands. Overall, welfare of the permanent residents of the Pacific Islands falls by US\$0.7 million (with real GDP being around 1.9 per cent below baseline).

The negative welfare implications (arising from the Pacific Islands losing skilled labour – a 'resource' that is in short supply) can be overcome through 'revolving door' policies and capacity building measures that improve productivity of the guest workers. The assumption that only 10 per cent of guest workers in Australia return

²² Walmsley, T., Ahmed, S. and Parsons, C. (2009), *The Impact of Liberalizing Labour Mobility in the Pacific*, GTAP Working Paper no. 31, (revised) 2009.

home, and keep 50 per cent of the productivity differential between them working in Australia and at home, is enough to see Mode 4 liberalisation delivering substantial GDP and welfare gains to the Pacific Islands. Indeed, the productivity assumption is enough to see Oceania welfare moving from a decline of US\$0.7 million to a gain of US\$150 million.

The above paper saw developed countries (Australia and New Zealand) sourcing labour (skilled and unskilled) from developing countries in Oceania. However, labour flows need not always be from developing to developed countries. For example, it is estimated that Mode 4 accounts for 18 per cent (or A\$118 million) of Australia's legal service exports. Of the A\$118 million, nearly 63 per cent (A\$74 million) was generated in developed country markets (such as Europe, North America, Japan, Hong Kong and Singapore).²³ Hence in the case of Australia and other developed countries, liberalisation of Mode 4 is likely to be as much about getting access to other developed countries' professional business service markets, as it is about overcoming (any) labour shortages in the domestic market.

Other researchers have investigated the relationship between migration and trade flows. The empirical literature on the economic effects of migration has shown that migration increases trade flows between the home and the destination country of migrants. A WTO paper shows that the temporary movement of service suppliers (Mode 4) has similar effects.²⁴ The paper found a positive and significant effect of temporary movements of service providers on merchandise trade. The results suggest that a 10 per cent increase in temporary movement of persons to provide services (in the United States) increases US imports by around 3 per cent and exports by between 1.8–2.7 per cent. As far as the relationship between trade in services under Mode 4 and under other modes is concerned, it is found that a 10 per cent increase in the temporary movement of people increases service imports (exports) under Mode 1 by 4.7 (2.9) per cent, and it is correlated to an 8 (around 7) per cent higher inflows (outflows) of foreign direct investment (a proxy for trade in services under Mode 3).

The two research papers cited above provide evidence that liberalisation of services delivered via Mode 4 can benefit not only both the liberalising country and labour supplying country (under certain assumptions), but can also act to stimulate further merchandise and service trade.

²³ International Legal Services Advisory Council (2007), *Survey of Australian Export Market for Legal Services 2006-07*, ILSAC.

²⁴ WTO (2004), *The Impact of Mode 4 on Trade in Goods and Services*, Economic Research and Statistics Division, Staff Working Paper ERSD 2004-07, World Trade Organization, November 2004.

6 *Comprehensive service trade liberalisation*

The potential economic impact of comprehensive liberalisation of service barriers (as identified in this report) is reported in this chapter. Three ‘levels’ of results are reported. Key macroeconomic impacts for the global economy are reported first. Such results will provide insight into the gains available to various countries from service liberalisation, and hence the motivation behind these countries liberalising their service trade. Detailed macroeconomic and sectoral impacts on the Australian economy are then reported.

Key macroeconomic impacts on the global economy

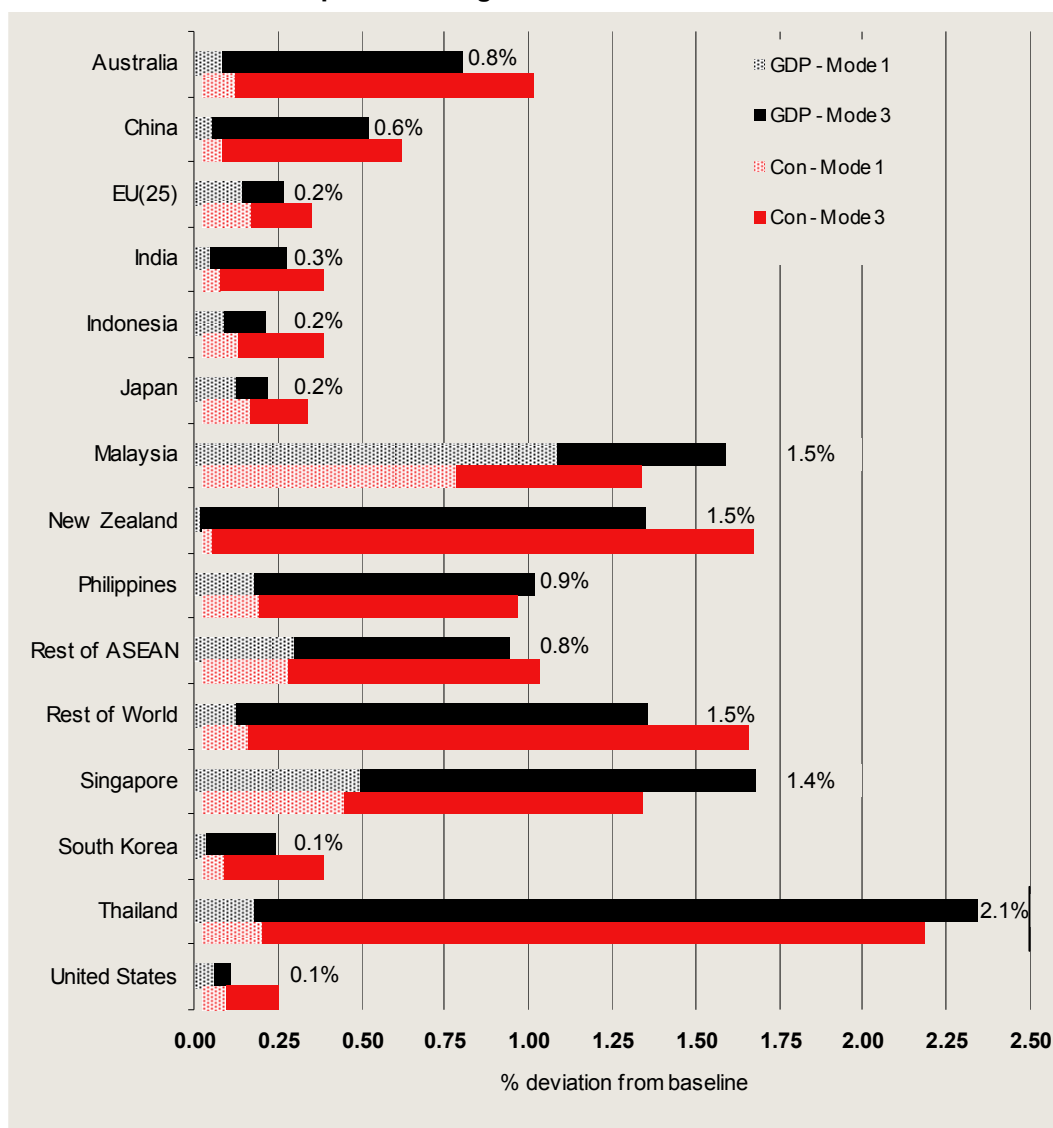
With the service sectors accounting for a large share of most economies, anything that benefits the service sectors, such as trade liberalisation, will also typically benefit the wider economy. The impact of global liberalisation of services trade delivered via cross border supply (Mode 1) and commercial presence (Mode 3) for the key macroeconomic indicators of real GDP and real consumption is reported in chart 6.1. Note that results are reported for year 2025, hence some 14 years after liberalisation was assumed to occur (and therefore a long run result).

It is important to appreciate that if domestic investment in a particular country contracts in favour of investing overseas, then it is possible that GDP of that country could contract (as investment activity is occurring overseas and not domestically). However, while GDP might be lower, gross national product (GNP) will likely be higher as GNP takes account of income earned by investment in other countries.²⁵ The change in GNP is also reported in chart 6.1 (figures in text).

As can be seen, the real GDP gains are sizeable (in year 2025), ranging between a low of 0.1 per cent (United States) to a high of 2.3 per cent (Thailand). The gains in real (private household) consumption – the preferred welfare measure – are similarly sized. For the Rest of the World and the United States, the real GNP gains are higher than the real GDP gains; meaning those two economies benefit more from the ability

²⁵ GNP accounts for income from capital owned domestically but used overseas as well as income paid on capital used domestically but owned by foreigners. GNP therefore represents what a country can either consume or save, and is often preferred to GDP as a measure of welfare.

6.1 GDP and welfare impacts at the global level^a 2025



^a Figures in text report the per cent deviation from baseline (in 2025) in gross national product.

Data source: CIEG-Cubed modelling simulation.

to invest in other economies (and hence earn income overseas) than they do from greater (foreign) investment in the local economy and/or economic efficiency gains arising from their own service trade liberalisation.

Chart 6.1 also shows how Mode 1 and Mode 3 liberalisation contributes to the GDP and welfare gains. It is estimated that the service sectors account for 60 per cent of FDI stocks in developed countries.²⁶ With FDI in developed countries being valued at around US\$9.5 trillion in 2008 (versus global FDI of US\$14.9 trillion), anything that can act to lower the cost of FDI in the service sectors is going to be of benefit to those sectors, as they will be able to access capital at a lower cost. And with the service

²⁶ Sauvart, K.P. (2005) *Reservoirs of the Future* in 'What's Next: Strategic Views on Foreign Direct Investment', ISA in cooperation with UNCTAD and WAIPA, page 93.

sectors accounting for a large share of most economies, anything that benefits the service sector will also typically benefit the wider economy. The fact that Mode 3 liberalisation typically delivers the greatest output (GDP) and welfare (consumption) gains reflects two things – the size of the barriers, and the importance of FDI to the service sectors of the various economies. In contrast, the Mode 1 barriers are typically smaller, and pertain to a much smaller base (the value of cross border trade).²⁷

The predicted dollar value over 2011–2025 of additional GDP and consumption gains arising from the services trade liberalisation are reported in chart 6.2. Results are reported in present value terms. The present value allows a current (year 2010) value to be placed on gains that may not be experienced until some time in the future. Over the 14 years from 2011 to 2025, the global economy is estimated to gain A\$5.3 trillion in real GDP and A\$3.8 trillion in real consumption (expressed in 2010 dollar terms). The Rest of the World group of economies experiences the majority of these gains, accounting for 54 per cent of global GDP gains. Australia experiences GDP gains of A\$155 billion, or around 2.9 per cent of global GDP gains. This equates to Australian real GDP being higher by around \$10.3 billion (in present value terms) each year, on average, over 2011 to 2025.

The average annual present value of real GDP gains for other countries range between a low of A\$0.8 billion (Rest of ASEAN) to a high of A\$190 billion (Rest of World). The value of annual GDP gains to countries currently negotiating (or contemplating) trade agreements with Australia include:

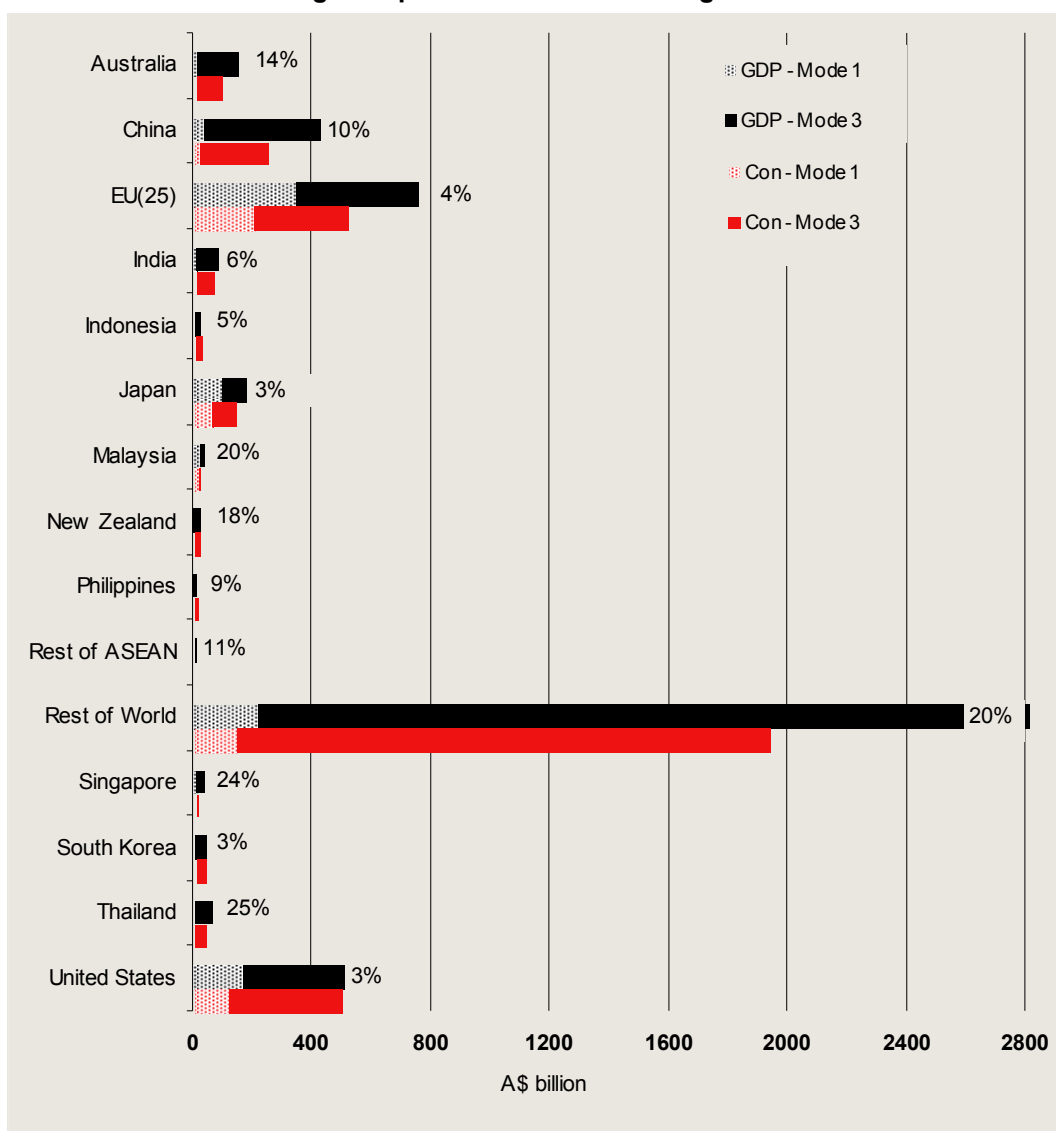
- China – average annual GDP gain of A\$31 billion
- India – average annual GDP gain of A\$6 billion
- Indonesia – average annual GDP gain of A\$2 billion
- Japan – average annual GDP gain of A\$12 billion
- Malaysia – average annual GDP gain of A\$3 billion
- South Korea – average annual GDP gain of A\$3 billion.

Note that the value of the average annual GDP gains is dependent not only on the size of the GDP gain (in per cent terms), but also on the size of the underlying economy.

Expressing the dollar value of gains as a share of GDP in 2010 is perhaps a better indication of the magnitude of gains (as opposed to the absolute monetary value), as account is taken of the size of the underlying economy. In chart 6.2 the value of GDP gains over 2011 to 2025 as a share of GDP (in year 2010) is also reported (figures in

²⁷ Note that data limitations meant that barriers to Mode 1 services were identified for only a few service sectors, and for a few economies. The fact that Mode 1 liberalisation only accounted for around 22 per cent (on average) of total GDP gains may reflect the data limitations rather than the true importance of Mode 1 versus Mode 3 liberalisation.

6.2 The dollar value of global production and welfare gains^{a, b} over 2011–2025



^a Over 2011 to 2025, expressed in 2010 present value dollar terms using a 5 per cent real discount rate. ^b Figures in text report the dollar value of the cumulative real GDP gains over 2011–2025 as a share of that country's GDP in year 2010. Data source: CIEG-Cubed modelling simulation.

text). Thailand has the most to gain from service liberalisation, with the GDP gains over 2011–25 being equivalent to 25 per cent of GDP in 2010.

A key message to take from charts 6.1 and 6.2 is that service trade liberalisation appears to benefit developing countries more than developed countries, although there are exceptions to this rule. For example, the EU(25), Japan, South Korea and US are all estimated to experience real GDP gains of around (or under) 0.25 per cent in year 2025; but Australia, New Zealand and Singapore all experience much large gains. Similarly, Malaysia, Philippines, Rest of ASEAN, Rest of World and Thailand are estimated to have GDP gains of around (or above) 1 per cent; but China, India and Indonesia experience lower gains of between 0.25–0.5 per cent. Taking a (GDP

weighted) average sees developed countries experiencing an average GDP gain of 0.2 per cent in 2025, while developing countries experience a gain of 0.9 per cent. Given this, and on average, developing countries have more to gain from service trade liberalisation than do developed countries.

As was seen from chart 6.1, Mode 3 liberalisation is clearly important in driving the GDP gains of most economies. The magnitude of the Mode 3 gains across the various economies is in turn dependent on the importance of FDI to the service sectors of an economy, and the size of that economy's barriers to FDI. Those economies with a combination of high FDI importance and high FDI barriers in the service sectors stand to benefit the most from Mode 3 liberalisation.

A time series of results for the indicators of real GDP, real consumption, employment and real wages for individual countries/regions can be found in appendix C. As can be seen from the results, service trade liberalisation is beneficial for not only economic activity (GDP) and welfare (household consumption), but also for the labour markets in each country.

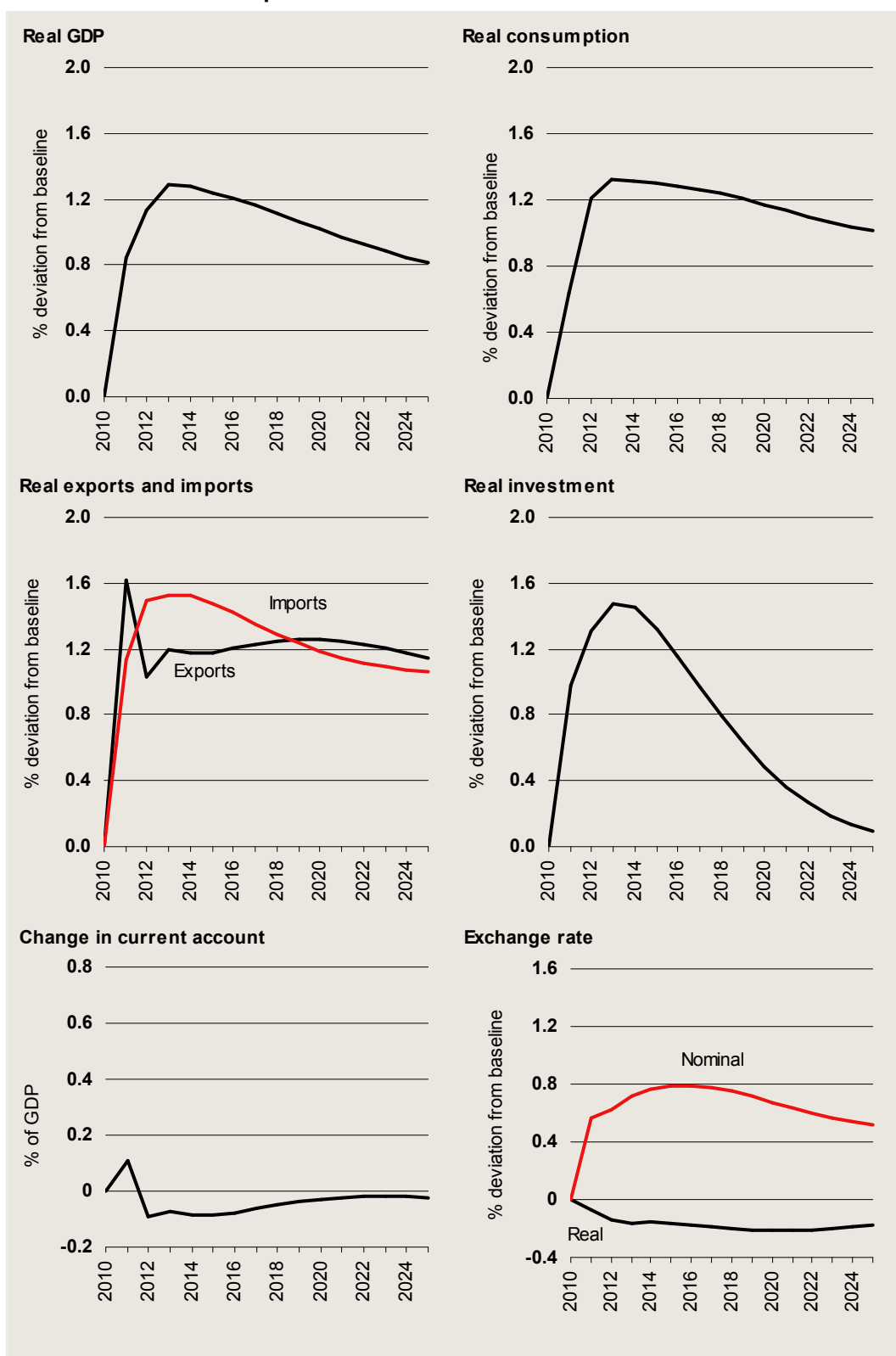
Macroeconomic impacts on the Australian economy

The macroeconomic impacts on the Australian economy of global comprehensive and immediate liberalisation of service trade (via Modes 1 and 3) are reported in chart set 6.3. The service trade liberalisation is projected to bring about a positive impact on the Australian economy; with both real GDP and consumption being projected to increase above baseline levels as a result of the liberalisation. The rise in real GDP peaks at nearly 1.3 per cent above baseline in 2013, before falling back down to around 0.8 per cent above baseline in 2025. The gain to real GDP continues to contract before settling down to a long run (year 2030 plus) gain of 0.7 per cent above baseline (not shown in chart).

The gain to real consumption follows the same profile as that of the GDP impacts, but with higher gains. Real consumption is forecast to be around 1 per cent above baseline in 2025 (some 25 per cent higher than the GDP gain).

The initial large GDP gain is primarily driven by Australia's liberalisation of FDI inflows. Lowering the cost of investing in Australia, combined with improved access to foreign service markets (Mode 1) and the greater domestic efficiency that Australia's own trade liberalisation brings, sees capital in the Australia economy earning a higher return. This in turn sees a substantive increase in investment in the Australian economy, with real investment being nearly 1.5 per cent above baseline in 2013. The additional investment activity sees an increase in domestic economic activity, which drives the GDP gains, which in turn drive consumption gains. Once the investment is online and the liberalisation stops, investment tapers off to around 0.1 per cent above baseline (reflecting that over the longer term, the service trade liberalisation improves the attractiveness of Australia to investment).

6.3 Macroeconomic impacts in Australia



Data source: CIEG-Cubed modelling simulation.

The FDI liberalisation sees an increase in Australia's capital stock, with that capital now being more productive (as cost escalating FDI barriers have been removed). The increase in capital improves the capital to labour ratio, which sees labour productivity improving. More productive labour can command higher wages (see further below), which in turn drives further consumption gains. There is also the prospect that increases in FDI will bring with it technological and managerial know-how, which may in turn drive productivity gains and a further round of economic benefits.

In the year of liberalisation (2011) GNP (not shown) is estimated to be around 0.9 per cent above baseline. This income can either be saved or used for consumption. However, consumption is 0.6 per cent above baseline in 2011, meaning domestic savings increase substantially (in the order of a 1.5 per cent increase). The savings increase is being driven by households' forward looking expectations. Capital cannot move instantaneously, and hence the greatest movements in foreign and domestic investment are not observed until 2-3 years post liberalisation. Households appreciate that once the new and cheaper capital is online, there will be cost savings (as capital is now significantly cheaper). Hence to the extent possible, households delay consumption, and hence save more today, to take advantage of future cost savings.

The increase in savings in 2011 is associated with the capital account going into deficit (or a lower surplus). The increase in savings can either fund domestic and/or foreign investment. Of the 1.5 per cent increase in savings in 2011, just over 1 percentage point is diverted towards funding domestic investment (with the shortfall in funding of domestic investment being met by capital inflow), while 0.5 percentage points are directed towards capital outflow. The change in capital inflows and outflows sees a deficit in the capital account (or lower surplus). As a balanced Balance of Payments is assumed, a capital account worsening necessitates, by definition, a current account improvement. Hence the change in exports in 2011 (1.6 per cent above baseline) exceeds the change in imports (1.1 per cent).

Post 2011 the FDI liberalisation begins to take full effect, with the now cheaper (and hence more productive) FDI coming online, and driving efficiency/cost savings in the Australian economy. Instead of saving, households up their consumption (real consumption is 1.2 per cent above baseline in 2012, double the increase observed in 2011), with domestic savings falling back to around 0.9 per cent above baseline. By around 2025 savings has returned to baseline levels. The decline in savings and rise in investment in 2012 sees the capital account begin to improve (move towards surplus), which necessitates a deterioration of the current account; hence imports begin to increase and exports contract. The greater foreign investment in Australia over 2012 to 2025 is associated with a deterioration in the current account over the same period.

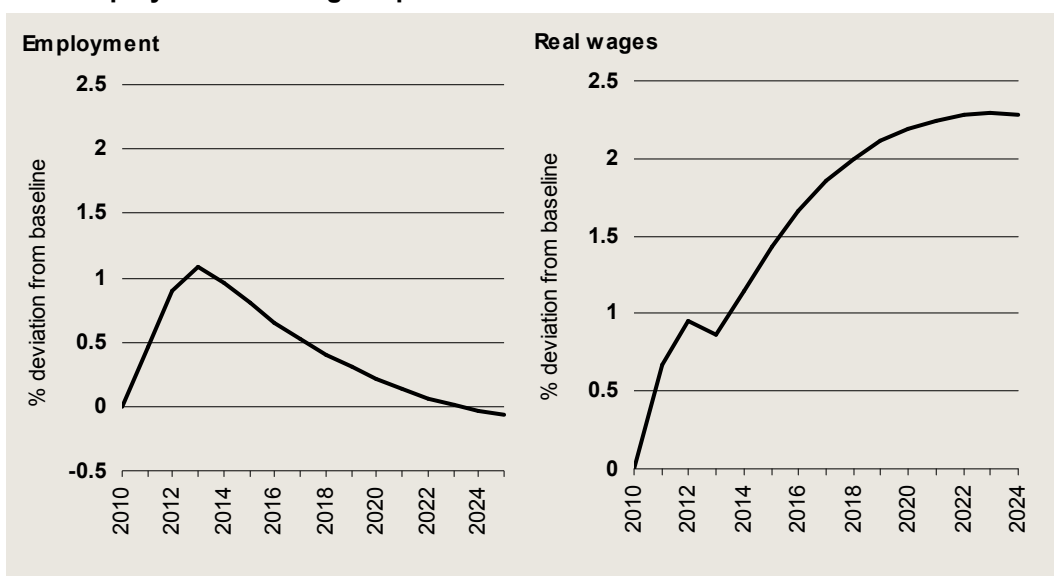
Over time investment begins to return to baseline levels, as do savings, the change in (value of) exports and imports becomes neutral, which sees the current account deficit also returning to baseline levels. With no/little change in investment and savings rate around 2025, capital inflows and outflows also return to baseline levels.

To facilitate the capital flow and trade changes, there must be a depreciation of the Australia currency in real terms. The Australia dollar is estimated to be nearly 0.2 per cent weaker against the US dollar in real terms in 2025. In nominal terms the Australian dollar is 0.5 per cent (above baseline) stronger, with the nominal appreciation being driven by a fall in the relativities between the Australian and United States producer price indexes of around 0.7 per cent.²⁸

As noted above, the allocative efficiency and capital deepening gains arising from the Mode 1 and 3 service liberalisation sees an increase in economic activity (real GDP), which in turn increases demand for labour. As shown in chart 6.4, employment is predicted to increase, peaking at over 1 per cent above baseline in 2013. Although CIEG-Cubed assumes fixed labour supply and full employment determined by the population growth rate in the long run, in the short run employment deviates from the full employment equilibrium level because real wages adjust slowly to labour market conditions (that is, wages are 'sticky' over the short run).

Over time, wages adjust (increase) to ensure that employment falls back to its baseline level – the natural rate of unemployment (the non-accelerating inflation

6.4 Employment and wage impacts in Australia



Data source: CIEG-Cubed modelling simulation.

²⁸ The change in relativities between the Australian and United States producer price indexes is used as the Australian exchange rate is defined in terms of US dollars (that is, appreciation or depreciation against the US dollar).

rate of unemployment). The long term gain to employment is reflected in higher real wages. The real wage rate, which is the difference between the nominal wage rate and inflation, increases over time and reaches around 2.3 per cent higher than the baseline level in 2025. The wage increase reflects the fact that the capital deepening makes labour more productive, and hence can command higher wages.

Not that the modelling results suggest that employment in Australia in year 2025 will be marginally (second decimal point) below the baseline level of employment in 2025. This result is a consequence of the assumption about wages being sticky in the short run, and a slight overshooting in wage growth needed to bring employment back to baseline levels. If the graph was extended for a few more years then employment would indeed begin to return to baseline levels. A similar situation exists for several other countries, while for others employment is still above baseline levels in 2025. In the latter case, more wage growth is needed before employment returns to baseline levels (see appendix C for employment and wage results for other countries).

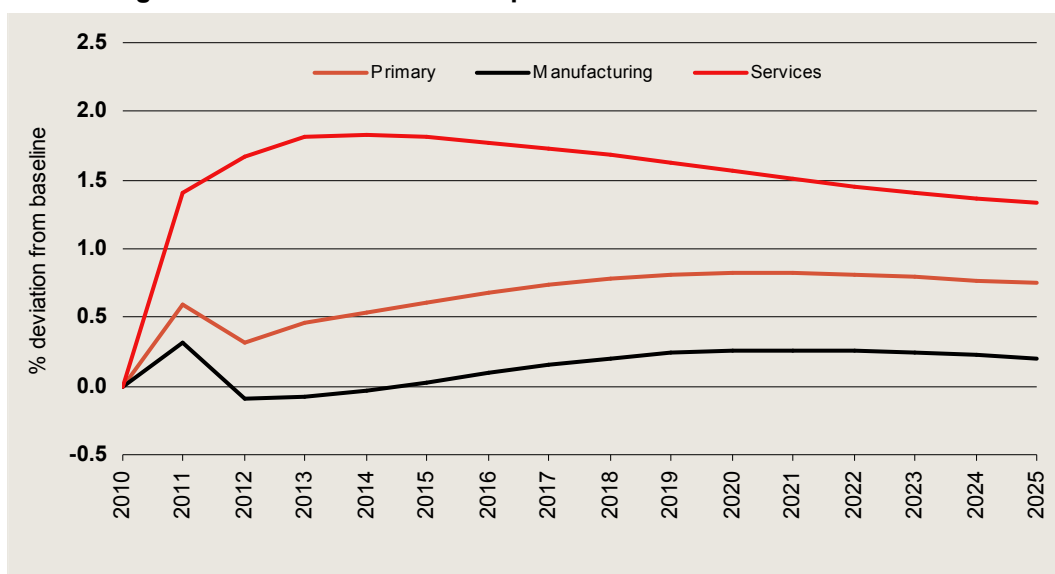
Sectoral impacts on the Australian economy

The global liberalisation of Mode 1 and Mode 3 service traded by is estimated to see Australia's GDP being around 0.8 per cent above baseline over the long term. However, while the economic modelling suggests that Australia 'as a whole' will benefit from the service trade liberalisation, there will likely be differing impacts between sectors. Impacts on the service sectors will differ due to sectoral differences in FDI dependencies and magnitude of FDI barriers, and facing barriers of differing sizes to Mode 1 exports.

This later point needs to be fully appreciated. As noted above, it is those economies (or sectors) with a combination of the relatively largest service trade and service barriers that stand to benefit the most from the liberalisation. And as noted in chapter 3, barriers to cross border supply are available for only a handful of service sectors. The limited data on barriers to cross border supply means that there will be numerous sectors for which there is no (estimated) barrier to services traded via Mode 1. These sectors do not stand to directly benefit from Mode 1 liberalisation – there is no barrier to be liberalised. This creates the situation whereby those sectors that do have estimated barriers are relatively more advantaged by the trade liberalisation, and these sectors will typically expand at the expense of other 'non-liberalising' sectors (although gains on the Mode 3 liberalisation side might be more than enough to compensate for losses due to Mode 1 liberalisation).

Chart 6.5 provides an overview of the changes to output for broad sectors of the Australian economy. As can be seen, the primary (agriculture and mining) and manufacturing sectors also benefit (indirectly) from service trade liberalisation. Service trade liberalisation sees the Australian service sectors benefiting from access

6.5 Changes to Australian sectoral output over time



Data source: CIEG-Cubed modelling simulation.

to now cheaper foreign capital, and improved market access arising from Mode 1 liberalisation. The gains to the service sectors have flow-on benefits to other sectors of the economy that use services as an intermediate input to production. The economic relationship also works in the other direction, with the now larger service sectors necessitating inputs from other sectors of the economy.

However, as the direct beneficiary of service trade liberalisation, the service sector experiences the largest gain with output being around 1.3 per cent above baseline in 2025.

The 2012 ‘kink’ in output of the primary and manufacturing sectors can be attributed to competition for resources (capital) between the sectors. Following liberalisation of service trade in 2011, investment in the primary and manufacturing sectors falls (as investment is moved from the non-liberalising primary and manufacturing to the liberalising service sectors). A decline in investment flows in 2011 materialises in a lower capital stock in 2012, hence output of the primary and manufacturing sectors is lower in 2012 due to a lower capital base. As GDP grows over time investment returns to the primary and manufacturing sectors, which in turn allows output to grow.

The overall positive impact on the broad service sector masks the fact that there is variability in impacts at the individual sector level. Table 6.6 reports the impact of services trade liberalisation on a range of indicators at the sector level (note that results relate to year 2025).

There are three principal factors that drive the observed sectoral results.

- Mode 1 liberalisation will benefit some service sectors (those with identified barriers) at the expense of other sectors (those without barriers).

6.6 Australian sectoral impacts 2025 per cent deviation from baseline

Sector	Output	Employment	Investment
	Per cent	Per cent	Per cent
Primary	0.7	-1.0	0.6
Manufacturing	0.2	-1.4	0.0
Electricity	-0.2	-1.3	-0.5
Gas	1.1	-1.2	0.6
Water	0.7	-1.5	0.5
Construction	1.7	0.9	0.5
Trade	-0.1	-0.6	-0.9
Transport nec	0.7	0.1	-0.8
Water transport	0.8	-0.5	0.4
Air transport	4.3	1.6	0.3
Communication	3.4	1.3	-1.2
Financial services	6.4	5.1	-0.2
Insurance	4.1	3.0	2.5
Business services	2.0	1.1	0.1
Recreation	0.1	-0.5	-1.3
Government	1.0	0.4	-0.4
Dwellings	0.4	0.1	0.4
Service sector	1.3	0.6	-0.1

Source: CIEG-Cubed modelling simulation.

- FDI liberalisation sees removal of cost escalating FDI barriers (ownership and operational restrictions), with the liberalisation being equivalent to FDI experiencing a productivity gain. A productivity gain means that less capital stock is needed per unit of output (hence if a sector's output does not change, then the sectoral capital stock will fall).
- The productivity gain experienced by FDI is effectively a fall in the price of capital (hence more output per given cost of capital). Importantly, the price fall is relative to other production inputs – labour, materials and energy. The change in relative prices sees capital being substituted for the other inputs of labour, materials and energy (akin to technological improvements seeing capital being substituted for other inputs). The freeing up of labour allows it to move to other sectors where it is needed most (and in so doing allowing other sectors to expand).

Depending on the sector, dependence on FDI, magnitude of Mode 1 and Mode 3 barriers, and type of FDI barrier, the above factors will either be complementary to one another or work in opposite directions.

For example, output of the electricity sector is estimated to be 0.2 per cent below baseline in 2025, reflecting other sectors' capital deepening which allows capital for energy substitution (that is, improvements in technology and energy efficiency sees new machinery/capital stock being substituted for electricity, culminating in a reduction in output of the electricity sector). The communication sector is estimated to experience a decline in capital stock (1.2 per cent below baseline in 2025), but an increase in sectoral output (3.4 per cent above baseline). On one hand there will be capital for labour, materials and energy substitution, and hence increased demand

for capital. However, the increase in capital on the substitution front is exceeded by a decline in demand for capital arising from the large productivity gain FDI in the communications sector experiences (the communications sector having the second highest FDI barriers). Overall, there is reduced need for capital in the sector.

It is interesting to contrast the results for the communications and insurance sectors. Both experience similar increases in output (3.4 and 4.1 per cent above baseline, respectively), yet the communications sector experiences a 1.2 per cent decline in investment while the insurance sector has a 2.5 per cent increase in investment. In the case of the insurance sector, the smaller FDI barriers mean that FDI in the sector gets a substantially smaller productivity gain following Mode 3 liberalisation, with the productivity gain not sufficient to outweigh the increase in investment needed to allow the sector's output to expand and meet demand.

Importantly, the freeing up of labour and capital in some sectors allows that labour and capital to be deployed where it is most needed (and valued). While there is a net increase in investment and the capital stock, there is no net decline in employment. The contraction in labour in certain sectors is countered by an increase in labour in other sectors (of equal magnitude in aggregate).

7 *Alternative services trade liberalisation scenarios*

Several other modelling simulations have been conducted to investigate the economic impacts arising from less ambitious services trade liberalisation or a return to protectionist policies. Key results from these other modelling simulations are provided below.

Developing economies' liberalisation of FDI ownership restrictions

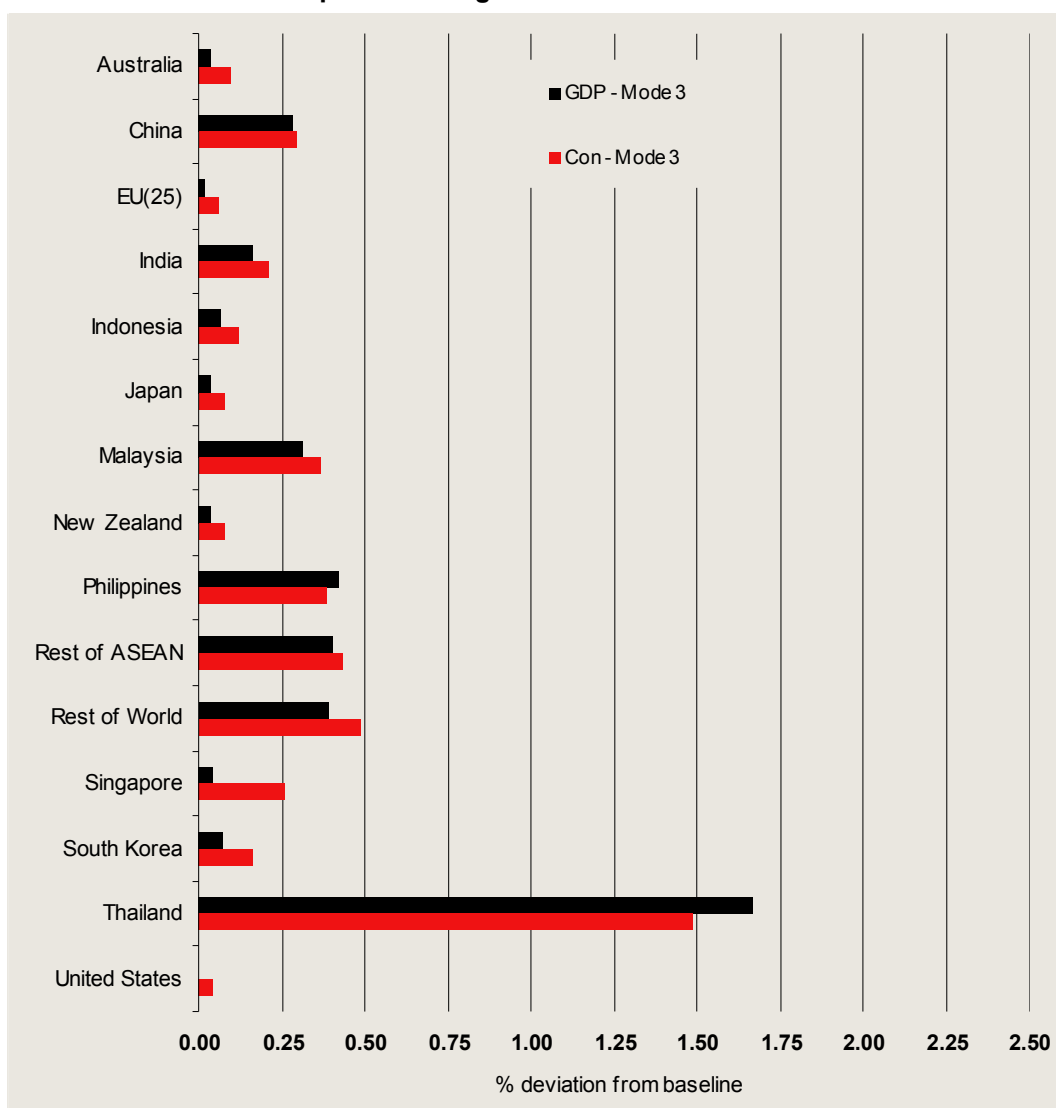
This simulation saw China, India, Indonesia, Malaysia, the Philippines, the Rest of ASEAN, the Rest of the World and Thailand liberalising their FDI barriers that restrict foreign ownership, with the FDI ownership barriers being phased out over the five year period between 2011 and 2016.

Modelling results for the key indicators of real GDP and real consumption in year 2025 are provided in chart 7.1. The key observation to make is that while only developing countries have undertaken any liberalisation (of their FDI ownership barriers), both developing and developed countries/regions benefit from that trade liberalisation. While the non-liberalising countries benefit too, it should be appreciated that the liberalising countries get the much larger gains. Indeed, the average (GDP weighted) real GDP gain in 2025 for developing countries is 0.33 per cent above baseline, versus 0.02 per cent in the case of the developed countries.

Developing countries benefit from the liberalisation as removal of FDI ownership barriers lowers the cost of foreign investment. This has two effects. Firstly, access to cheaper capital lowers production costs, which improves the competitiveness of developing country exports in foreign markets. Secondly, capital deepening occurs (as capital is now cheaper), leading to improved labour productivity. The improvement in productivity means there is effectively more labour available to the economy, with this labour moving to the sectors where it is most needed/valued (akin to allocative efficiency gains).

Developed countries benefit from greater access to investment opportunities in developing countries, with GNP gains driving higher consumption in the home economy, leading to GDP gains. Lower production costs in the developing countries means the developed countries also benefit from access to cheaper imports.

7.1 GDP and welfare impacts at the global level 2025

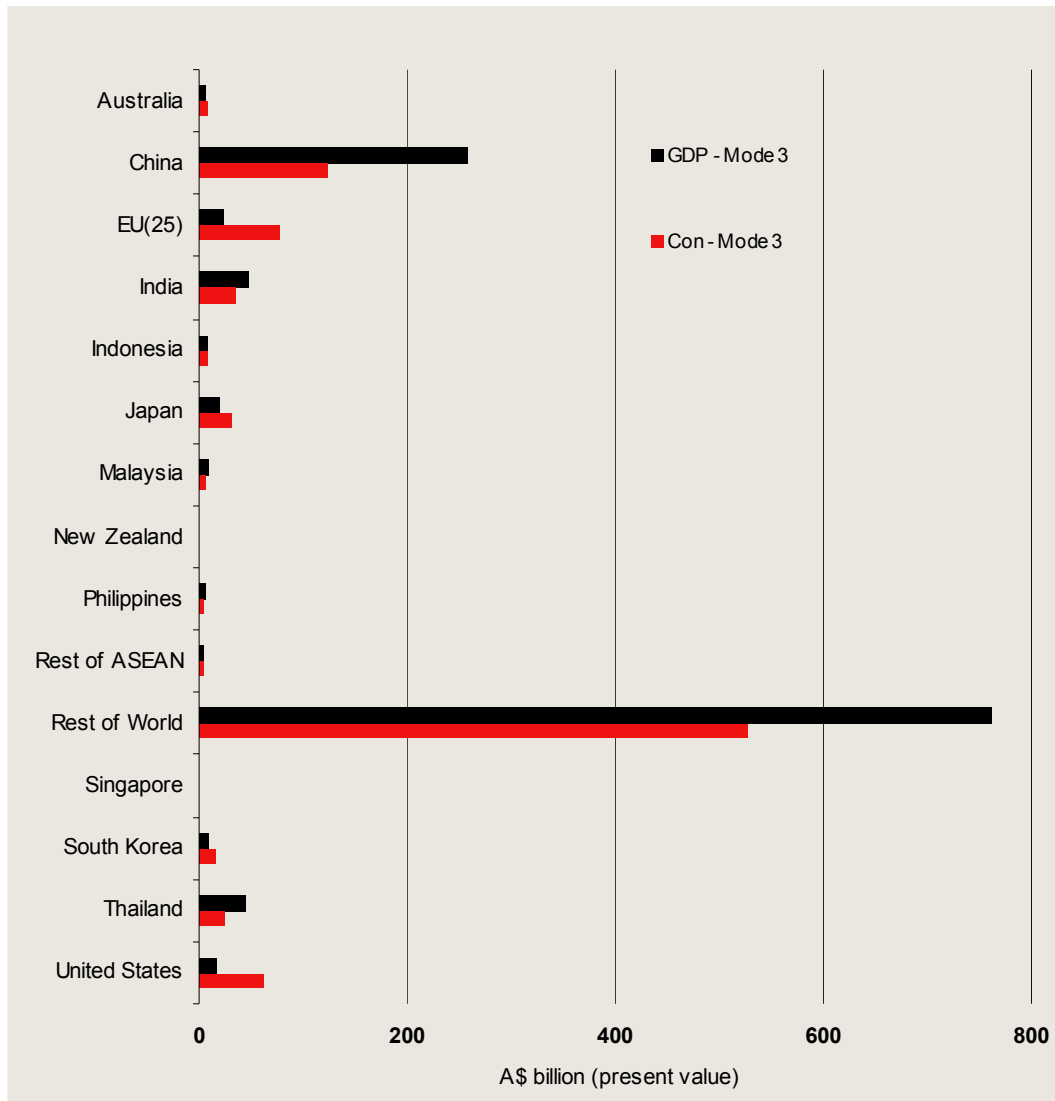


Data source: CIE-GCubed modelling simulation.

Compared to the scenario where there is global liberalisation of all Mode 1 and Mode 3 barriers (see chapter 6), the more limited liberalisation being undertaken in this scenario sees GDP gains of a smaller magnitude arising. The GDP gains to developing countries from liberalising their FDI ownership barriers over 5 years are between 20 per cent (Malaysia) and 71 per cent (Thailand) of the estimated GDP gains (in year 2025) arising from global liberalisation of all Mode 1 and Mode 3 barriers.

The predicted dollar value of additional GDP and consumption gains arising from developing countries liberalising their FDI ownership barriers are reported in chart 7.2. Results are reported in present value terms (year 2010). Over the 14 years from 2011 to 2025, the global economy is estimated to gain A\$1.2 trillion in real GDP and A\$926 billion in real consumption (expressed in 2010 dollar terms). The Rest of the World group of economies experiences the majority of these gains, accounting for

7.2 The dollar value of global production and welfare gains^a over 2011–25



^a Over 2011 to 2025, expressed in 2010 present value dollar terms using a 5 per cent real discount rate.

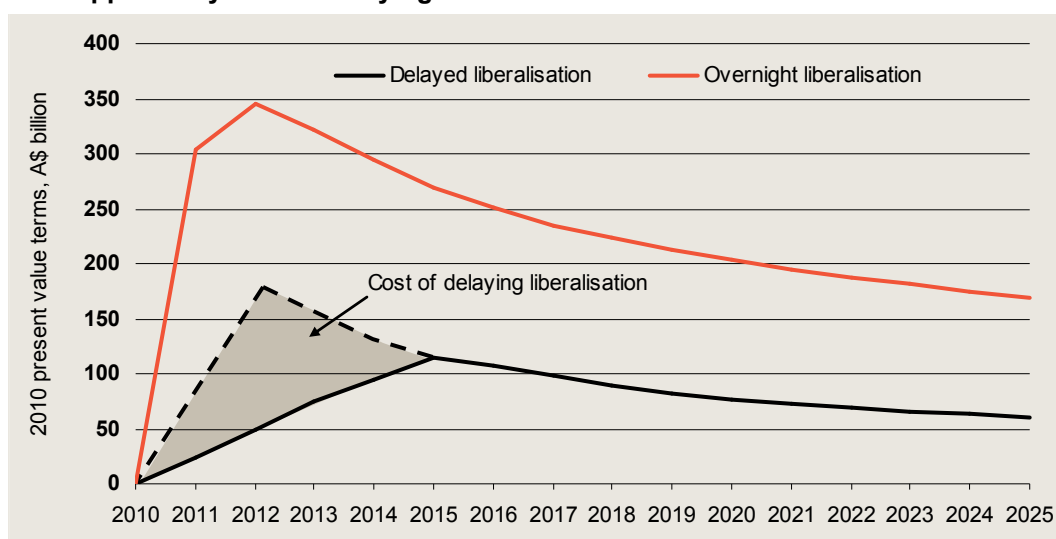
Data source: CIE-GCubed modelling simulation.

63 per cent of global GDP gains. China accounts for 21 per cent of global GDP gains. In aggregate, developed countries account for 6 per cent of global GDP gains.

As has been shown, limiting the scope of liberalisation limits the economic gains. However, phasing the liberalisation in over a number of years also acts to limit the gains, especially when the impacts are expressed in present value terms. Chart 7.3 demonstrates the impacts of delaying liberalisation. Two sets of results are provided. The first is the real GDP gain, expressed in present value terms, accruing to developing countries from overnight Mode 1 and Mode 3 liberalisation (overnight liberalisation, orange line). These results are drawn from the modelling simulation written up in chapter 6. The second set of results (phased liberalisation, black line) is drawn from the current modelling simulation. It is the shape of the curves

(representing the time profile of gains) that is of interest, and not the absolute value of gains (as each line represents different modelling simulations, they are not comparable). What can be seen is that under overnight liberalisation, large gains are achieved within 1–2 years of liberalisation. In comparison, under the phased liberalisation scenario the maximum gains are not seen until all liberalisation has been completed (around year 2016). And when expressing results in present value terms, delaying gains comes at a cost. In chart 7.3 the time profile of gains under the overnight liberalisation scenario has been applied (in a stylised fashion) to the phased liberalisation scenario to show the potential gains that have been foregone as a result of delaying liberalisation.

7.3 Opportunity cost of delaying liberalisation



Data source: CIE-GCubed modelling simulations.

One possible outcome of the Doha Round Mode 3 negotiations

This modelling simulation assumed that the WTO requests of Australia and other countries (as they pertain to Mode 3 service trade liberalisation) are met. Through the WTO's Doha Round, Australia and other countries are seeking the removal of numerous barriers that restrict services delivered via commercial presence, including removal of (amongst others):

- economics needs tests;
- restrictions on foreign equity and joint venture requirements;
- restrictions on numbers of expatriate staff and requirements for employment of local staff;
- restrictions on incorporation and prohibition of wholly owned subsidiaries;
- restrictions on advertising and use of firm name; and
- discriminatory licensing procedures.

A successfully negotiated Doha Round is unlikely to see the complete liberalisation of services delivered via Mode 3 – various countries will likely want to retain the right to screen FDI, and there may be sensitivities regarding whether foreign owned companies should be allowed to provide some services or compete with domestic companies for certain local markets. With such real world considerations in mind, the liberalisation modelled in this simulation is based on a view about one possible outcome of Doha, with the extent of liberalisation varying across sectors and types of barrier. Table 7.4 reports the reduction in Mode 3 barriers simulated. The barrier reductions reported in table 7.4 attempt to match the types of FDI barriers used in CIE-GCubed (screening, equity and operational) with the real world requests.

7.4 Mode 3 liberalisation used in Doha Round simulation

Service sector	Extent by which existing Mode 3 barriers reduced		
	Screening	Ownership	Operational
	Per cent	Per cent	Per cent
Construction	75	75	75
Trade	50	50	50
Communication	50	50	50
Finance	50	50	50
Insurance	50	50	50
Business services	75	75	75

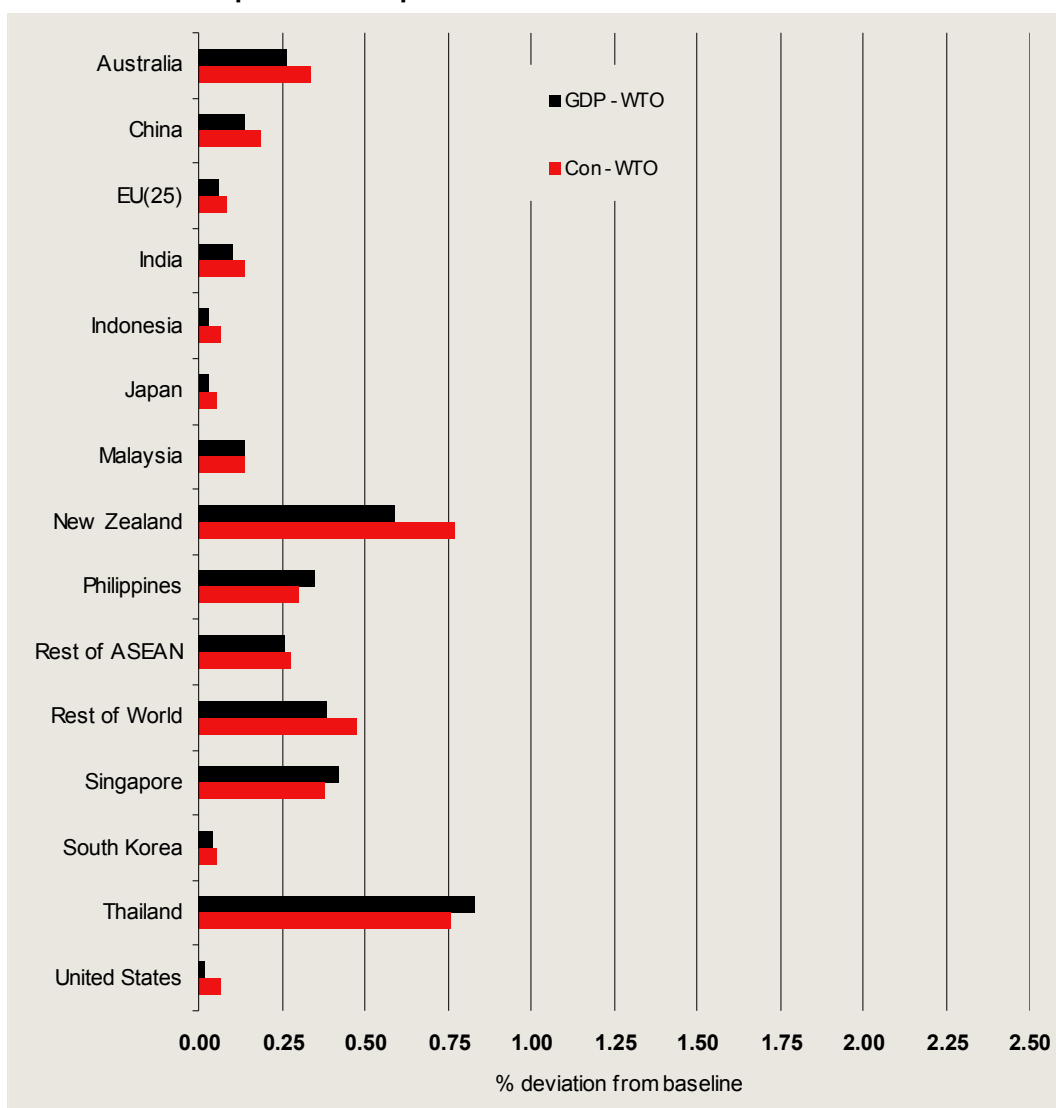
Source: DFAT.

All countries/regions are assumed to implement the above barrier reductions. This latter assumption creates a ‘difficulty’ in that 195 countries make up the global economy, with 153 of these countries being WTO members (and hence participating in the Doha Round negotiations). This divergence has been overlooked, with the assumption made that all countries implement the above Mode 3 liberalisation.

Finally, any Mode 3 liberalisation arising from the Doha Round would take effect at the conclusion of the negotiations. For this exercise, it has been assumed that the Doha Round is completed some time during 2010, with liberalisation taking place on 1 January 2011. It is also assumed that Mode 3 liberalisation will occur overnight.

Chart 7.5 reports the GDP and consumption impacts (in year 2025) should one possible outcome of the Doha round negotiations, as they pertain to Mode 3 service trade liberalisation, be met. New Zealand and Thailand are expected to be the biggest beneficiaries, with real GDP being 0.6 and 0.8 per cent (respectively) above baseline in 2025. The average increase in GDP (using GDP weights) for developed countries is 0.05 per cent and 0.26 per cent in the case of developing countries. These results would suggest that the developing countries have more to gain from agreeing to Australian and other countries’ WTO requests, and hence could be expected to support such liberalisation requests (all else the same).

7.5 Economic impacts of one possible Doha Round Mode 3 outcome 2025



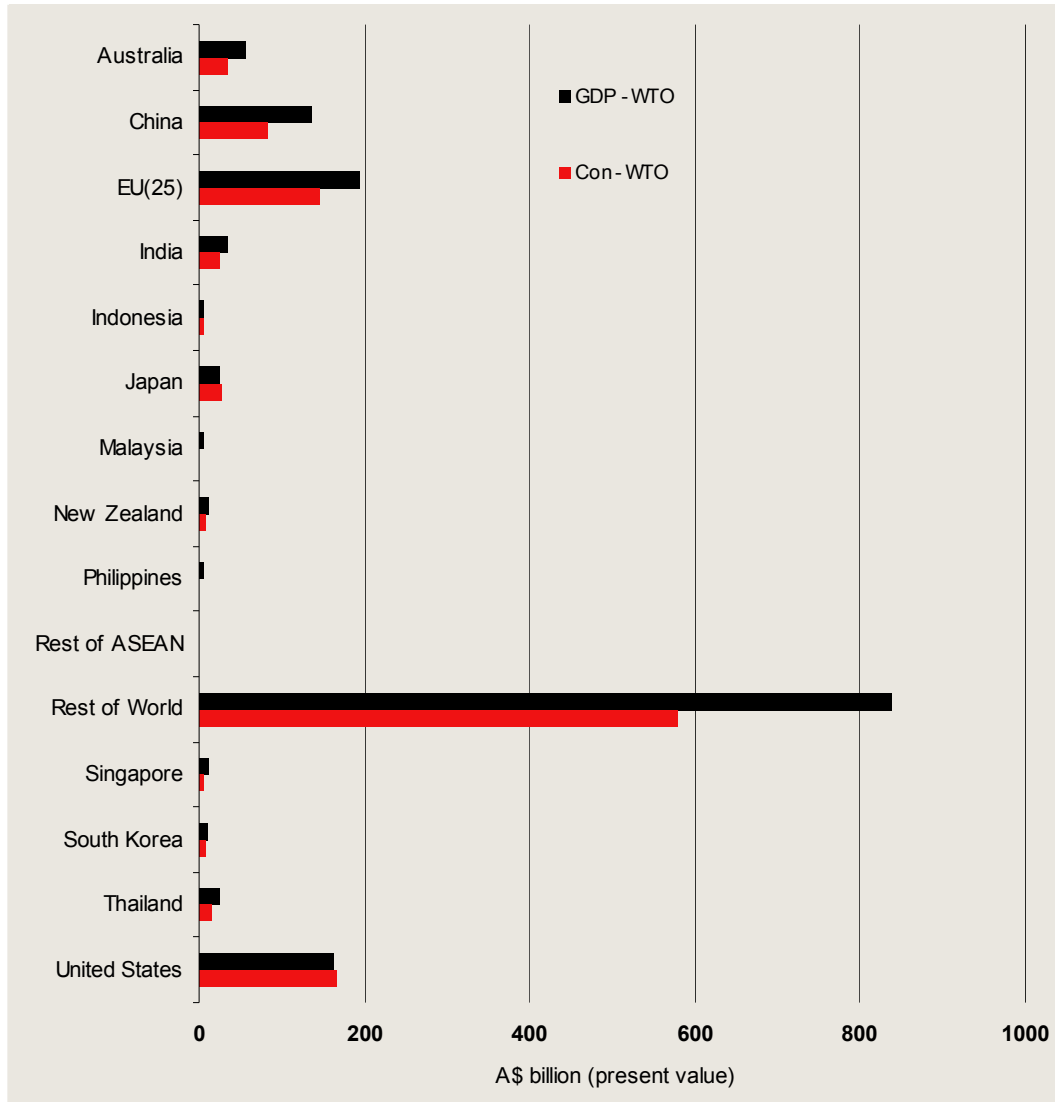
Data source: CIE-GCubed modelling simulation.

As the liberalisation simulated here is a limited version of the liberalisation simulated in chapter 6 (comprehensive Mode 1 and Mode 3 liberalisation), the GDP and consumption gains are likewise reduced. Indeed, the GDP gains reported in chart 7.5 are between 14 per cent (Japan) and 44 per cent (New Zealand) of the estimated GDP gains arising from comprehensive Mode 1 and Mode 3 liberalisation (compare charts 7.5 and 6.1).

Chart 7.6 reports the present value of GDP and consumption gains from the simulated WTO Mode 3 liberalisation. The cumulative increase in global GDP over 2011 to 2025 is estimated to be some A\$1.5 trillion, with consumption gains amounting to A\$1.1 trillion. Australia is estimated to capture around 4 per cent of the global GDP gains, versus the EU(25) which captures 13 per cent, the US which

captures 11 per cent, and China which captures 9 per cent. The Rest of World group is estimated to capture the majority of the global GDP gains (55 per cent).

7.6 Value of gains arising from one possible Mode 3 outcome^a over 2011–25



^a Over 2011 to 2025, expressed in 2010 present value dollar terms using a 5 per cent real discount rate.

Data source: CIE-GCubed modelling simulation.

Countries raise service barriers

In the final simulation all countries were assumed to raise their barriers to services traded via cross border supply and commercial presence by 10 per cent, with barriers being raised on 1 January 2011. This simulation has been undertaken to demonstrate the impacts had governments heeded the call to increase (service sector) protection in the wake of the Global Financial Crisis.

Note that barriers have been raised by 10 per cent. Hence if the barrier in a particular country was 20 per cent, it was raised to 22 per cent and so on. This saw the tariff equivalent of barriers to Mode 1 service exports being raised by up to 5 percentage points (depending on country/region), and up to 4 percentage points in the case of barriers to Mode 3 exports.

The economic impact of raising global barriers to service trade (via Modes 1 and 3) by 10 per cent is reported in table 7.7 (results are for year 2025). As can be seen, moving to a more protectionist environment is detrimental not only for imports, but also exports, investment (most countries/regions), household consumption and GDP. Hence raising service barriers would have made an already bad situation – the Global Financial Crisis and its aftermath – worse. It is estimated that global GDP would be around 0.1 per cent below baseline over 2011 to 2025 as a result of raising service barriers by a modest 10 per cent. The contraction in global GDP is equivalent to around A\$920 billion in present value terms, with the loss in global welfare (consumption) being some A\$522 billion in present value terms. Australian GDP is A\$15 billion lower (1.7 per cent of global losses), and consumption A\$10 billion lower (1.8 per cent of global losses).

Raising barriers to services delivered via cross border supply (Mode 1) will see a reduction in imports and also service exports (as all countries are assumed to raise their Mode 1 barriers). However, given the small share of Mode 1 trade in total trade, the contraction in imports and exports is likely to be driven by raising barriers to Mode 3 service trade. Increasing the cost of capital will see production costs rising and capital earning a lower return (in most countries), and therefore making those

7.7 Impact of raising global service barriers by 10 per cent 2025 deviation from baseline

<i>Country/region</i>	<i>Imports</i>	<i>Exports</i>	<i>Investment</i>	<i>Consumption</i>	<i>GDP</i>
	Per cent	Per cent	Per cent	Per cent	Per cent
Australia	-0.11	-0.11	-0.01	-0.10	-0.08
China	-0.10	-0.09	-0.04	-0.06	-0.05
EU(25)	-0.07	-0.07	-0.01	-0.03	-0.03
India	-0.10	-0.09	0.00	-0.04	-0.03
Indonesia	-0.16	-0.12	-0.01	-0.04	-0.02
Japan	-0.12	-0.10	-0.01	-0.03	-0.02
Malaysia	-0.21	-0.24	-0.07	-0.13	-0.16
New Zealand	-0.12	-0.02	-0.13	-0.17	-0.14
Philippines	-0.13	-0.13	-0.13	-0.10	-0.10
Rest of ASEAN	-0.16	-0.15	-0.10	-0.10	-0.09
Rest of World	-0.12	-0.15	0.03	-0.17	-0.14
Singapore	-0.10	-0.14	0.06	-0.13	-0.17
South Korea	-0.13	-0.12	-0.01	-0.04	-0.02
Thailand	-0.18	-0.21	-0.19	-0.22	-0.23
United States	-0.07	-0.04	0.03	-0.02	-0.01

Note: The change (from baseline) in imports and exports relates to the change in imports/exports as measured by the Balance of Payments approach, hence excludes Mode 3 exports and imports.

Source: CIEG-Cubed modelling simulation.

countries a less attractive destination for investment. As production costs rise exports are less competitive (especially those from capital intensive sectors), with a consequent decline in export performance.

Lower exports and investment is associated with increasing unemployment (or lower wages), which in turn sees household income falling. Lower disposable income combined with higher import and local production costs see household consumption falling. Falling exports, investment and household consumption combine to see a contraction in GDP.

8 *Implications of the findings*

The service sectors account for the majority of economic activity in developed economies, and are accounting for an ever larger share of activity in low and middle income economies. Given the importance of the service sectors to most modern economies, policy reform that impacts on the service sectors can have a substantial impact on national economic activity.

One potential area for such policy reform is the liberalisation of service trade. However, due to difficulties in, firstly, identifying and quantifying barriers to services trade, and secondly in estimating the economic impacts of service trade liberalisation, there is little knowledge of how important is service trade liberalisation to economic performance. One possible consequence of this has been that service liberalisation appears to have taken somewhat of a ‘back-seat’ to merchandise trade liberalisation over the last 10–20 years.

This is an unfortunate outcome, as the impost of barriers to service trade increases as the economic importance of the service sectors grow.

While the service sectors account for around 70–75 per cent of economic activity, not all service sectors will be able to directly export services. For example, and in case of Australia, the electricity, water and gas distribution sectors are unlikely to be ever able to directly export themselves. Even after making allowances for such ‘non-exportable’ services, the majority of economic activity in Australia only accounted for around 19 per cent of total trade in 2008 as measured by the Balance of Payments, or around 36 per cent of total trade if Mode 3 exports and imports are included. Similar figures are obtained in other comparable countries. For example, service trade accounted for around 21 per cent of total trade in the case of the remaining 29 OECD countries (as measured on a BoP basis).

While there are challenges in terms of the coverage and accuracy of service trade statistics, the service sectors do appear to be less trade intensive than do other areas of economic activity. One factor that may contribute to the apparent reduced intensity of service trade is the barriers encountered by that trade. And given the importance of the service sectors to the global economy, liberalisation of service trade may offers the potential to deliver substantial economic gains.

This was indeed demonstrated by the economic modelling:

- comprehensive overnight liberalisation of Mode 1 and Mode 3 barriers – global cumulative GDP gains over 2011–25 of A\$5.3 trillion (present value terms);

- phased liberalisation of developing country Mode 3 equity barriers – global cumulative GDP gains over 2011–25 of A\$1.2 trillion (present value terms);
- Australia's and other countries' WTO Mode 3 liberalisation requests are met – global cumulative GDP gains over 2011–25 of A\$1.5 trillion (present value terms); and
- global Mode 1 and Mode 3 barriers increased by 10 per cent – global cumulative GDP losses over 2011–25 of A\$920 billion (present value terms).

A key observation in all of these modelling simulations is that both developed and developing countries benefit from the service trade liberalisation. Indeed, in the comprehensive overnight liberalisation of Mode 1 and Mode 3 barriers simulation – which, given the magnitude of the potential gains available, should be the objective of all economies – developing countries actually stand to benefit more than the developed countries. Mode 1 and Mode 3 liberalisation sees developed economies experiencing an average GDP gain of 0.2 per cent in 2025, versus 0.9 per cent in the case of the developing countries.

In the more plausible simulation that saw modelling of one possible outcome of the Doha Round Mode 3 liberalisation negotiations, the same pattern was observed. Developed economies experienced an average GDP gain of 0.05 per cent in 2025, versus 0.26 per cent in the case of the developing countries. Given these findings, it is likely to be more in developing country interests to strongly pursue service trade liberalisation.

The modelling results also suggest that liberalisation of services delivered via Mode 3 has potential to deliver greater economic gains than does liberalisation of Mode 1 services (note that this may also reflect poor coverage of estimated barriers to Mode 1 service trade). However, and as noted in chapter 4, there is no comprehensive, multilateral agreement on investment in the WTO; although investment in services is covered indirectly (in the GATS) insofar as it relates to the supply of services through commercial presence (Mode 3). The slow progress in concluding the Doha Round is perhaps one reason why investment chapters are commonly found in regional trade agreements.

Most economists and policy makers would agree that global unilateral liberalisation or multilateral trade liberalisation (on an MFN basis through the WTO) is the ultimate objective. Anything else, such as regional trade agreement, reflects a 'second best' policy choice, although regional trade agreements can be much quicker to negotiate than multilateral liberalisation through the WTO.

If Mode 3 liberalisation is to be achieved through the WTO, then clearly WTO members should strive for a comprehensive and ambitious Doha Round outcome on services. The fact that developing countries benefit more from service trade liberalisation supports the Doha Development Agenda.

Finally, countries need to appreciate that service trade liberalisation, and especially FDI liberalisation, is not going to be a panacea for economic growth and development. FDI is influenced by the wider location offer, of which barriers to FDI are but one component. While liberalisation will see allocative efficiency and GDP gains, ideally, Mode 3 liberalisation would be accompanied by other microeconomic reforms targeted at improving the wider location offer. For example, improving the quality of infrastructure, improving the skills and education of the workforce, improving access to regional and export markets, improving transparency in decision making, eliminating sovereign risk and maintaining an open trade and investment regime.

Appendixes

A Modelling service exports delivered via commercial presence and FDI liberalisation

In the standard CIE-GCubed model each industry in each country uses a single industry-specific input of capital. No part of the model theory specifies how much of this capital is sourced from foreign direct investment (FDI) versus investment by domestic firms. In other words, the capital input of a particular industry is treated as a homogeneous item, in the same way as a commodity input such as ‘textiles’ is, although in reality it is a diverse set of goods.

Such treatment of a group of inputs as a single input item is, of course, common in computable general equilibrium (CGE) models, and is both necessary to keep such models computationally tractable and not detrimental to the quality of model output provided that sufficient sectoral detail is present.

However, if policies being analysed affect a subgroup of inputs that are part of what has been modelled as a single input, considerable effort can be invested by CGE modellers (in ‘calculating shares’, ‘scaling shocks’, ‘exogenously imposing external information’ etc) to attempt to produce a policy simulation that in the end is a bit rough to say the least – an unsatisfactory result for all stakeholders. Some disaggregation of the sectoral coverage of the model is required in such cases.

To adequately analyse policies restricting FDI there is, therefore, a need to disaggregate in some way the single capital input in CIE-GCubed into its domestic and foreign parts, and to further disaggregate the foreign part according to the country that is the source of the FDI (what is called the home country). The further disaggregation by home country is necessary for the analysis of regional trade agreements in which changes in restrictions against FDI for some subset of possible home countries is considered.

With the above issues in mind, the CIE-GCubed model was modified with the introduction of a ‘demand for the composition of capital’ function. That is, the standard CIE-GCubed equations determine the quantity of capital used by each industry, but the new equations determine the partitioning of this capital into domestic and foreign capital (the latter by home country). More formally, the capital input of each industry is represented as a cost minimising combination of domestic and foreign capital combined by a nested CES production function. At the top level

of the nest total capital is a CES combination of domestic and foreign capital. At the lower level of the nest foreign capital is a CES combination of foreign capital from each home country. The prices that determine the composition of total capital via this nested structure CES structure are the price equivalents of barriers to FDI (and domestic investment if there are some barriers imposed on it also).

The initial composition of capital is taken from data on FDI stocks. The price equivalents of (non-source specific) barriers to FDI, and the substitution elasticity in the top level (domestic versus foreign capital) CES function, are determined by calibrating the CES function using:

- data on FDI stocks by home (source) and host (destination) country/region;
- OECD and UNCTAD indices of barriers to FDI (at the economywide level);
- a statistical estimate of how the FDI to GDP ratio will change in response to a change in the barrier to FDI; and
- elasticities of capital with respect to the power of the ad-valorem tax on capital, derived by simulation using the standard CIE-GCubed model.

In essence, the FDI barrier indices are used, in conjunction with observed FDI positions and the statistical relationship between FDI barriers and the FDI to GDP ratio, to derive the required price impact on FDI to arrive at the observed FDI positions.

The substitution elasticity in the bottom level CES function is set at double the top value (following the convention used in models such as GTAP for substitutability between sources of commodities).

The FDI stocks data used in the calibration was compiled from FDI data sourced from UNCTAD and countries' statistical agencies. The stocks data covered the 15 countries/regions of the CIE-GCubed database (Australia, New Zealand, United States, Japan, South Korea, Indonesia, Malaysia, Philippines, Singapore, Thailand, Rest of ASEAN, China, India, EU(25) and Rest of World). For inclusion in the CIE-GCubed model, the home-host-specific FDI stocks data were disaggregated by sector, using OECD FDI stocks data by sector and host country, and data from the FTAP model version 2.7a.²⁹

The calibration procedure produces price impacts of barriers against FDI by host country. These are converted to sector-specific and FDI barrier type price impacts using restrictiveness indices compiled by the OECD and UNCTAD. The sector-specific price impacts are assigned values such that:

- they are proportional to the restrictiveness indices; and

²⁹ See <http://www.crawford.anu.edu.au/staff/pdee.php>.

- their capital stock-weighted average across all sectors equals the host country-specific price impact determined by calibration.

The capital stocks used in the weighting are total capital, not just FDI stocks. An FDI stock-weighting risks assigning a small weight to a high barrier, in a similar way to the use of import weights when aggregating tariffs.

For each sector in which the barriers against FDI are (fully or partially) rent-creating, the price impacts of the (rent-creating part of the) barriers are aggregated to a price impact on the total capital input of the industry using the nested CES structure. The initial levels of the barriers are used to calculate an initial price impact on the total capital of each industry. These initial price impacts are inserted into the CIE-GCubed database as an ad-valorem distortion associated with the total capital input of each industry, with the generated rent being returned to the home country. The ad-valorem distortions on the total capital inputs then vary during a policy simulation, again in line with the nested CES demand for capital by source, as barriers to FDI (in general or against particular home countries) are varied.

For cost-escalating barriers no adjustment is necessary to the CIE-GCubed database. Removal or reduction of these barriers is simulated as an improvement in the productivity of FDI capital (generally or for specific home countries) relative to domestic capital, leading to an overall improvement in the productivity of total capital (by sector).

The disposition of capital between domestic and foreign sources also allows a more detailed specification of foreign income flows than in the standard CIE-GCubed model.

In the standard CIE-GCubed model, returns to capital in each country accrue to the residents of that country. However, each country has some net foreign assets, determined by the accumulation of their past savings minus investment, which generate either foreign income inflows or outflows.

In the FDI extension to CIE-GCubed model, the treatment of returns to capital, net foreign assets and foreign income flows are altered as follows:

- residents of a country receive the returns to domestic capital in their country;
- they also receive returns to the stock of outward FDI hosted by other countries);
- they pay returns to other countries whose FDI they host (the stock of inward FDI); and
- they receive (pay) a foreign income inflow (outflow) at a world rate of return on their non-FDI net foreign assets, defined as:
 - total net foreign assets plus the asset value of FDI capital sourced by their country minus the asset value of FDI capital hosted in their country.

The total net foreign assets are (as in the standard CIE-GCubed) an accumulation of past savings minus investment.

Modelling FDI liberalisation sees a reduction in the derived price impact of the FDI barrier, for rent-creating barriers much in the same way a liberalisation of tariffs is modelled, and for cost-escalating barriers as a productivity improvement of foreign capital. The liberalisation sees FDI sourced from the partner country being lower cost (in terms of the required rate of return), with the host country moving to source its FDI from the now lower cost FDI home country (with the ability to switch capital sourced from one country to another limited by the model's capital adjustment cost parameter).

B Derived tax equivalents of barriers to inward FDI

The price impacts of barriers to inward FDI, expressed as ad valorem tax equivalents, for the 15 countries/regions identified in the CIE-GCubed model are reported in tables B.1 to B.8 below.

Note that screening barriers have been modelled as a rent creating barrier, while equity and operational restrictions have been modelled as a cost escalating barrier.

Note that as this study is focusing on the potential economic gains from liberalisation of services trade, only those FDI barriers (and their tax equivalents) in the service sectors are liberalised in the various modelling simulations (hence FDI barriers in the agricultural and manufacturing sectors remain in place).

B.1 Tax equivalents of barriers to inward FDI — Australia and China

<i>Sector</i>	<i>Australia</i>				<i>China</i>			
	<i>Equity</i>	<i>Screen</i>	<i>Oper.</i>	<i>Total</i>	<i>Equity</i>	<i>Screen</i>	<i>Oper.</i>	<i>Total</i>
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Agriculture	3.4	6.7	6.6	16.8	14.7	5.6	4.7	24.9
Manufacturing	0.0	6.0	6.0	12.0	15.4	6.1	3.1	24.6
Electricity	0.0	6.0	6.0	12.0	36.9	6.1	3.1	46.1
Gas	0.0	6.0	6.0	12.0	36.9	6.1	3.1	46.1
Water	0.0	6.0	6.0	12.0	36.9	6.1	3.1	46.1
Construction	0.0	6.0	6.0	12.0	0.0	6.1	3.1	9.2
Trade	0.0	6.0	6.0	12.0	18.4	6.1	3.1	27.7
Transport nec	0.0	6.0	6.0	12.0	0.0	6.1	3.1	9.2
Water transport	18.0	6.0	6.0	30.0	18.4	6.1	9.2	33.8
Air transport	21.0	6.0	12.0	38.9	18.4	6.1	9.2	33.8
Communication	22.5	6.0	6.0	34.4	23.0	6.1	3.1	32.3
Financial services	0.0	12.0	6.0	18.0	24.6	6.1	3.1	33.8
Insurance	0.0	6.0	6.0	12.0	12.3	6.1	3.1	21.5
Business services	0.0	6.0	7.5	13.5	3.8	3.1	7.3	14.2
Recreation	3.4	6.7	6.6	16.8	14.7	5.6	4.7	24.9
Government	3.4	6.7	6.6	16.8	14.7	5.6	4.7	24.9
Dwellings	3.4	6.7	6.6	16.8	14.7	5.6	4.7	24.9
Economywide	2.8	6.6	6.5	15.9	13.2	5.4	4.4	23.0

Source: CIE calculations.

B.2 Tax equivalents of barriers to inward FDI — EU(25) and India

Sector	EU(25)				India			
	Equity	Screen	Oper.	Total	Equity	Screen	Oper.	Total
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Agriculture	1.9	0.4	2.5	4.8	18.5	1.4	5.2	25.2
Manufacturing	0.6	0.2	1.5	2.3	6.3	0.0	6.3	12.5
Electricity	7.8	0.2	1.6	9.7	6.3	0.0	3.1	9.4
Gas	7.8	0.2	1.6	9.7	6.3	0.0	3.1	9.4
Water	7.8	0.2	1.6	9.7	6.3	0.0	3.1	9.4
Construction	0.0	0.2	1.3	1.6	12.5	0.0	3.1	15.7
Trade	0.0	0.2	1.4	1.6	25.1	6.3	6.3	37.6
Transport nec	0.6	0.6	1.7	2.9	0.0	0.0	3.1	3.1
Water transport	7.3	0.7	4.5	12.6	0.0	0.0	3.1	3.1
Air transport	8.6	0.7	7.0	16.3	18.8	0.0	15.7	34.5
Communication	0.3	1.6	3.8	5.6	12.5	6.3	3.1	22.0
Financial services	0.6	1.4	3.7	5.7	18.8	0.0	3.1	22.0
Insurance	0.7	0.7	4.3	5.7	25.1	0.0	3.1	28.2
Business services	1.4	0.2	2.0	3.6	47.1	3.1	3.9	54.1
Recreation	1.9	0.4	2.5	4.8	18.5	1.4	5.2	25.2
Government	1.9	0.4	2.5	4.8	18.5	1.4	5.2	25.2
Dwellings	1.9	0.4	2.5	4.8	18.5	1.4	5.2	25.2
Economy-wide	1.3	0.4	2.1	3.9	16.2	1.5	5.1	22.7

Source: CIE calculations.

B.3 Tax equivalents of barriers to inward FDI — Indonesia and Japan

Sector	Indonesia				Japan			
	Equity	Screen	Oper.	Total	Equity	Screen	Oper.	Total
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Agriculture	20.2	5.8	9.3	35.3	2.7	0.6	6.3	9.6
Manufacturing	20.2	5.8	9.3	35.3	0.0	0.0	2.4	2.4
Electricity	57.6	5.8	8.6	72.0	0.0	0.0	2.4	2.4
Gas	57.6	5.8	8.6	72.0	0.0	0.0	2.4	2.4
Water	57.6	5.8	8.6	72.0	0.0	0.0	2.4	2.4
Construction	23.0	5.8	10.1	38.9	0.0	0.0	2.4	2.4
Trade	5.8	5.8	8.6	20.1	0.0	0.0	2.4	2.4
Transport nec	23.0	5.8	8.6	37.4	0.0	0.0	2.4	2.4
Water transport	5.8	5.8	8.6	20.1	0.0	4.8	21.4	26.2
Air transport	23.0	5.8	8.6	37.4	38.1	4.8	21.4	64.3
Communication	23.0	5.8	8.6	37.4	14.9	0.0	6.1	21.0
Financial services	23.0	5.8	10.1	38.9	0.0	0.0	7.1	7.1
Insurance	0.0	5.8	14.4	20.1	0.0	0.0	2.4	2.4
Business services	43.2	5.8	10.8	59.7	0.0	0.0	6.0	6.0
Recreation	20.2	5.8	9.3	35.3	2.7	0.6	6.3	9.6
Government	17.3	5.8	8.6	31.7	2.7	0.6	6.3	9.6
Dwellings	20.2	5.8	9.3	35.3	2.7	0.6	6.3	9.6
Economy-wide	19.7	5.8	9.3	34.8	1.2	0.2	4.3	5.7

Source: CIE calculations.

B.4 Tax equivalents of barriers to inward FDI — South Korea and Malaysia

Sector	Korea (Republic of)				Malaysia			
	Equity	Screen	Oper.	Total	Equity	Screen	Oper.	Total
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Agriculture	3.9	0.0	4.2	8.1	17.3	5.2	5.4	27.9
Manufacturing	0.0	0.0	3.4	3.4	17.3	5.2	5.4	27.9
Electricity	23.7	0.0	3.4	27.1	52.0	5.2	5.2	62.4
Gas	23.7	0.0	3.4	27.1	52.0	5.2	5.2	62.4
Water	23.7	0.0	3.4	27.1	52.0	5.2	5.2	62.4
Construction	0.0	0.0	3.4	3.4	0.0	5.2	5.2	10.4
Trade	0.0	0.0	3.4	3.4	26.0	5.2	5.2	36.4
Transport nec	0.0	0.0	3.4	3.4	0.0	5.2	5.2	10.4
Water transport	20.3	0.0	10.1	30.4	26.0	5.2	5.2	36.4
Air transport	20.3	0.0	3.4	23.7	13.0	5.2	5.2	23.4
Communication	20.3	0.0	6.8	27.1	22.5	5.2	5.2	32.9
Financial services	0.0	0.0	3.4	3.4	10.4	5.2	5.2	20.8
Insurance	0.0	0.0	3.4	3.4	10.4	5.2	5.2	20.8
Business services	0.0	0.0	4.2	4.2	26.0	5.2	7.1	38.3
Recreation	3.9	0.0	4.2	8.1	17.3	5.2	5.4	27.9
Government	3.9	0.0	4.2	8.1	0.0	3.5	3.5	6.9
Dwellings	3.9	0.0	4.2	8.1	17.3	5.2	5.4	27.9
Economy-wide	3.1	0.0	3.7	6.8	19.9	5.2	5.4	30.4

Source: CIE calculations.

B.5 Tax equivalents of barriers to inward FDI — New Zealand and the Philippines

Sector	New Zealand				Philippines			
	Equity	Screen	Oper.	Total	Equity	Screen	Oper.	Total
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Agriculture	1.4	5.8	2.7	9.9	24.9	1.8	11.8	38.5
Manufacturing	0.0	5.8	1.5	7.3	24.9	1.8	11.8	38.5
Electricity	5.8	5.8	1.5	13.1	22.3	5.6	11.2	39.1
Gas	5.8	5.8	1.5	13.1	22.3	5.6	11.2	39.1
Water	5.8	5.8	1.5	13.1	22.3	5.6	11.2	39.1
Construction	0.0	5.8	1.5	7.3	27.9	0.0	11.2	39.1
Trade	0.0	5.8	1.5	7.3	5.6	0.0	11.2	16.8
Transport nec	0.0	5.8	1.5	7.3	22.3	5.6	11.2	39.1
Water transport	0.0	5.8	7.3	13.1	22.3	0.0	11.2	33.5
Air transport	14.5	5.8	13.1	33.4	22.3	5.6	11.2	39.1
Communication	11.1	5.8	5.8	22.8	33.5	0.0	11.2	44.7
Financial services	0.0	5.8	1.5	7.3	11.2	11.2	16.8	39.1
Insurance	0.0	5.8	1.5	7.3	0.0	11.2	16.8	27.9
Business services	0.0	5.8	1.5	7.3	41.9	0.0	11.2	53.0
Recreation	1.4	5.8	2.7	9.9	24.9	1.8	11.8	38.5
Government	1.4	5.8	2.7	9.9	44.7	0.0	11.2	55.8
Dwellings	1.4	5.8	2.7	9.9	24.9	1.8	11.8	38.5
Economy-wide	1.5	5.8	2.3	9.6	25.4	2.0	11.8	39.1

Source: CIE calculations.

B.6 Tax equivalents of barriers to inward FDI — Rest of ASEAN and Rest of World

Sector	Rest of ASEAN				Rest of World			
	Equity	Screen	Oper.	Total	Equity	Screen	Oper.	Total
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Agriculture	23.1	3.2	6.7	32.9	5.9	3.4	9.3	18.5
Manufacturing	23.1	3.2	6.7	32.9	0.4	3.6	6.8	10.8
Electricity	52.0	5.8	6.2	64.0	16.7	5.0	7.5	29.2
Gas	52.0	5.8	6.2	64.0	16.7	5.0	7.5	29.2
Water	52.0	5.8	6.2	64.0	16.7	5.0	7.5	29.2
Construction	22.4	1.7	9.1	33.3	0.4	1.5	8.0	9.9
Trade	19.5	1.2	4.8	25.5	0.8	2.3	6.9	10.0
Transport nec	15.1	2.4	4.8	22.4	3.4	5.4	10.4	19.3
Water transport	19.4	2.7	6.3	28.5	22.0	1.8	13.9	37.8
Air transport	21.9	1.4	3.9	27.2	22.0	3.9	14.3	40.2
Communication	26.9	4.1	6.1	37.0	16.2	4.6	8.7	29.5
Financial services	21.0	6.3	9.5	36.8	3.2	3.9	12.4	19.5
Insurance	19.8	6.8	6.7	33.2	2.5	4.2	13.3	20.0
Business services	29.1	1.7	8.3	39.1	2.1	1.4	9.2	12.7
Recreation	23.1	3.2	6.7	32.9	5.9	3.4	9.3	18.5
Government	23.0	2.1	6.1	31.3	5.9	3.4	9.3	18.5
Dwellings	23.1	3.2	6.7	32.9	5.9	3.4	9.3	18.5
Economy-wide	23.9	3.0	6.6	33.5	4.1	3.3	8.5	15.9

Source: CIE calculations.

B.7 Tax equivalents of barriers to inward FDI — Singapore and Thailand

Sector	Singapore				Thailand			
	Equity	Screen	Oper.	Total	Equity	Screen	Oper.	Total
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Agriculture	3.2	1.0	6.3	10.5	25.7	1.3	4.4	31.4
Manufacturing	0.6	0.0	2.5	3.1	25.7	1.3	4.4	31.4
Electricity	1.2	0.0	2.6	3.8	59.7	6.0	3.0	68.6
Gas	1.2	0.0	2.6	3.8	59.7	6.0	3.0	68.6
Water	1.2	0.0	2.6	3.8	59.7	6.0	3.0	68.6
Construction	0.0	0.0	2.5	2.5	23.9	0.0	8.9	32.8
Trade	0.0	0.0	2.5	2.5	23.9	0.0	3.0	26.8
Transport nec	0.0	0.0	2.5	2.5	11.9	0.0	1.5	13.4
Water transport	0.5	6.2	20.3	27.0	23.9	0.0	3.0	26.8
Air transport	31.2	5.2	18.7	55.2	23.9	0.0	3.0	26.8
Communication	12.4	3.2	7.0	22.6	27.8	4.0	3.0	34.8
Financial services	0.6	1.0	8.0	9.6	23.9	6.0	8.9	38.8
Insurance	0.1	0.2	2.8	3.1	29.8	6.0	3.0	38.8
Business services	1.8	0.0	4.6	6.4	23.9	0.0	7.5	31.3
Recreation	3.2	1.0	6.3	10.5	25.7	1.3	4.4	31.4
Government	3.2	1.0	6.3	10.5	23.9	0.0	3.0	26.8
Dwellings	3.2	1.0	6.3	10.5	25.7	1.3	4.4	31.4
Economy-wide	1.6	0.4	3.9	5.9	24.5	0.9	4.4	29.8

Source: CIE calculations.

B.8 Tax equivalents of barriers to inward FDI — United States

<i>Sector</i>	<i>United States</i>							
	<i>Equity</i>	<i>Screen</i>	<i>Oper.</i>	<i>Total</i>	<i>Equity</i>	<i>Screen</i>	<i>Oper.</i>	<i>Total</i>
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Agriculture	2.6	0.0	7.9	10.5				
Manufacturing	0.0	0.0	2.2	2.2				
Electricity	0.0	0.0	11.1	11.1				
Gas	0.0	0.0	11.1	11.1				
Water	0.0	0.0	11.1	11.1				
Construction	0.0	0.0	2.2	2.2				
Trade	0.0	0.0	2.2	2.2				
Transport nec	0.0	0.0	2.2	2.2				
Water transport	8.8	0.0	15.5	24.3				
Air transport	35.4	0.0	22.1	57.5				
Communication	0.0	0.0	2.2	2.2				
Financial services	0.0	0.0	24.3	24.3				
Insurance	0.0	0.0	15.5	15.5				
Business services	0.0	0.0	3.3	3.3				
Recreation	2.6	0.0	7.9	10.5				
Government	2.6	0.0	7.9	10.5				
Dwellings	2.6	0.0	7.9	10.5				
Economy-wide	1.2	0.0	5.5	6.7				

Source: CIE calculations.

C Detailed modelling results

A time series (over 2010-25) of detailed modelling results from the main modelling simulation (comprehensive overnight liberalisation of all Mode 1 and Mode 3 barriers) are reported for all countries/regions identified in the CIE-GCubed model for the (select) variables of real GDP, real consumption, employment and wages in tables C.1 to C.8 below.

C.1 Main simulation detailed results — Australia and China

<i>Year</i>	<i>Australia</i>				<i>China</i>			
	<i>GDP</i>	<i>Con.</i>	<i>Employ.</i>	<i>Wages</i>	<i>GDP</i>	<i>Con.</i>	<i>Employ.</i>	<i>Wages</i>
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.84	0.64	0.46	0.67	0.49	0.67	0.27	0.56
2012	1.13	1.21	0.89	0.96	0.61	0.70	0.50	0.32
2013	1.29	1.32	1.09	0.86	0.54	0.65	0.34	0.49
2014	1.28	1.31	0.96	1.14	0.52	0.64	0.26	0.59
2015	1.24	1.30	0.80	1.42	0.50	0.63	0.19	0.68
2016	1.20	1.28	0.65	1.66	0.48	0.62	0.13	0.75
2017	1.16	1.26	0.52	1.85	0.48	0.61	0.09	0.81
2018	1.12	1.24	0.41	2.00	0.48	0.61	0.06	0.84
2019	1.07	1.21	0.30	2.11	0.48	0.61	0.05	0.87
2020	1.02	1.17	0.21	2.19	0.48	0.60	0.04	0.89
2021	0.97	1.14	0.13	2.25	0.49	0.60	0.03	0.91
2022	0.92	1.10	0.07	2.28	0.50	0.61	0.03	0.93
2023	0.88	1.07	0.01	2.29	0.51	0.61	0.03	0.94
2024	0.85	1.04	-0.03	2.29	0.52	0.61	0.03	0.95
2025	0.81	1.01	-0.06	2.27	0.52	0.61	0.03	0.96

Source: CIE-GCubed modelling simulation.

C.2 Main simulation detailed results — EU(25) and India

Year	EU(25)				India			
	GDP	Con.	Employ.	Wages	GDP	Con.	Employ.	Wages
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.29	0.39	0.14	0.53	0.40	0.39	0.21	0.28
2012	0.38	0.43	0.28	0.30	0.48	0.51	0.36	0.24
2013	0.37	0.41	0.24	0.37	0.48	0.51	0.34	0.26
2014	0.36	0.41	0.20	0.43	0.43	0.48	0.25	0.34
2015	0.34	0.40	0.16	0.50	0.39	0.45	0.16	0.43
2016	0.33	0.40	0.13	0.56	0.35	0.43	0.09	0.49
2017	0.32	0.39	0.10	0.61	0.32	0.41	0.04	0.53
2018	0.31	0.38	0.08	0.65	0.30	0.40	0.01	0.56
2019	0.30	0.37	0.06	0.68	0.29	0.39	0.00	0.57
2020	0.30	0.37	0.04	0.70	0.28	0.38	-0.01	0.57
2021	0.29	0.36	0.03	0.71	0.28	0.38	-0.01	0.57
2022	0.29	0.35	0.02	0.72	0.28	0.38	-0.01	0.57
2023	0.28	0.35	0.01	0.73	0.28	0.37	-0.01	0.56
2024	0.28	0.34	0.01	0.73	0.28	0.37	-0.01	0.56
2025	0.27	0.33	0.00	0.73	0.28	0.37	-0.01	0.55

Source: CIE-GCubed modelling simulation.

C.3 Main simulation detailed results — Indonesia and Japan

Year	Indonesia				Japan			
	GDP	Con.	Employ.	Wages	GDP	Con.	Employ.	Wages
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.31	0.48	0.17	0.40	0.14	0.19	-0.01	0.14
2012	0.38	0.52	0.32	0.25	0.22	0.33	0.12	0.18
2013	0.36	0.50	0.27	0.32	0.26	0.35	0.19	0.10
2014	0.35	0.49	0.20	0.40	0.27	0.36	0.18	0.13
2015	0.32	0.47	0.14	0.47	0.27	0.36	0.17	0.19
2016	0.30	0.46	0.09	0.52	0.27	0.36	0.15	0.24
2017	0.29	0.45	0.06	0.55	0.27	0.37	0.13	0.29
2018	0.27	0.44	0.03	0.57	0.27	0.37	0.12	0.34
2019	0.26	0.42	0.01	0.58	0.27	0.36	0.10	0.38
2020	0.24	0.41	-0.01	0.58	0.26	0.36	0.08	0.41
2021	0.24	0.40	-0.02	0.58	0.26	0.35	0.07	0.43
2022	0.23	0.39	-0.03	0.57	0.25	0.35	0.05	0.45
2023	0.22	0.38	-0.03	0.56	0.24	0.34	0.04	0.47
2024	0.22	0.38	-0.03	0.55	0.23	0.33	0.03	0.48
2025	0.21	0.37	-0.03	0.54	0.22	0.32	0.01	0.48

Source: CIE-GCubed modelling simulation.

C.4 Main simulation detailed results — South Korea and Malaysia

Year	South Korea				Malaysia			
	GDP	Con.	Employ.	Wages	GDP	Con.	Employ.	Wages
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.18	0.27	0.10	0.09	1.55	1.40	0.51	1.23
2012	0.25	0.40	0.21	0.18	1.75	1.46	0.87	0.77
2013	0.29	0.42	0.25	0.17	1.72	1.43	0.71	1.02
2014	0.29	0.43	0.24	0.24	1.68	1.42	0.56	1.26
2015	0.29	0.43	0.21	0.32	1.65	1.41	0.44	1.46
2016	0.29	0.43	0.18	0.39	1.64	1.40	0.35	1.61
2017	0.29	0.43	0.16	0.45	1.63	1.39	0.28	1.74
2018	0.29	0.42	0.14	0.50	1.62	1.38	0.22	1.83
2019	0.28	0.42	0.12	0.54	1.62	1.37	0.18	1.91
2020	0.28	0.41	0.10	0.58	1.61	1.37	0.14	1.97
2021	0.27	0.40	0.08	0.61	1.61	1.36	0.12	2.02
2022	0.27	0.40	0.06	0.63	1.60	1.35	0.09	2.06
2023	0.26	0.39	0.05	0.65	1.60	1.35	0.07	2.09
2024	0.26	0.38	0.04	0.67	1.60	1.35	0.06	2.12
2025	0.25	0.37	0.02	0.68	1.59	1.34	0.04	2.14

Source: CIE-GCubed modelling simulation.

C.5 Main simulation detailed results — New Zealand and the Philippines

Year	New Zealand				Philippines			
	GDP	Con.	Employ.	Wages	GDP	Con.	Employ.	Wages
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.87	1.07	0.37	0.90	0.74	0.81	0.37	0.79
2012	1.24	1.60	0.92	1.03	0.86	0.97	0.71	0.64
2013	1.47	1.76	1.16	0.93	0.88	0.97	0.65	0.74
2014	1.53	1.81	1.09	1.24	0.87	0.95	0.51	0.94
2015	1.58	1.84	0.99	1.57	0.87	0.94	0.41	1.11
2016	1.60	1.87	0.89	1.87	0.88	0.94	0.33	1.25
2017	1.62	1.89	0.79	2.15	0.89	0.94	0.27	1.37
2018	1.62	1.89	0.68	2.39	0.91	0.95	0.23	1.47
2019	1.60	1.88	0.57	2.58	0.92	0.95	0.19	1.55
2020	1.56	1.86	0.47	2.75	0.94	0.95	0.17	1.62
2021	1.53	1.83	0.37	2.88	0.96	0.96	0.15	1.68
2022	1.48	1.79	0.27	2.98	0.98	0.96	0.13	1.73
2023	1.44	1.75	0.19	3.05	0.99	0.96	0.12	1.78
2024	1.39	1.72	0.12	3.09	1.01	0.96	0.10	1.82
2025	1.35	1.68	0.06	3.12	1.02	0.97	0.09	1.86

Source: CIE-GCubed modelling simulation.

C.6 Main simulation detailed results — Rest of ASEAN and Rest of World

<i>Year</i>								
	<i>GDP</i>	<i>Con.</i>	<i>Employ.</i>	<i>Wages</i>	<i>GDP</i>	<i>Con.</i>	<i>Employ.</i>	<i>Wages</i>
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.71	0.66	0.35	0.77	1.89	1.95	1.20	1.83
2012	0.84	1.03	0.64	1.01	2.18	2.25	1.73	1.55
2013	0.93	1.08	0.78	0.96	2.09	2.18	1.47	1.91
2014	0.92	1.07	0.66	1.19	1.94	2.06	1.11	2.35
2015	0.92	1.06	0.54	1.42	1.82	1.96	0.81	2.71
2016	0.91	1.06	0.44	1.60	1.72	1.89	0.58	2.97
2017	0.92	1.05	0.37	1.75	1.64	1.84	0.41	3.15
2018	0.92	1.05	0.30	1.88	1.58	1.80	0.29	3.28
2019	0.93	1.05	0.25	1.98	1.53	1.77	0.19	3.37
2020	0.93	1.05	0.21	2.07	1.49	1.74	0.12	3.42
2021	0.93	1.04	0.18	2.14	1.45	1.72	0.06	3.45
2022	0.94	1.04	0.15	2.20	1.42	1.70	0.02	3.47
2023	0.94	1.04	0.12	2.25	1.40	1.68	-0.01	3.47
2024	0.95	1.03	0.10	2.29	1.37	1.67	-0.03	3.46
2025	0.95	1.03	0.09	2.33	1.36	1.66	-0.04	3.45

Source: CIE-GCubed modelling simulation.

C.7 Main simulation detailed results — Singapore and Thailand

<i>Year</i>	<i>Singapore</i>				<i>Thailand</i>			
	<i>GDP</i>	<i>Con.</i>	<i>Employ.</i>	<i>Wages</i>	<i>GDP</i>	<i>Con.</i>	<i>Employ.</i>	<i>Wages</i>
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	2.40	0.87	1.07	0.73	1.85	1.75	1.15	1.71
2012	2.67	1.82	1.52	1.18	2.06	2.09	1.65	1.45
2013	2.71	1.83	1.60	1.03	2.10	2.11	1.52	1.77
2014	2.55	1.77	1.27	1.50	2.10	2.11	1.27	2.25
2015	2.39	1.69	0.95	1.94	2.12	2.12	1.07	2.67
2016	2.25	1.62	0.70	2.30	2.14	2.13	0.91	3.02
2017	2.14	1.56	0.50	2.55	2.17	2.14	0.78	3.32
2018	2.04	1.50	0.34	2.75	2.20	2.15	0.67	3.58
2019	1.95	1.46	0.22	2.88	2.22	2.16	0.58	3.80
2020	1.88	1.42	0.13	2.97	2.25	2.17	0.50	3.99
2021	1.82	1.39	0.06	3.02	2.27	2.18	0.44	4.16
2022	1.78	1.37	0.01	3.04	2.29	2.18	0.38	4.30
2023	1.74	1.36	-0.02	3.06	2.31	2.19	0.33	4.43
2024	1.70	1.35	-0.05	3.05	2.33	2.20	0.29	4.54
2025	1.68	1.34	-0.06	3.04	2.34	2.20	0.26	4.64

Source: CIE-GCubed modelling simulation.

C.8 Main simulation detailed results — United States

<i>Year</i>	<i>United States</i>							
	<i>GDP</i>	<i>Con.</i>	<i>Employ.</i>	<i>Wages</i>	<i>GDP</i>	<i>Con.</i>	<i>Employ.</i>	<i>Wages</i>
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
2010	0.00	0.00	0.00	0.00				
2011	0.34	0.36	0.18	0.34				
2012	0.44	0.49	0.33	0.33				
2013	0.46	0.51	0.36	0.25				
2014	0.40	0.45	0.26	0.33				
2015	0.32	0.39	0.15	0.42				
2016	0.25	0.35	0.06	0.49				
2017	0.20	0.31	0.00	0.53				
2018	0.16	0.28	-0.04	0.54				
2019	0.13	0.26	-0.06	0.54				
2020	0.12	0.25	-0.07	0.53				
2021	0.11	0.24	-0.07	0.51				
2022	0.10	0.24	-0.07	0.49				
2023	0.10	0.24	-0.06	0.47				
2024	0.10	0.23	-0.05	0.45				
2025	0.11	0.23	-0.04	0.43				

Source: CIE-GCubed modelling simulation.