

Asia-Pacific Economic Cooperation



Enhancing Investment Liberalisation and Facilitation in the Asia-Pacific Region (Stage 1): Reducing Barriers to Investment across APEC to Lift Growth and Lower Poverty

> Investment Experts Group





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Foreword

Investment across APEC economies is a vital source of economic growth. This growth in turn is the biggest single contributor to the reduction of poverty across the region.

The Investment Experts Group within APEC was set up in 1994 to enhance and facilitate investment within APEC economies. One issue restricting the amount of investment is the various barriers that block or impose costs on potential investors, needlessly restricting their willingness to invest. These barriers can be restrictions at the border to foreign direct investment or they can be behind-the-border restrictions that affect both foreign and domestic investment alike.

This Stage 1 report focuses on the border restrictions to foreign direct investment. It suggests that if these barriers were removed to the levels of the least restrictive APEC member, substantial economic growth and poverty reduction would result.

A subsequent Stage 2 report is now underway to address the second issue – behind-the-border barriers to both foreign and domestic investment. This study was undertaken on behalf of the Australian Treasury for the APEC Secretariat by the Centre for International Economics based in Canberra.

Dr Andrew Stoeckel Executive Director Centre for International Economics

1

Introduction

Investment is critical to the growth and development of all Asia-Pacific Economic Cooperation (APEC) economies, but the policy and institutional environment for investment remains an area for continued improvement. The importance of the investment environment for developing APEC economies was made only too clear by the Asian financial crisis. Investment had been a key driver of the economic growth of East Asian economies over the 1980s and 1990s. High investment rates influenced by perceptions of low risk and high returns built capital that led to growth. Great advances were made in reducing poverty and improving social outcomes in areas like health and education. But Asian members of APEC suffered severe economic and institutional environments of many developing APEC economies were not conducive to sustained flows of investment.

A number of factors generate a good investment climate and economic growth, including a sound macroeconomic framework consisting of prudent fiscal and monetary policies and flexible exchange rates. Other factors include strong domestic institutions, good governance, enforced property rights and the rule of law, and a quality regulatory framework. These factors can generate economic gains by boosting investment and, more importantly, ensuring quality investment.

Recognising both that investment is pivotal to economic growth and growth to poverty reduction and that investment and trade are strongly linked, APEC commissioned this study to examine investment in the APEC region and how it might be enhanced.

Investment comes in a number of forms. All forms must be sourced from either foreign or domestic savings. Investment sourced from foreign savings is called foreign investment and can be either foreign direct investment (FDI) or portfolio investment. FDI is particularly important because it can bring technology and management best practice to developing economies and can generate productivity spillovers for the local economy. Despite these benefits, many economies retain barriers aimed at restricting and controlling the sectors in which foreign investment can locate. Generally, these direct barriers are highest in low-income economies.

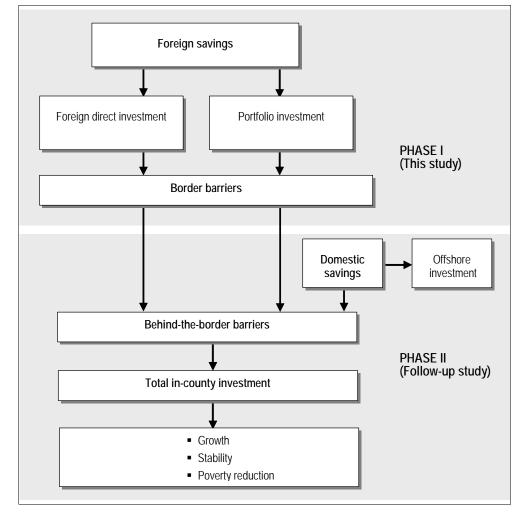
Foreign investment decisions are also influenced by incentives created by barriers other than those at the border. Behind-the-border barriers come in many forms, including poor governance and regulation, poorly designed taxes, inflexible labour markets, barriers to competition, corruption, and poorly defined and hard to enforce property rights. Behind-the-border barriers are particularly important as they may obstruct additional investment flows even if impediments to FDI at the border are removed.

Domestic investment sourced from domestic savings accounts for the vast majority of investment within APEC economies. Behind-the-border barriers are faced by domestic investors too, and they serve as a major impediment to mobilising domestic savings. Both external and internal barriers are important to unlocking the investment potential in a country. Chart 1.1 shows how they impact on foreign and domestic savings and investment.

Analysis still needs to be done on the extent and impact of barriers to investment. Big knowledge gaps in the measurement of barriers to FDI remain; this is even more so for quantifying the effects of barriers and the gains from removing them. The impact of these barriers may depend on domestic policies and macroeconomic settings. International work has begun on measuring behind-the-border barriers, but understanding what these barriers are is only the first stage. More important is what can be done to remove these barriers.

As the first phase of a larger study examining the whole policy and institutional environment for investment in APEC economies, this report examines the first set of barriers, namely, barriers to foreign investment flows at the border. Barriers to FDI are looked at in particular because of FDI's potential to boost productivity. The second phase of this study looks at the broader issues of behind-the-border barriers to investment stemming from inadequate institutional and policy environments, which can be more important than formal border barriers to foreign investment.

Chapter 2 of this report discusses the role of investment in economic development. Chapters 3 and 4 outline current barriers to FDI within the APEC region and the potential impacts of lowering these barriers. Finally, chapter 5 discusses the crucial role that reducing behind-the-border barriers has in boosting investment, economic growth and welfare as a prelude to the Phase II study.



1.1 This study in context

2

Investment and FDI drives growth and reduces poverty

Reducing poverty and improving welfare in developing economies is one of the pressing economic and moral issues of our time. It is also a pressing issue for APEC. More than half of all APEC members are classified as either low or middle-income economies. In 2000, over 250 million people in APEC economies lived on less that US\$1 per day (World Bank 2006).

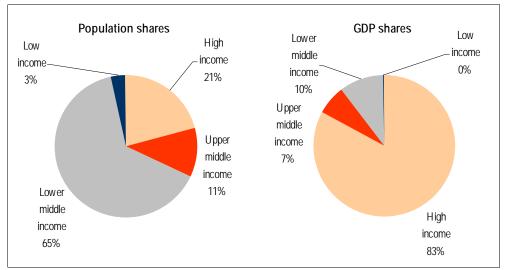
The most effective way to reduce poverty and improve welfare is to increase economic growth. Economic growth in turn is largely driven by investment and by domestic policies that create a good investment climate. Recognising this, the World Bank devoted its entire 2005 World Development Report to issues relating to investment and growth (World Bank 2005). The World Bank report showed that the extent to which people and economies can invest in their future is largely determined by an economy's legal institutions and economic policies.

This chapter outlines the links between investment (both domestic and foreign), growth and poverty reduction. It also explores the role, composition and importance of investment within the APEC region in achieving economic and social outcomes.

Growth drives poverty reduction and social improvements

APEC economies differ markedly in their levels of income and poverty and in their performance against other indicators of welfare. Eleven of the twenty-one APEC members are considered to be middle or low-income economies. These economies comprise 79 per cent of people in the APEC region, yet account for only 17.2 per cent of APEC's gross domestic product (GDP) (chart 2.1).

Economic growth is the most important contributor to lowering poverty and improving welfare. Numerous studies find a strong positive link between increasing income and lowering poverty (World Bank 2005, Dollar and Kraay 2002, Klein et al 2001). Broad-based growth accounts for up to 90 per cent of the reduction in poverty according to the World Bank (2005).



2.1 APEC population and GDP shares by level of development (2004)

Source: APEC (2005).

The rapid reduction in absolute poverty in China over the last 30 years, for example, is attributable to increased growth driven by improvements in the investment climate (World Bank 2005).

Economic growth tends to lift the incomes of the poor proportionately to overall growth (Dollar and Kraay 2002, Klein et al 2001, Adams 2003). The 2004 World Development Report found that a one per cent increase in per capita income was associated with a 1.2 per cent decrease in absolute poverty (usually defined as living on less than US\$1 per day) in East Asia during the 1990s (World Bank 2004). Other studies estimate that a one per cent increase in growth can reduce absolute poverty by as much as 2.6 per cent (Adams 2003).

The impact of economic growth is not limited to the income dimension of poverty; growth is also a crucial factor in improving a range of other poverty measures, such as education and health outcomes. Increasing per capita income by one per cent demonstrated a 0.6 per cent increase in the primary completion rate of schooling and a 0.5 per cent fall in the under five mortality rate in East Asia (World Bank 2004).

Other channels used to target education and health outcomes, such as increased public spending, are not as effective. While the World Bank found a strong link between per capita GDP and health and education outcomes, only a weak link was found between public spending on education and health and outcomes in these areas (World Bank 2004).

Income has risen and poverty has fallen in APEC

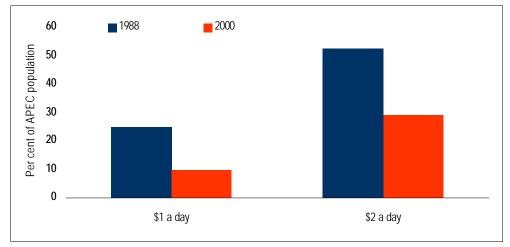
Poverty has fallen markedly within APEC over the last decade or so. The proportion of the population of APEC economies living on less than US\$1 per day declined from 25 per cent in 1990 to 10 per cent in 2000 (chart 2.2). At the same time, real GDP between 1989 and 2004 grew by 218 per cent in low-income economies and 55 per cent in APEC as a whole. This alone has moved almost 300 million people above the poverty line, mostly in China.

APEC has improved in other measures of development

According to the United Nations' Human Development Index (HDI), all APEC economies for which data are available have improved their level of development over the past three decades. The HDI measures achievements in an economy across social, political and educational dimensions of human development.

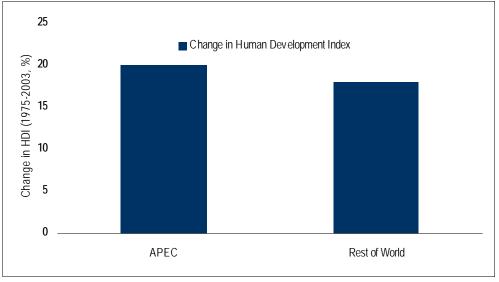
Low-income APEC economies improved their HDI measures by over 44 per cent between 1975 and 2003. On a broader scale, APEC economies advanced slightly faster than the world as a whole (chart 2.3).

More basic measures of welfare, such as health standards and educational access, have also improved with rising income levels across APEC (table 2.4) (CIE 2004).



2.2 Poverty rates have fallen across APEC

Source: World Bank (2005).



2.3 APEC economies have developed (1975 to 2003)

Source: UNDP (2006).

APEC member	Real GDP per person	Life expectancy at birth	Infant mortality	Adult literacy rate
	% change	% change	% change	% change
Australia	37.9	3.8	-42.5	
Canada	28.1	3.1	-23.5	
Chile	76.6	5.9	-55.3	1.9
China	237.8	3.7	-31.6	16.1
Hong Kong, China	47.4	5.7		
Indonesia	48.0	9.2	-50.7	9.2
Japan	15.5	3.8	-34.8	
Malaysia	68.4	4.5	-36.3	9.9
Mexico	20.2	6.1	-38.9	3.7
New Zealand	31.5	5.1	-36.1	
Papua New Guinea	16.1	7.0	-7.6	
Peru	33.3	7.0	-59.7	5.1
Philippines	17.9	7.8	-36.6	1.0
Korea, Republic of	92.8	8.2	-36.3	
Russia	-12.2	-5.4	-25.7	0.3
Singapore	67.8	6.7	-61.2	4.2
Thailand	62.2	3.4	-41.3	0.3
United States	29.7	2.9	-28.7	
Viet Nam	121.3	8.5	-54.2	-0.1

2.4 Income increases are linked to improved welfare (1990 to 2004)

Note: Blank cells indicate there is no data available. Adult literacy rates are not available for most developed economies from the World Bank, but percentage changes will be close to zero. Source: World Bank (2006).

There is still a way to go in meeting the Millennium Development Goals

The APEC region is moving towards its Millennium Development Goals, a set of eight goals designed to focus international development efforts on

the major challenges facing developing economies (box 2.5). These goals cover issues of poverty and hunger, education, gender equality, child and maternal mortality, health and the environment.

Although APEC economies have made considerable progress towards achieving the Millennium Development Goals, there is still a long way to go towards achieving the eight targets. APEC's successes to date include:

- reducing the proportion of its population living on less than \$1 a day by approximately 60 per cent since 1990;
- achieving near universal male and female primary education in nearly every economy;
- reducing the gap between male and female literacy rates; and
- reducing the under five mortality rate by approximately one third since 1990.

The World Bank (Klein et al 2001) has argued that future economic growth will be a necessary condition to achieving the Millennium Development Goals.

Investment is the key driver of economic growth

The 2005 World Development Report noted that 'the investment climate is central to growth and poverty reduction' (World Bank 2005, p 1). This section discusses types of investment and how they allow an economy to grow.

Types of investment

Investment comes in many forms and from many sources. Each form can contribute to growth in different ways. The three main types of investment are outlined below.

- Domestic investment: private and public domestic investment sourced from domestic savings within an economy.
- Foreign direct investment (FDI): financing from outside the economy (from foreigners) where foreigners have some level of control over business activities.
- Foreign portfolio investment: financing from outside the economy (from foreigners), comprising loans from foreigners and investments that do not give foreigners a level of control over the business.

2.5 The Millennium Development Goals to be reached by 2015

In 2000, representatives of 189 countries signed and adopted the Millennium Declaration. This declaration includes the set of development goals outlined below.

Eradicate extreme poverty and hunger

- Halve the proportion of people living on less than one dollar a day
- Halve the proportion of people who suffer from hunger

Achieve universal primary education

Ensure that boys and girls alike complete primary schooling

Promote gender equality and empower women

Eliminate gender disparity at all levels of education

Reduce child mortality

Reduce by two-thirds the under-five mortality rate

Improve maternal health

Reduce by three-quarters the maternal mortality ratio

Combat HIV/AIDS, malaria and other diseases

- Halt and begin to reverse the spread of HIV/AIDS
- Halt and begin to reverse the incidence of malaria and other major diseases

Ensure environmental sustainability

- Integrate the principles of sustainable development into country policies and programs; reverse loss of environmental resources
- Halve the proportion of people without sustainable access to safe drinking water
- Significantly improve the lives of at least 100 million slum dwellers

Develop a global partnership for development

- Raise official development assistance
- Expand market access

Source: World Bank (2004).

FDI occurs when an entity in one economy invests capital in an enterprise that resides in another economy with the objective of establishing a lasting interest in that enterprise. Through acquiring a lasting interest, the direct investor implicitly establishes a long-term relationship with the enterprise and has the potential to exercise a significant degree of influence over its management. Typically, ownership of 10 per cent or more of the ordinary voting stock (or an equivalent equity interest) is regarded as indicative of significant influence by an investor. Direct investment involves both the initial transaction to establish the relationship and all subsequent capital transactions between them and among affiliated enterprises.

Portfolio investment represents the passive holdings of securities such as foreign stocks, bonds, or other financial assets that do not entail active management or control of the entity issuing the security by the investor.

While both FDI and portfolio funds are sourced internationally, FDI is generally regarded as more beneficial to an economy both because of its potential as a mechanism for technology and management transfer, and due to its lower volatility relative to many portfolio investments. The ability of short-term foreign portfolio investment to turn into outflows at short notice contributed to the speed of and the onset of the East Asian financial crisis (Hooke et al 1999).

How does investment boost growth?

Investment drives growth in two ways. First, it brings more capital to the production process and so expands output per worker. Second, investment can bring new technology and know-how into the production process, boosting productivity and therefore output per worker as well. A good investment climate ensures that this additional capital is used in its most highly valued use to produce the right capital mix of goods and services. The spread of technological advance, especially by FDI, is a particular benefit of investment. Investment expands production and improves productivity, thereby driving economic growth and incomes. East Asia's rapid growth and corresponding fall in poverty from the 1960s onwards was largely a result of investment (see box 2.6).

But investment and investment rates are not sufficient for growth by themselves. While additional capital brings extra inputs to the production process, the ability of this process to sustain growth is limited because of the decreasing marginal productivity from increased capital. Rather, the main driver of growth is not the *quantity* of investment, but the *quality* of investment (Klein et al 2001).

The growth premium from FDI

Technology diffusion plays a central role in the process of economic development. Historically, economic literature linked technological change to an unexplained residual (Appendix A). More recent studies highlight the dependency of growth rates on domestic technology relative to the rest of the world. The new endogenous growth models consider long-run growth as a function of technological progress. Under that framework FDI can permanently increase the growth rate in the host economy through technology transfer, diffusion and spillover effects. Growth in less developed economies can be attributed to the extent of adoption and implementation of technologies and best practice already in use in other countries.

2.6 East Asian investment led to capital deepening and strong growth

From the mid 1960s through to the 1990s, the East Asian Tigers of Hong Kong, Singapore, South Korea and Chinese Taipei experienced an extended period of rapid economic growth. Between 1966 and 1990, the Singaporean economy grew at 8.5 per cent per year — three times faster than the United States over the same period.

East Asia's record growth was initially attributed to three reasons: the major diffusion of world technology from developed to developing countries, a shift of the economic centre of gravity towards the east Asia/western Pacific region, and the superiority of economies with fewer civil liberties and centralised industrial policies. The conclusion drawn from these three explanations was that growth in East Asia was extraordinary and difficult to replicate.

Krugman, however, in a re-examination of the data, showed that the rapid advancement of East Asian economies was explained by a high savings and investment rates rather than efficiency improvements. That is, rapid economic growth in East Asian countries was matched by rapid input growth. Physical and human capital stock increased through higher levels of investment.

The extraordinary growth in East Asian economies, then, is not so extraordinary after all. Higher savings lead to higher investment and capital deepening to achieve strong and consistent growth rates. High investment levels during the growth period lead to substantially higher growth rates and income levels. Krugman calls the key to this growth *deferred gratification*, that is, the willingness to sacrifice current satisfaction for future gains.

Source: Krugman (1994).

Technology and management practices may be transmitted across borders by various mechanisms:

- foreign buyers of exports may provide the demand for upgrading and may provide technical assistance to domestic firms;
- imported capital goods may embody improved technology;
- technology licensing allows countries to quickly acquire recent innovations;
- expatriates transfer and transmit human capital and acquired technical knowledge; and
- through FDI.

FDI raises productivity in the recipient economy through the adoption of managerial and technical best practice from these firms and better workplace training (Klein et al 2001). FDI also expands investment levels in the host economy without the need for domestic savings to increase. Multinational corporations are amongst the most technologically advanced firms in the world and account for a substantial component of the world's research and development investment (Borenzstein *et. al.*, 1998).

Strong empirical and theoretical linkages connect FDI and poverty reduction. A World Bank study (Klein et al 2001), identified four ways in which FDI leads to income and poverty reduction:

- 1. FDI protects the poor from bad investment decisions and financial volatility. Investors have strong incentives to evaluate the risks and return of alternative investment options as FDI places significant risk on the lender. Investors directly gain or lose when a project is successful or fails. This distinguishes FDI from debt funding.
- 2. FDI is strongly linked to improved corporate governance. FDI is the most efficient form of cross-border equity investment in countries with weak corporate governance rules and practices. Portfolio equity investments by minority shareholders in a weak corporate governance environment face severe risks of expropriation. However, as foreign companies typically avoid corrupt environments due to the excessive costs of doing business, corrupt governments have to improve governance regimes in order to attract foreign investment.
- 3. *FDI contributes to better social standards*. In choosing where to invest, foreign firms seek to maximise profitability, not necessarily to minimise costs. Profitability is linked with business opportunities. In turn, business opportunities are enhanced by the rule of law, the quality of an economy's labour force and its infrastructure.
- 4. *FDI helps facilitate social safety nets and services for the poor.* While FDI helps generate growth and raise wages and living standards, it may not directly re-distribute income to the poorest people. However, FDI contributes to the ability of governments to provide social safety nets by directly contributing to tax revenue and indirectly contributing to economic growth and an expanded tax base.

Compared to other forms of investment, FDI has an additional growth premium because it transfers skills and technology and alleviates the need for domestic savings. The size of this growth premium depends on domestic economic conditions and behind-the-border barriers. While this suggests that investment incentives can be beneficial, evidence indicates that the only unambiguous means of benefiting from FDI are removing barriers to FDI and improving the business climate.

Furthermore, FDI has significant inter-linkages with world trade for three reasons. First, firms must have a local presence to be competitive in foreign services markets. Most cross-border trade in services has, in fact, been propelled by FDI (WTO 1996). Second, many firms use FDI to circumvent high import tariff barriers and produce stand-alone production units for the host economy. Alternatively, low levels of import protection can be an even stronger attraction for export-oriented FDI (see WTO 1996). One study

found that the relatively open Asian economies attracted export-oriented FDI while the relatively closed Latin American economies tended to attract local-market FDI. Third, FDI contributes to the continuing specialisation of global production. FDI helps economies to specialise through trade by efficiently distributing the world's savings.

The benefits of FDI will be maximised by sound coordination with domestic policies across a range of issues. Sound macroeconomic policies can also ensure the benefits from FDI are maximised, as noted in the large literature on the interaction of trade, investment liberalisation and macroeconomic stability. In this regard, encouraging FDI may be part of a larger sequence of domestic policies (see Zalduendo 2005, IMF 1999, and WTO 1996).

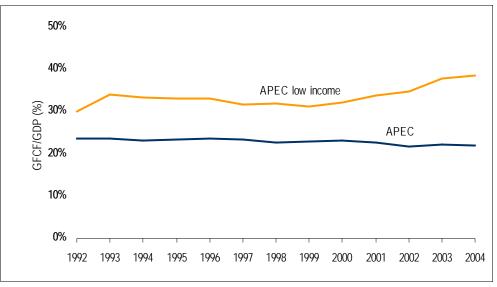
While FDI has the potential to lead to big benefits for the host economy, it makes up only a small share of gross fixed capital formation both globally and within APEC, as discussed in the next section.

Investment in APEC

Investment levels in APEC economies are high, particularly for low-income economies that are 'catching up' to developed economies (chart 2.7). For these economies, gross fixed capital formation was almost 40 per cent of GDP in 2004.

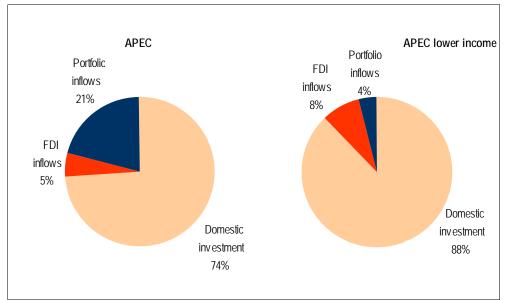
The vast majority of investment is domestic investment (chart 2.8), especially for lower-income APEC economies. Domestic investment comprised 88 per cent of gross fixed capital formation over the period 2002 to 2004 for these economies. Lower-income economies also receive a greater share of their investment from FDI, but receive less foreign investment overall due to smaller portfolio flows.

FDI has made up only a small share of investment in APEC economies over the past few years. FDI inflows, which measure the change in direct investment holdings by foreigners, were only 6 per cent of total investment in APEC economies in 2004. FDI was a more important source of financing in previous years (chart 2.9). FDI inflows are rising again, reflecting global trends in FDI and world capital movements, which have doubled (as a per cent of world GDP) since 1997 (Battellino 2006).



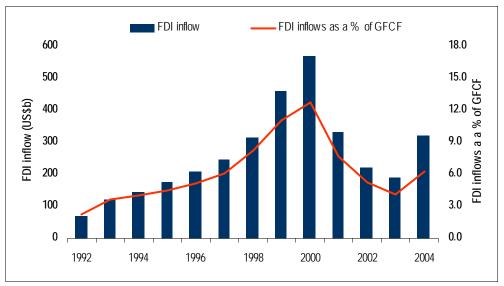
2.7 Gross fixed capital formation in APEC

Data source: UNCTAD (2005a) and CIE calculations



2.8 Composition of investment in APEC (average 2002 to 2004)

Note: APEC lower-income economies are those classified as low income or lower-middle income by the World Bank (China, Indonesia, Papua New Guinea, Peru, Philippines, Thailand and Vietnam). *Data source*: UNCTAD (2005a), IMF (2005) and CIE calculations.



2.9 **FDI inflows into APEC economies**

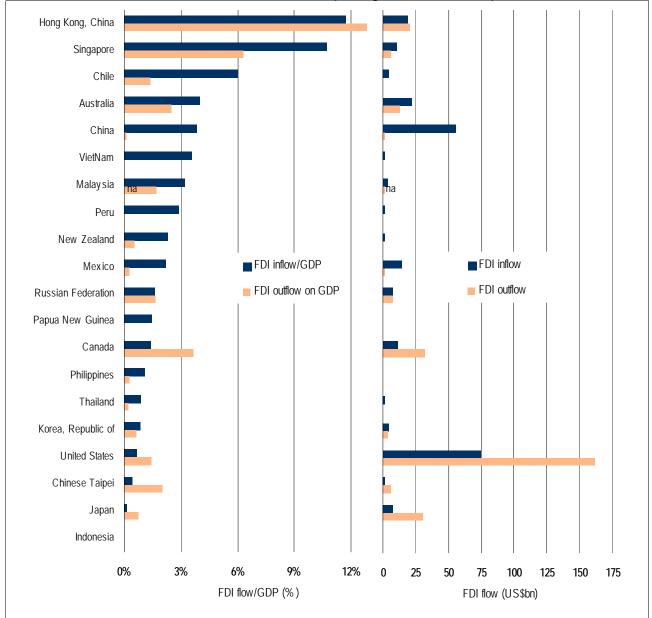
Source: UNCTAD (2005a).

FDI flows are not uniform across APEC economies. The largest flows from 2002 to 2004 were to the largest economies, the United States and China (chart 2.10).¹ The United States, Japan and Canada are the largest sources of FDI of the APEC economies.

FDI inflows and outflows were highest as a share of GDP in Singapore and Hong Kong. As these economies are financial centres, the transfer of investment through these economies leads to substantial overstatement of FDI flows. Relative to the size of their economies, Chile, Australia and China all attract significant FDI inflows while Indonesia attracts very little.

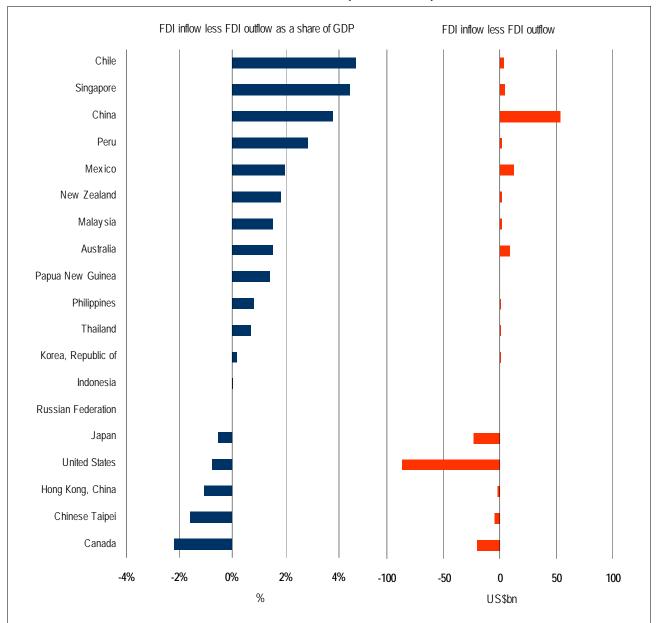
Chile is the largest net importer of FDI relative to the size of its economy, with FDI inflows less FDI outflows over 4 per cent of GDP (chart 2.11). In dollar terms, China is the greatest net importer of FDI and the United States the greatest net source of FDI.

¹ The quality of data for China is, however, questionable. Inflows as reported by China are often significantly different to outflows to China reported by other economies. See UNCTAD 2006 for more information.



2.10 FDI inflows and outflows for APEC economies (average for 2002 to 2004)

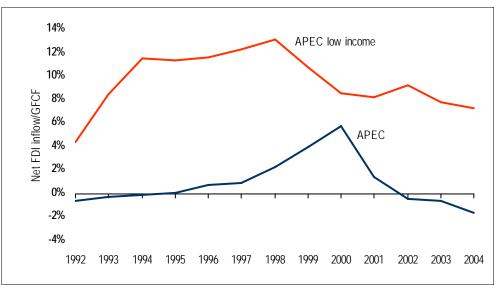
Data source: UNCTAD (2005a)





Data source: UNCTAD (2005a)

The APEC region as a whole is now a net FDI donor with more FDI flowing out of the region than is coming into the region (chart 2.12). Within APEC, FDI typically flows from developed economies to developing economies (chart 2.12). This is in line with economic theory, as lower-income economies potentially have many more profitable investment opportunities and a higher expected marginal product of capital.



2.12 FDI inflows less FDI outflows for APEC economies

Source: UNCTAD (2005a).

However, across *all* types of flows, investment is actually moving out of developing APEC economies and into developed APEC economies, particularly the United States. Many developing APEC economies therefore have current account surpluses, and rich economies such as the United States, Australia and New Zealand have current account deficits. Many APEC developing economies are saving more than they invest domestically, as explained further in Chapter 5. The driver of capital movement to rich economies is government and central bank buying of United States securities.

Ideally, FDI data would allow us to measure bilateral relationships with precision and determine the sectors into which FDI is flowing. Such data exists for some economies but not all. Data issues, which also exist for overall FDI data, become more of a constraint at this disaggregated level (see UNCTAD 2006).

The FDI data that does exist by source/destination and industry suggests that about 40 per cent of inflows into APEC economies are from other APEC economies. More than 50 per cent of FDI is in services sectors and about 40 per cent in manufacturing. Only a small share of FDI is in primary industries. Note that these estimates only cover a selection of APEC economies for which data is available.

Key messages

Investment has been identified by the World Bank as the key driver of growth and poverty reduction (World Bank 2005). As such, the investment climate is crucial in enhancing welfare, particularly for developing economies. A good investment climate with few barriers will ensure that investment is high and that investment is directed to those areas where it can produce the most value.

Domestic investment makes up the majority of investment and therefore has the largest potential for growth. Foreign investment can also boost economic growth, particularly through transferring technology and management practices to developing economies. This is particularly the case for FDI.

The next chapter discusses barriers to FDI within the APEC region.

3

Barriers to FDI

Every economy in the world has policies that inhibit foreign direct investment to varying degrees. Direct policies include restrictions on the level of foreign ownership of companies in sensitive sectors such as media and telecommunications, and approval requirements for foreign investment. A number of policy factors also impact on FDI, although they are not targeted at restricting FDI. These barriers include capital market restrictions, labour and product market regulation and taxation. Government policies are not unambiguously against FDI, however. Many economies also seek to attract FDI through incentives such as preferential taxation arrangements and direct subsidies.

The focus of this chapter is on direct barriers to FDI within the APEC region.

Types of barriers to FDI

Many factors, both policy and non-policy, impact on a firm's ability to engage in direct investment in other economies. In some cases, policy factors that restrict FDI will also restrict foreign involvement in debt markets, as capital market restrictions do. In other cases, restrictions on FDI may also be restrictions on domestic market competition. For example, bank licensing may restrict the ability of both foreign and domestic firms to set up new operations. Typically, barriers to FDI are defined only as policy barriers that are particularly aimed at foreign direct investment. This definition is adopted in this report.

Defining FDI in this manner does not mean that factors such as distance, language, domestic savings rates, graft and corruption, labour market flexibility and product market regulation do not impact on FDI, but simply that these factors are not captured in most measures of barriers to FDI.

Barriers to FDI typically fall into three categories (Golub 2003, UNCTAD 2005b):

limits on foreign ownership of businesses in particular sectors;

- screening requirements for FDI such as meeting a public benefits test; and
- operational restrictions such as the ability to use foreign directors and bring foreign workers into and out of the country.

These barriers vary both in their prevalence and in their impact.

Measures of barriers in the APEC region

An ideal measure of barriers to FDI would combine both the *type* of the barrier and the *impact* of the barrier. Knowing the type of barrier would allow policymakers to easily identify where and how barriers can be removed; the impact of the barrier would show how much the removal of a barrier would impact on FDI flows.

Unlike measures of FDI barriers, measurements of barriers to trade (both tariff and non-tariff) capture these two characteristics. This has proven to be more difficult for barriers to FDI as measures concentrate on the type of the barrier but provide little understanding of its impact.

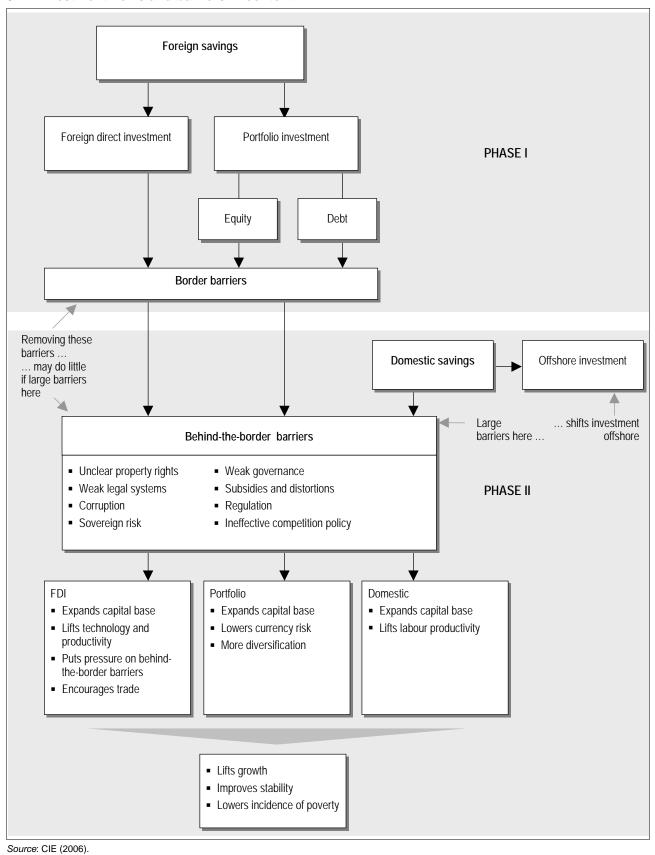
This section outlines the level of barriers in APEC economies, under the methodology used by the OECD (Golub 2003) and UNCTAD (2005b).

Level of barriers

According to OECD and UNCTAD studies, APEC economies have substantial barriers to FDI. These studies report barriers to FDI on a scale of zero to one; zero being no barriers and one meaning that barriers prohibit all foreign direct investment. The studies find that the average barrier to FDI across the APEC region is 0.36. Further, not a single sub-sector in any APEC economy is completely free of barriers to FDI.

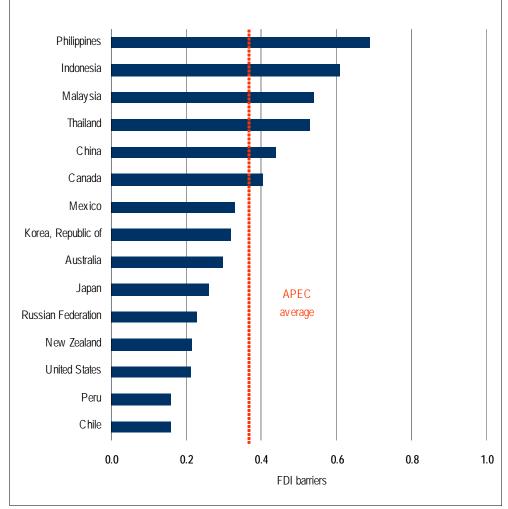
Within APEC, barriers to FDI differ markedly. Some economies have overall barriers to FDI of 0.16 (few barriers) compared to more than 0.60 in other economies (relatively high barriers) (UNCTAD 2005b and Golub 2003).

Note that this measure is only for *direct* barriers to FDI. Other factors make foreign investment difficult, such as behind-the-border barriers (chart 3.1). Peru, for example, has a low measure of barriers to FDI in services yet, once domestic barriers are taken into account, it is still difficult for foreigners to



3.1 Investment flows and barriers in context

invest (chart 3.2). Reflecting this, Peru performs notably worse than Chile and worse than the world average in World Bank estimates of government effectiveness and political stability.

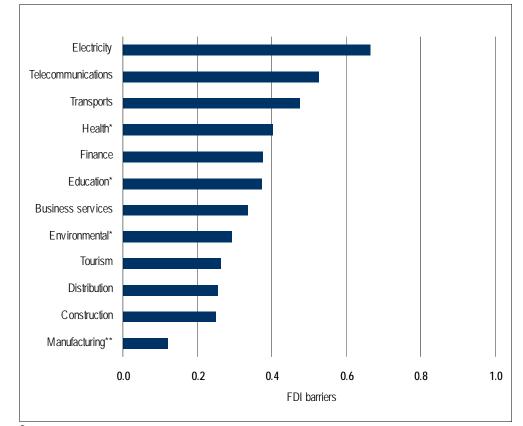




Notes: The scale of barriers is from 0 to 1. Measures of barriers for developing economies covered by the UNCTAD study (2005b) are more recent than those for developed economies (from Golub 2003). Data is not available for Chinese Taipei, Papua New Guinea or Brunei. Canada's barriers to FDI in the finance sector have been adjusted to reflect that there are no specific foreign ownership restrictions on banks. *Data source*: UNCTAD (2005b) and Golub (2003)

Barriers to FDI are higher in services than in manufacturing, both in the APEC region and in other regions studied. Barriers are particularly high in electricity, communications and transport within the APEC region (chart 3.3). In electricity, seven APEC economies permit no FDI whatsoever.

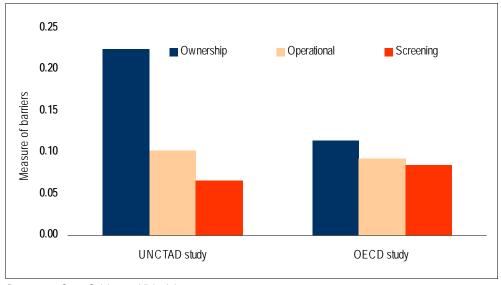
Globally, limitations on foreign ownership are the largest reported barriers to FDI, particularly in lower-income economies (chart 3.4). While across APEC, screening barriers are more prevalent than ownership barriers in APEC economies (table 3.5).



3.3 Barriers in the APEC region by sector

^a For some sectors, barriers are only available for some economies: * indicates sectors for which data is only available from the UNCTAD study; ** indicates sectors for which data is only available from the OECD study. Canada's barriers to FDI in the finance sector have been adjusted to reflect that there are no specific foreign ownership restrictions on banks.

Data source: UNCTAD (2005b) and Golub (2003).



3.4 Types of FDI barriers in APEC economies

Data source: Steve Golub, unpublished data.

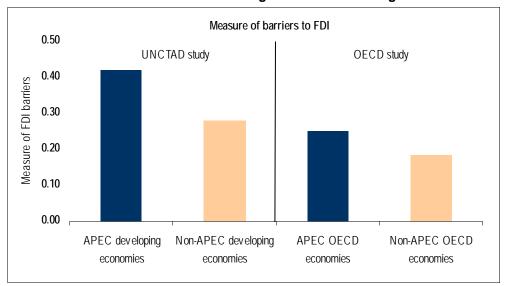
3.5 Prevalence of barriers in APEC economies

	Ownership limits	Screening requirements	Operational barriers
	% of economies	% of economies	Average no.
Business services	41.2	82.4	2.8
Communications	94.1	88.2	2.5
Construction	23.5	76.5	2.4
Distribution	29.4	82.4	2.1
Finance	58.8	94.1	2.2
Tourism	29.4	82.4	2.1
Transport	100.0	94.1	2.4
Electricity	82.4	82.4	2.1
Manufacturing	0.0	85.7	1.9

Source: Steve Golub, unpublished data.

FDI barriers are higher on average in the APEC region than in other economies (chart 3.6). South American and European countries tended to have the lowest barriers in the UNCTAD study. The OECD study reports the lowest barriers in European countries due to the lack of restrictions on intra-EU FDI flows.

Barriers to FDI in APEC economies have generally fallen, although measurement difficulties are amplified when measures are based on past data. For APEC's higher income economies, FDI barriers fell by 30 per cent on average between 1980 and 2000. A similar trend was observed in other OECD economies.



3.6 Barriers in APEC economies are higher than in other regions

^a The OECD and UNCTAD data reported here are not comparable as the OECD data includes the manufacturing sector in which FDI barriers are typically lower.

Data source: UNCTAD (2005b) and Golub (2003)

Method of measuring barriers

The measures of barriers outlined above are constructed by determining the nature of the barrier and then using a subjective measure of the impact to construct an index. Although the impact of a particular type of barrier is assumed to be constant across sectors and across economies, this is not the case in reality. For example, a barrier on foreign direct ownership may not restrict FDI at all. The restrictions of a barrier depend on whether foreigners are willing to invest in the sector of the economy in the absence of barriers. While barrier measurements are limited in this respect, they do provide direct information on which policy barriers can be removed. A technical measure of the impact of FDI barriers does not reveal this information.

The OECD and UNCTAD use the following process to estimate barriers to FDI:

- identify the nature of barriers for a number of specific sub-sectors of the economy;
- allocate scores for each type of barrier (see table 3.7);
- aggregate sub-sector scores to an industry score through simple averaging; then
- aggregate industry scores using weights to provide a measure of barriers for the broader economy or services sector.

3.7 FDI restriction scores

Type of FDI barrier	OECD measure	UNCTAD measure
Foreign Ownership		
No foreign equity allowed	1.000	1.000
1-19 % foreign equity allowed	0.600	0.600
20-34% foreign equity allowed	0.400	0.500
35-49 % foreign equity allowed	0.300	0.400
50-74% foreign equity allowed	0.200	0.200
75-99% foreign equity allowed	0.100	0.100
No restriction but unbound	0.050	
Screening and approval		
Investor must show economic benefits	0.200	0.200
Approval unless contrary to national interest	0.100	0.100
Notification (pre or post)	0.050	0.050
Operational restrictions		
Board of directors/Managers		
Majority must be nationals or residents	0.100	0.100
At least 1 must be national or resident	0.050	0.050
Must be locally licensed	0.025	
Movement of people		
No entry	0.100	
Less than one year	0.075	0.100
One to two years	0.050	0.050
Three to four years	0.025	0.025
Input and operational restrictions		
Domestic content must be more than 50%	0.100	
Labour market or other restrictions		Up to 0.100
Other	0.050	
Total (capped at 1)	Between 0 and 1	Between 0 and 1

Source: UNCTAD (2005b) and Golub (2003)

However, this process has a number of conceptual and practical flaws. Most importantly, the measure of barriers is not a measure of the *impact* of barriers. This makes it more difficult to provide strong evidence of the impact of particular barriers or prioritise their removal. Practical constraints are that FDI barriers are not measured on a bilateral basis, do not cover all industries and sub-sectors, and do not accurately reflect the importance of particular sub-sectors and industries to the economy concerned.

Industry weights used to calculate economy-wide barriers should reflect the individual characteristics of each economy. Industry GDP shares for each economy are one measure of these characteristics. Current overall measures of FDI barriers weight industries using GDP, FDI and import shares.² Weights are calculated using information for the entire sample of economies.³

Barrier measurements are not perfect. A particular concern is that they do not explain as much of the variability in FDI flows between economies and industries as they could. On the other hand, barrier measurements do provide a checklist of removable impediments to FDI and are therefore closely linked to the policies creating barriers to FDI.

Alternative measures of barriers to FDI

While the OECD and UNCTAD work has emerged as the dominant measure of FDI barriers, this issue has been considered by others, particularly by Australia's Productivity Commission. The Productivity Commission studied barriers to trade in services, including barriers to establishing commercial presence. A broader definition of barriers has been taken in other work, such as the World Bank Investment Climate surveys discussed in chapter 5.

Productivity Commission estimation of barriers to trade in services

The Australian Productivity Commission defined barriers to commercial presence as barriers to establishment and to foreign operations. They also use an index approach such as that used by the OECD and UNCTAD, but develop it further by constructing price and cost impacts according to barrier type.

The Productivity Commission used the following process:

- estimate an index of restrictiveness to services trade for a particular sector following a similar method to that used by OECD and UNCTAD; and
- estimate the impact each type of restriction has on price-cost margins and costs for a sample of firms operating in regions around the world.

The Productivity Commission estimated barriers to establishing commercial presence and continuing foreign operations (similar to the FDI barrier concept used by the OECD and UNCTAD) for over 30 economies in

² Both the OECD and UNCTAD studies test the sensitivity of the results to changes in these weights.

³ However, this means that a country's overall measure of FDI barriers can change depending on the industry structure of the sample of economies with which it is evaluated.

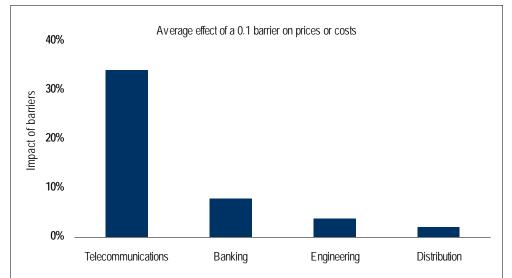
Asia, North America, South America and Europe. The impact of these restrictions was calculated for the banking, telecommunications, engineering and distribution industries.

Two key findings emerge from the work of the Productivity Commission when compared to the OECD and UNCTAD studies:

- the same measure of restrictiveness is estimated to have very different impacts on different industries (chart 3.8); and
- measures of restrictiveness calculated by the Productivity Commission and OECD/UNCTAD vary considerably, although they are weakly correlated. The absolute difference in results, averaged across subsectors and economies, is 0.20. Ranking can also change significantly between studies. These differences are likely to reflect differences in timing and methodology as well as the subjective nature of the measures.

Improving measurement of barriers to FDI

Measuring barriers to FDI is difficult and requires considerable resources. Further, current measures have some conceptual drawbacks. These measures can be improved by considering country-specific weighting schemes and through estimation of the impact of barriers (at the micro level).



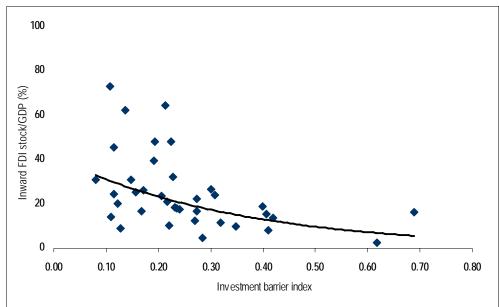
3.8 Impacts of barrier on prices/costs in different industries

^a For telecommunications, engineering and banking the impact is on price. For distribution the impact is on costs. *Source*: APC (2001) and CIE

Impact of barriers on FDI

Barriers to FDI have an important impact on the amount of FDI flowing into an economy, despite the abovementioned limitations of measurement.

The OECD/UNCTAD measure of barriers to FDI in services correlates with the amount of services FDI (chart 3.9). This analysis suggests that a 0.10 unit decrease in barriers to FDI in services leads to a 34 per cent increase in the level of FDI in services. The data indicates that factors other than the measured barriers also drive FDI.



3.9 FDI falls as barriers increase: FDI and barriers in 37 countries' service sectors

Note: Line of best fit is modelled using an exponential curve as it had the most explanatory power of the tested characterisations.

Data source: Golub (2003), UNCTAD (2005a) and UNCTAD (2005b).

Nicolletti et al (2003) confirm this analysis for the OECD. After accounting for other factors, they estimated that a 0.10 unit decrease in barriers to FDI would increase FDI by 21 per cent.

Key messages

APEC economies face substantial direct barriers to FDI. The most important barriers are direct restrictions on ownership levels by foreigners. Barriers are highest in sectors such as electricity and telecommunications, which are also more likely to be government owned and operated. Barriers are also higher in lower-income APEC economies. However, the methodology used to measure these barriers is imprecise. Further, many APEC economies lack the ability to measure the impact of these barriers on FDI flows and economic growth and to identify how barriers to FDI have changed through time. Capacity building is needed to measure FDI and barriers to FDI, as well as to improve transparency.

Despite the limitations in measurement, it can be seen that direct barriers to FDI do restrict investment levels and impede growth. There may be substantial welfare gains from removing barriers to FDI, which is addressed in the next chapter.

4

What happens when FDI barriers are removed

Lowering border barriers to FDI in the APEC region would likely boost FDI flows, generate growth and reduce poverty. However, the magnitude of the gains and how best to achieve them are not currently well understood. This chapter considers the magnitude of potential impacts using partial indicators found by other studies. It also considers the limits of knowledge in this area.

Potential benefits of lowering FDI barriers in APEC

Lowering FDI barriers in the APEC region would stimulate FDI flows between APEC economies and encourage FDI from outside the region towards APEC. The free movement of FDI could boost productivity, as FDI will move to economies where it is most productive and technology transfer between economies will occur. Opening up opportunities for FDI could increase the overall amount of investment undertaken across the region.

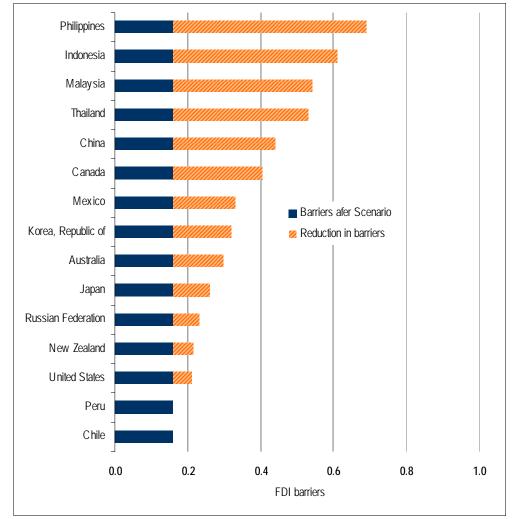
Increased productivity of capital and increased investment will increase income and wealth in the APEC region. This, in turn, drives poverty reduction and welfare improvement. The magnitude of these impacts would vary widely depending on, amongst other factors, domestic policy settings.

The benefits from removing barriers to FDI would be shared amongst FDI recipients and FDI donors depending on the extent to which FDI generates employment and future investment relative to the repatriation of profits.

The scenario

An indication of the productivity potential of FDI to improve economic and social outcomes is obtained by asking what would happen to the APEC region if FDI barriers were lowered to the level of the most open economy, according to indices of FDI barriers. Data and current research on FDI allows us to broadly quantify this scenario. However, because considerable uncertainty surrounds relationships between FDI, growth, behind-theborder barriers and other economic and social characteristics, this quantification presents estimates as a range.

The change in border barriers to FDI in each APEC economy is depicted in chart 4.1.



4.1 Change in barriers under policy scenario

Impact of lowering barriers to FDI

Calculating the potential impact of lowering FDI barriers would ideally capture all the linkages between different types of investment, rates of return and economic activity. As such a framework has not yet been developed, this section shows what partial indicators linking barriers,

Data source: CIE, UNCTAD (2005b), Golub (2003)

investment and growth can tell us about the magnitude of potential impacts. Long-run estimates are presented based on empirical averages. In practice, economies will adjust gradually and impacts will differ depending on the existing macroeconomic environment and domestic policy settings.

Partial estimates of lowering barriers to FDI

If all APEC economies lowered FDI barriers to the level of the most open APEC economy, FDI levels could increase across APEC by 20 to 30 per cent – by around a trillion dollars according to OECD estimates of the impact of barriers to FDI (Nicolletti et al 2003). This estimate assumes that barriers to FDI outside of the services sectors, for which there is little data, would fall by a similar amount to barriers to services FDI.

The impact on overall investment would depend on the extent to which domestic investment was increased or lowered by the increase in FDI.

Partial estimates of the impact of FDI on growth have shown that a one per cent increase in FDI can increase productivity of domestic firms by anywhere from zero to 1.6 per cent (see Klein, Aaron and Hadjimichael 2001 for a summary of estimates). Even taking an estimate at the low end of this range, such as 0.1 per cent, GDP would be boosted by two to three per cent from reducing barriers to FDI in APEC economies. This is equivalent to an increase in GDP in the APEC region of about US\$600 billion.

Increased FDI could have additional impacts on growth through increasing the overall amount of investment, increasing the returns from investment (as investment can move to where it receives the greatest return) and improving the ability of economies to diversify their assets and reduce their macroeconomic risk.

Lower-income economies would likely experience a greater increase in FDI, as their barriers are currently relatively high. FDI in these economies could rise by as much as 80 to 90 per cent. If partial estimates of the flow-on impact to growth are used, this could increase the GDP in these economies by eight to nine per cent. Using World Bank estimates of the impact of growth on poverty, this could reduce the amount of people living on less than \$1 per day by more than 50 million (equivalent to a 20 per cent decrease) (Adams 2003). The flow-through of these effects on poverty would largely depend on other government policies.

The impacts suggested by these partial indicators are large, both in dollar terms and relative to the size of the economies involved. When considered against the enormous differences in per capita production of poor and rich economies, the impacts are not so large.

The benefits of past FDI liberalisation in particular economies have been substantial and validate the empirical results. For example, Vietnam's liberalisation of FDI had substantial economic impacts, as discussed in box 4.2. Not only did the liberalisation of FDI directly boost investment and growth, but the involvement of foreign firms in the economy indirectly helped by providing a spur to reform of other areas of the economy that gave further impetus to growth.

Limitations on the use of partial indicators

The analysis above used figures found in individual studies on the linkages between particular parts of economies. This provides useful information on the potential size of impacts, but is not the whole story. First, there are limitations in that growth generated by FDI may have different impacts on

4.2 Liberalisation, transition, foreign direct investment and growth in Vietnam

Over the last two decades, Vietnam has been one of the most successful (in terms of economic growth and poverty reduction) developing economies in Asia and the world. Much of this success has been attributable to the farreaching policy and institutional reforms associated with the transition to a market economy that began with the adoption of the renovation process, *doi moi*, in the mid 1980s. Since this process started, real GDP has grown at a trend rate of 7.4 per cent per annum, and the proportion of the population living below the national poverty line has fallen rapidly (from around 75 per cent in the early 1990s to 29 per cent in 2002 (CIE 2004b)).

Liberalisation of controls on foreign investment has been a key feature of the opening up of the Vietnamese economy, accompanied by changes in trade and foreign exchange policy starting with the introduction of a Law on Foreign Investment in 1987.

A strong response to these reforms saw foreign invested enterprises account for over a quarter of gross investment, on average, during the 1990s. At the end of that decade, foreign invested enterprises accounted for 10 per cent of GDP and around 20 per cent of total exports (CIE 2000). Foreign direct investment inflows now amount to around 3.6 per cent of GDP, down from a peak of over eight per cent in 1997, but are recovering again since 2004. In expectation of Vietnam's accession into the WTO to the end of 2006, FDI continues to grow.

Foreign investment has enabled Vietnam to pursue its goal of catching up with the rest of the world through the introduction of new technology, foreign savings, technology, management skills and access to export markets. But the increasing involvement of foreign firms in the economy provided a spur to other parts of the reform process, particularly the development of the legal and institutional underpinnings of a market economy, recognition and protection of private property rights, taxation reform and rationalisation of business regulation. It has also had an influence on the process of legal and regulatory reform that Vietnam is undertaking in the implementation of regional and bilateral trade agreements and in preparation for accession to the WTO.

A significant share of early foreign investment flows was targeted at joint ventures with state-owned enterprises. However, relaxation of controls on FDI and, equally as important, recognition of the role of domestic private sector and deregulation of private enterprise establishment and operations has ushered in an increased presence of wholly foreign-owned enterprises and ventures with the domestic private sector.

However, FDI in Vietnam is highly concentrated in the South East of Vietnam (70 per cent) and its positive impact is limited in this region.

poverty than on growth on average. Second, the above estimates ignore follow-on impacts from investment as it changes interest rates, prices, costs and macroeconomic variables. Accounting for these links may dampen the estimated impacts, particularly given that the APEC region captures more than half of the world's GDP and more than a third of world FDI inflows. Within APEC economies there could also be flow-on effects to domestic investment (positive or negative), portfolio investment, exchange rates and wages.

Quantifying the impact of removing FDI barriers, taking into account the above linkages, would require a macroeconomic framework such as used in global general equilibrium models.

Partial indicators also restrict the focus to the productivity spillovers from FDI (which would be a substantial component of overall gains). A modelbased approach would allow quantification of changes in overall investment levels, changes in investment returns and benefits of diversification.

Weaknesses in our understanding of the key linkages

The estimated impacts of lowering barriers to FDI rely on three key pieces of information:

- how much does FDI respond to lower FDI barriers?
- how big is the growth effect from FDI?, and
- does the growth effect translate into gains for the poorest people?

The answer to all three questions is 'it depends'. Domestic policies will be crucial in gaining the full benefits from lowering barriers to FDI.

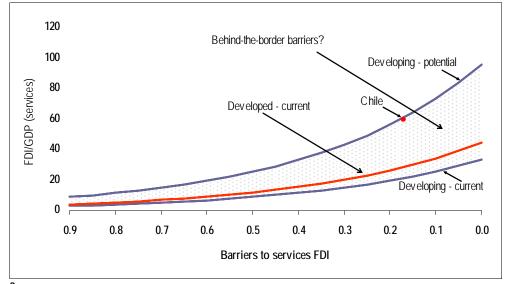
How strong is the link between FDI and barriers?

Barriers to FDI in services explain only 18 to 30 per cent of the variation between economies in FDI in the services sector as a share of the value added in services. The unexplained component partly reflects the difficulty in measuring barriers to FDI. However, alternative measures of barriers to FDI, such as those by the Productivity Commission, do not strengthen this link. Analysing relationships at a sectoral level also does not improve the fit. This suggests that the method of measuring barriers is not a key driver of the unexplained component of FDI. Instead, it is likely that the unexplained variation in FDI reflects other factors that impact on both the level of an economy's FDI and the responsiveness of FDI to lowering barriers to FDI.

The estimated level of FDI for a given level of barriers differs between developing and developed economies – developed economies currently have a greater estimated level of FDI relative to their level of barriers (chart 4.3). Developed economies are likely to have much greater potential FDI for a given level of barriers – possibly more like the line that would predict Chile's FDI (chart 4.3). This difference reflects the greater potential marginal product of capital in these economies. But many underlying structural factors, such as mineral wealth, determine each economy's potential FDI level. Other developing economies may therefore not attract as much FDI as Chile if they reduced their barriers equal to the level of Chile. Behind-the-border barriers are another likely reason for the gap between the potential of developing economies and their actual performance.

Similarly, enormous deviations occur in FDI between economies with almost identical levels of barriers (such as the Netherlands versus Germany, Chile versus France or the Czech Republic versus the United States — chart 4.4). These differences could, in part, reflect behind-the-border barriers.

Chile provides an example of the additional FDI that comes from removing behind-the-border barriers. Its FDI/value-added ratio for services is almost



4.3 What drives differences in relationships between economy groups?

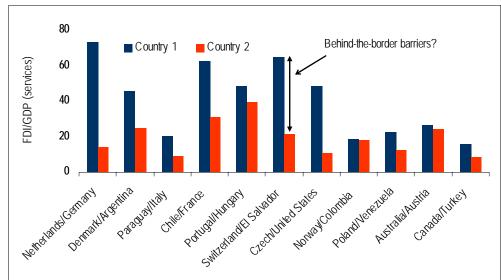
^a High-income and low-income lines are exponential regression lines estimated for all world economies using available data on services FDI and services barriers.
Data source: CIE calculations.

twice that predicted by its level of barriers. Chile also performs much better than the average economy across a range of World Bank governance measures such as political stability, corruption, government effectiveness, regulatory quality, rule of law and voice and accountability. Chile's Foreign Investment Committee notes that a primary driver of FDI is Chile's straightforward business environment.

Many other factors will be important in determining the amount of FDI that flows to an economy, such as trade flows, resource allocation, geographical position and size of the economy. Not enough is known about these other drivers of FDI, despite recognition of the importance of FDI for many years. More importantly, many of the drivers of FDI will also drive domestic investment; this doubles the value in understanding what these FDI drivers are and how they affect economies.

Realising the benefits of FDI

Benefits of FDI include lifting economic growth and reducing poverty. The link between removing FDI barriers and attracting FDI is not clear cut. Also, there is no clear understanding of which policies will maximise the benefits of attracting FDI. Economy characteristics, such as behind-theborder barriers, could mitigate or enhance the positive impacts of FDI. In this sense, the average estimates used to calculate the potential benefits of lowering barriers to FDI may hide a story about the policies that could maximise these benefits. Similar conclusions have been reached in



4.4 Economies with similar barriers have different FDI – is this due to behind-the-border barriers?

Data source: UNCTAD (2005b), Golub (2003), World Bank World Development Indicators (2006).

arguments about the benefits of free trade (Ravallion 2004, Hallak and Levinsohn 2004).

A number of studies have attempted to resolve the conditions under which FDI will bring the greatest economic and social benefits. They have found that behind-the-border characteristics such as strong financial markets, sound institutions and higher education levels are conducive to an economy receiving the greatest benefits from FDI (Borensztein et al 1998, Nunnenkamp 2004, Alfaro et al 2000). Openness to trade has also been identified as an important policy for enhancing the gains from FDI (Balasubramanyam 1996). Other studies considering the impact of FDI on economic growth between groups of economies found that lower-income regions there was significant disparity in benefits (Blonigen and Wang 2004, Agosin and Mayer 2000).

The strength of the impact of FDI on poverty alleviation has also attracted attention. Nunnenkamp (2004) has argued that the benefits of FDI are relatively lower amongst the less skilled and the poor. Others have noted the prime importance of FDI as an effective tool in the fight against poverty (Klein, Aaron and Hadjimichael 2001).

Why this is important

Understanding behind-the-border barriers can help the APEC region to maximise the amount of inward FDI and the benefits that this can bring. But more than this, understanding behind-the-border barriers may enable the APEC region to boost domestic investment as well. The dominant share of domestic investment means that policies aimed at behind-the-border barriers could lead to even greater economic and social gains than lowering direct barriers to FDI (Nunnenamp 2004).

Key messages

If all APEC economies lowered the level of their barriers to FDI to that of the most open economy in APEC, partial indicators suggest that FDI could rise by 20 to 30 per cent. This could increase growth by two to three per cent in APEC and by three times this amount in lower-income APEC economies, based on estimated productivity spillovers to domestic firms.

However, the magnitude of these impacts is imprecise. This reflects uncertainty around the partial indicators such as the link between barriers and FDI creation, and FDI and productivity. While part of this uncertainty is due to the imprecise measurement of barriers to FDI, behind-the-border barriers are an important element missing in our understanding of the links between FDI barriers and measures of welfare. Behind-the-border barriers can impact both on the amount of FDI created by reducing FDI barriers, and on the ability of the domestic economy to benefit from productivity spillovers. These barriers are explored in the next section as a prelude to Phase II of the study.

Further, the figures above do not account for many important economic linkages, such as the impacts on portfolio and domestic investment.

5

What is missing is the behind-theborder barrier story

Economic policies and institutions are the reason why some economies are rich and others poor. As Olson says, 'the sums lost because the poor countries obtain only a fraction of — and because even the richest countries do not reach — their economic potentials are measured in the trillions of dollars' (Olson 1996, p 22). Poor institutions and policies are reflected in behind-the-border barriers that impede domestic investment and foreign investment, stopping an economy from reaching its potential.

Behind-the-border barriers are likely to be crucial in limiting growth in the APEC region. They impact on domestic investment, foreign portfolio investment and FDI. They enhance or restrict the benefits that investment can deliver. This chapter briefly describes behind-the-border barriers, how they are measured, their potential importance and future steps APEC could take to reduce them as a prelude to a larger Phase II study.

What are behind-the-border barriers?

Behind-the-border barriers is a catch-all term to describe the domestic economic environment, including policy and some non-policy aspects. Behind-the-border barriers include, but are not limited to:

- inadequate rule of law and property rights;
- poor governance;
- corruption;
- overly restrictive labour market regulations;
- overly restrictive product market regulations and lack of competitive markets;
- policy uncertainty;
- regulation and tax administration;
- inadequate infrastructure;
- inadequate skills/education;

- political instability;
- capital controls; and
- inadequate access to finance.

A key point is that these measures are interrelated. For example, unclear property rights and the inadequate rule of law can be related to the level of corruption in an economy.

How are behind-the-border barriers measured?

As the importance of behind-the-border barriers has been recognised, measures of these barriers at a macroeconomic level have emerged. Table 5.1 summarises a selection of these measures and their coverage of APEC economies. The measures of behind-the-border barriers range from measures of their incidence and prevalence, to their impact on the cost of doing business and investment risk. Sources range from investors, businesses, in-house experts and macroeconomic data.

Using the World Bank's measures of governance, APEC economies have lower behind-the-border barriers on average than other economies for every category of governance (chart 5.2). However, many APEC economies are still far from the best performers in governance and there is room to improve.

Why are behind-the-border barriers so important?

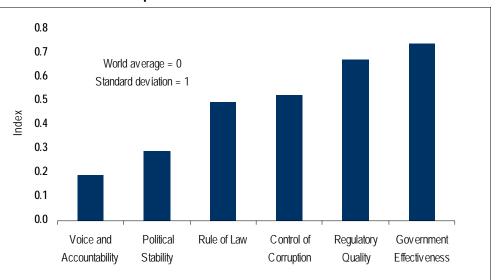
Behind-the-border barriers have such a significant negative economic impact because they reduce the *total* amount of investment undertaken. They reduce the benefits that each dollar of investment provides by distorting the allocation of resources and lowering productivity.

In comparison, barriers to FDI impact only on foreign direct investment, which is a small part of overall investment. FDI only made up 6.6 per cent of gross fixed capital formation in APEC and 7.2 per cent globally in 2004. While FDI can bring additional benefits through technology and productivity spillovers, the sheer size of domestic investment makes it a much more important driver of growth (Nunnenkamp 2004).

5.1 Measures of behind-the-border barriers

Behind-the-border	Sauraaa	Mathada	No of APEC economies
barrier	Sources	Methods	covered
Corruption	World Bank, World Investment Climate Surveys 2005	Survey of firms	6
	World Economic Forum, Global Competitiveness Report	Survey of executives	18
	World Bank, Governance Indicators	Combined indicators	21
	Transparency International, Corruption Perceptions Index	Surveys of firms and analysts	19
Property rights/legal certainty	World Bank, World Investment Climate Surveys 2005	Survey of firms	6
	World Bank, Doing Business Project 2004	Local experts	19
	Fraser Institute, Economic Freedom of the World	Surveys, official statistics	20
	Heritage Foundation, Index of Economic Freedom	In-house experts	19
	World Bank, Governance Indicators	Combined indicators	21
Labour market regulations	Fraser Institute, Economic Freedom of the World	Surveys, official statistics	20
	OECD, Labour market indicators	Official statistics, member country questionnaires	7
	Heritage Foundation, Index of Economic Freedom	In-house experts	19
	International Institute for Management Development, World Competitiveness Yearbook	Surveys, official statistics	16
Product market regulations/competition	World Bank, World Investment Climate Surveys 2005	Survey of firms	6
	World Economic Forum, Global Competitiveness Report	Survey of executives	18
	OECD, Product Market Regulations	Questionnaire of member countries	7
	Heritage Foundation, Index of Economic Freedom	In-house experts	19
Policy uncertainty	World Bank, World Investment Climate Surveys 2005	Survey of firms	e
Crime	World Bank, World Investment Climate Surveys 2005	Survey of firms	6
Regulation and tax administration	World Bank, World Investment Climate Surveys 2005	Survey of firms	6
	World Bank, Doing Business Project 2004	Local experts	19
	Fraser Institute, Economic Freedom of the World	Surveys, official statistics	20
	Heritage Foundation, Index of Economic Freedom	In-house experts	19
	International Institute for Management Development, World Competitiveness Yearbook	Surveys, official statistics	16
	World Bank, Governance Indicators	Combined indicators	21
Finance	World Bank, World Investment Climate Surveys 2005	Survey of firms	6
	Heritage Foundation, Index of Economic Freedom	In-house experts	19
Infrastructure	World Bank, World Investment Climate Surveys 2005	Survey of firms	6
	World Bank, World Development Indicators	Surveys, official statistics	19
	International Institute for Management Development, World Competitiveness Yearbook	Surveys, official statistics	16
Skills	World Bank, World Investment Climate Surveys 2005	Survey of firms	6
	Business Environment Risk Intelligence, Quality of Workforce Index	Official statistics, in-house experts	17
	World Bank, World Development Indicators	Surveys, official statistics	19
Risk	PRS Group, International Country Risk Guide	In-house experts	21
	Business Environment Risk Intelligence, Business Risk Service	In-house experts	17
	Economist Intelligence Unit, Country Risk Service	In-house experts	
Capital controls	Fraser Institute, Economic Freedom of the World	Surveys, official statistics	20
	Heritage Foundation, Index of Economic Freedom	In-house experts	19
Political stability	PRS Group, International Country Risk Guide	In-house experts	21
	Economist Intelligence Unit, Country Risk Service	In-house experts	
	World Bank, Governance Indicators	Combined indicators	21

Source: As in table.



5.2 APEC economies perform well in behind-the-border barriers

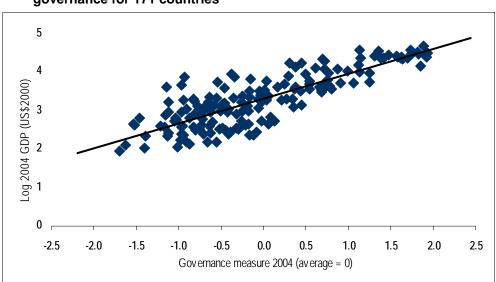
Behind-the-border barriers and economic performance

Behind-the-border barriers can lower returns to investment, increase the risk of investment, or create economic rents to particular investors. These factors lower the overall amount of investment undertaken and the consequent benefits. This can, in turn, reduce income levels below their potential.

Cross-country comparisons confirm the importance of behind-the-border barriers. For example, there is a striking positive relationship between measures of governance and real gross domestic product (chart 5.3).

Research on individual economies also shows the large gains possible from lowering behind-the-border barriers. Establishing a system of rudimentary property rights 'unleashed growth and reduced poverty' in China (World Bank 2005, p7). In Peru, more secure property rights allowed urban slum dwellers to increase their incomes by working away from their homes, while land values in Thailand increased from 40 to 80 per cent after being titled, with productivity on titled farms 14 to 25 per cent higher than on non-titled farms (World Bank 2005).

^a World average equals zero and standard deviation equals 1. Simple average of APEC economies. Data source: Kaufman, Kraay and Mastruzzi (2003).



5.3 Behind-the-border barriers are important: income and measures of governance for 171 countries

Data source: World Bank World Development Indicators, Kaufman, Kraay and Mastruzzi (2003)

Vietnam's easing of business regulations in 2000 boosted business numbers (Mallon 2004). Before 2000, it took six to 12 months, visits to 10 agencies and submission of 20 documents to start a business. This process cost between US\$700 and US\$1400. Under the new laws, costs fell to \$350 and the process took only two months. The number of new businesses more than doubled in 2000, and more than tripled the 1999 level in 2001.

Other research has considered the impacts of corruption on FDI, economic growth and the behaviour of investors (see Klein et al 2001 for a summary of articles). Nicolletti et al (2003) showed that product and labour market regulation and infrastructure were also important in determining foreign investment levels.

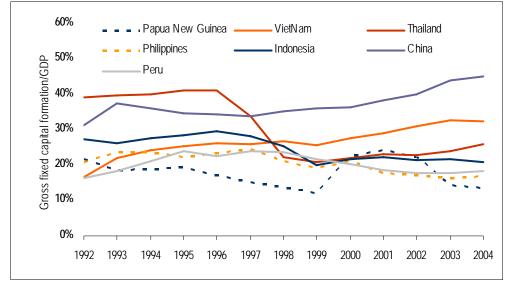
However, substantial gaps remain concerning behind-the-border barriers, their impacts, and the best methods of removing them.

Investment in lower-income APEC economies

Investment in many lower-income APEC economies remains at levels similar to developed economies, despite the large difference in capital stock between higher and lower-income economies. Investment in China is well above that of other lower-income APEC economies (chart 5.4). However, investment today in many APEC lower-income economies is below the levels experienced prior to the Asian crisis. Behind-the-border barriers are one of the factors that can impact on domestic investment. Economies can still attract domestic and foreign investment even with behind-the-border barriers, such as China and East Asia prior to the Asian financial crisis in 1997 (although the crisis was in many respects the result of investors becoming more aware of behind-the-border barriers). But in the absence of these barriers, investment and growth could be stronger and more robust.⁴

Domestic savings can be mobilised

Behind-the-border barriers can shut off otherwise productive domestic investment opportunities and push domestic savings overseas. In the APEC region, lower-income economies save more than they invest; the excess flows abroad. Domestic saving is almost 10 per cent higher than gross fixed capital formation in low to lower-middle income APEC economies (chart 5.5). Current account surpluses exist in most lowerincome APEC economies, indicating that investment funds are flowing out of these economies (chart 5.6). In contrast, richer economies such as Australia, United States and New Zealand are all recording current account deficits, with investment flowing into these economies.

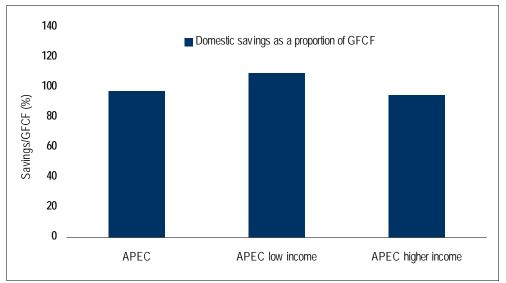


5.4 Investment in lower-income APEC economies

Data source: UNCTAD (2005a)

⁴ Empirical evidence of these patterns is emerging. For example Chinn and Ito (2005) find that legal and institutional factors have a significant impact on investment and current account balances in less developed economies. However, this finding did not carry over to emerging economies. Gruber and Kamin (2005) find that better institutional quality attracts foreign investment.

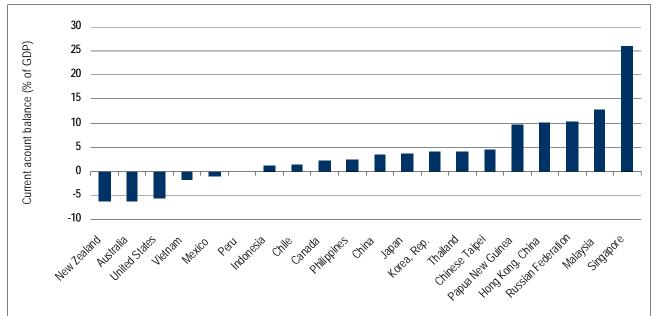
The paradoxical flow of investment from poorer to richer economies also exists outside the APEC region (Lucas 1990). This implies domestic savings are not constraining the growth of lower-income economies. People want to invest in their future but their domestic investment climate, including behind-the-border barriers, is not allowing this to happen.



5.5 Domestic savings can be mobilised in low-income economies

Data source: World Bank, World Development Indicators 2006.

5.6 Current account balance for APEC economies as a per cent of GDP (2004)



^a Papua New Guinea data is for 2001, Vietnam for 2002 and Malaysia for 2003. Data for Chinese Taipei is for 2005 from the CIA fact book. *Data source*: World Bank World Development Indicators 2006.

Key messages

Domestic investment in APEC economies is more than 14 times as large as foreign direct investment. While FDI can bring an additional growth premium, domestic investment will still be the primary driver of growth.

Domestic investment in lower-income APEC economies can be boosted. However, investment levels in many economies have not recovered since the Asian crisis. In addition, these economies currently save more than they invest; the gap is exported, typically to rich economies. One reason why investment is exported is that behind-the-border barriers restrict domestic investment opportunities.

Behind-the-border-barriers take many forms – including inadequate property rights, poor governance, and poor regulation. They include any policy that increases uncertainty or lowers the returns to capital. Although the importance of behind-the-border barriers is becoming well known, quantifying the impacts of these barriers is difficult and rarely done. The resulting lack of knowledge results in poor transparency and little debate.

Improved investment and growth can be achieved by reducing behind-the border-barriers. This requires three things: a method for quantifying behind-the-border barriers, a formal way of assessing these impediments, and a process by which this can happen through wide public debate and policy change.

6

Conclusions

Investment is a key driver of growth. In turn, 90 per cent of reductions in world poverty have been attributed to economic growth. Economic growth also improves social outcomes such as education and health.

Both foreign investment and domestic investment have a role to play in boosting economic growth and improving social outcomes. Foreign direct investment can increase available capital as well as productivity through the transfer of technology and management practices to the host economy. Despite this, all APEC economies have some level of direct barriers to FDI. Barriers to FDI are particularly significant in lower-income economies.

Partial analyses by international organisations such as the World Bank and the OECD suggest that lowering FDI barriers to the level of the most open APEC economy could boost FDI by 20 to 30 per cent and increase GDP in the region by two to three per cent. However, these partial studies suffer from two main deficiencies. First, when applied to a region as large as APEC, liberalising foreign investment flows would have economy-wide repercussions for interest rates and savings that should be considered. Second, the partial studies rely heavily on cross-sectional data with the implicit assumption that if barriers to FDI for an economy are lowered, the response will be as for other economies where FDI is not as restricted. That is unlikely to be the case due to behind-the-border barriers that retard investment from both foreign and domestic sources alike.

While lowering FDI can bring substantial economic and social gains, domestic policies or behind-the-border barriers remain a key to improving outcomes in the APEC region. Behind-the-border barriers such as inadequate property rights, poor regulation and poor governance restrict the level and benefits from FDI. Behind-the-border barriers also restrain investment from domestic sources, which is 14 times as large as FDI in the APEC region, by lowering the returns and increasing the risk from investment.

Domestic investment offers enormous growth potential for the region and for lower-income APEC economies. Considerable potential to boost investment from domestic sources exists in lower-income APEC economies because the savings are there – it is just that these savings are presently going elsewhere. Currently, many lower-income APEC economies are net investors in rich economies despite lower levels of capital and therefore a potentially higher return on capital in the lower-income economies. A key constraint to the realisation of domestic investment potential is behind-theborder barriers, which impede profitable domestic investment opportunities in lower-income economies.

Evidence of the importance of behind-the-border barriers is becoming well known. However, quantifying the impacts of these barriers is difficult and rarely done. This lack of knowledge leads to poor transparency, little debate and insufficient action at addressing the shortcomings of the institutional and policy environments.

Two things are required to capture the benefits of removing behind-theborder barriers: first, a formal way of assessing the impacts of these impediments to improve knowledge and increase transparency; and second, a process by which the assessment and quantification of barriers can occur in an economy-wide framework. This process would generate wide public debate and would aid the removal of these impediments.

Phase II of this study will show the nature and levels of behind-the-border barriers within the APEC region and assess the impacts of these barriers. This follow-up study will develop a framework to assess behind-the-border barriers. Such a framework will assist independent domestic review processes to generate wide debate within countries about policy choices, ensuring that more transparent and informed decisions are made.

References

- Adams, R.H. 2003, 'Economic Growth, Inequality and Poverty: Findings from a new data set', *World Bank Policy Research Working Papers*, No. 2972, February.
- Aghion, P., Comin, D. and Howitt, P. 2006, 'When does domestic savings matter for economic growth?', National Bureau of Economic Research Working Papers, No. 12275, May.
- Agosin, M. and Mayer, R. 2000, 'Foreign Investment in Developing Countries: Does it crowd in domestic investment?', *United Nations Conference on Trade and Development Discussion Papers*, No. 146, February.
- Alfaro, L., Chanda, S., Kalemli-Ozcan, S. and Sayek, S. (2004), 'FDI and Economic Growth: The role of local financial markets', *Journal of International Economics*, Vol. 64, No. 1, pp 89-112, October.
- APEC 2005, Statistics from APEC website, http://www.apec.org.
- Australian Productivity Commission (APC 2001), Measures of Restrictions in Trade on Services Database, http://www.pc.gov.au.
- Balasubramanyam, V.N., Salisu, M. and Sapsford, D. 1996, 'Foreign Direct Investment and Growth in EP and IS Countries', *The Economic Journal*, Vol. 106, No. 434, pp 92-105.
- Battellino, R. 2006, *Regional Capital Flows*, Talk to 6th APEC Future Economic Leaders Think Tank, 28 June.
- Bergsman, J., Broadman, H.G. and Drebentsov, V. 1999, 'Improving Russia's Foreign Direct Investment Policy Regime', in Broadman, H.G. (ed.) *Russian Trade Policy Reform for WTO Accession*, The World Bank, Washington, DC.
- Blonigen, B. and Wang, M. 2004, 'Inappropriate pooling of wealthy and poor countries in empirical FDI studies', *National Bureau of Economic Research Working Papers*, No. 10378, March.
- Borensztein, E., De Gregorio, J. and Lee, J.W. 1998, 'How does foreign direct investment affect economic growth?', Journal of International Economics, Vol. 45, pp 115-135.
- Calderon, C., Loayza, N. and Serven, L. 2002, 'Greenfield FDI vs. Mergers and Acquisitions: Does the Distinction Matter', Central Bank of Chile Working Papers, No. 173, August.

- Centre for International Economics (CIE) 2000, *Economic integration and Vietnam's development strategy*, report prepared for Development Strategy Institute and UNDP, Canberra.
- 2004a, APEC Economies Delivering to People, 2005: Regional Integration and Outcomes in the APEC Region, a report prepared as a contribution to APEC's mid-term stocktake of the Bogor Goals.
- -- 2004b, Vietnam Poverty Analysis, report prepared for AusAID, Canberra.
- Charlton, A. 2003, 'Incentive bidding for mobile investment: economic consequences and potential responses', *OECD Development Centre working papers*, No. 203, January.
- Chinn, M. and Ito, H. 2005, Current Account Balances, Financial Development and Institutions: Assaying the World 'Savings Glut', *National Bureau of Economic Research Working Papers*, No. 11761, November.
- Chowdhury, A. and Mavrotas, G. 2006, 'FDI and Growth: What causes what?', *The World Economy*, Vol. 29, No. 1, pp 9-19, January.
- Dollar, D. and Kraay, A. 2002, 'Growth is Good for the Poor', *Journal of Economic Growth*, Vol. 7, No. 3, pp 195-225.
- Golub, S. 2003, 'Measures of Restrictions on Inward Foreign Direct Investment for OECD Countries', OECD Economic Studies, No. 36, 2003/1.
- Gorg, H. and Greenaway, D. 2004, 'Much ado about nothing? Do domestic firms really benefit from foreign direct investment?', World Bank Research Observer, Vol. 19, No. 2.
- Gruber, J. and Kamin, S. 2005, 'Explaining the global pattern of current account imbalances', *Board of Governors of the Federal Reserve System International Finance Discussion Papers*, No. 846, November.
- Hallak, J.C. and Levinsohn, J. 2004, 'Fooling ourselves: evaluating the globalisation and growth debate', National Bureau of Economic Research Working Papers, No. 10244, January.
- Hanson, G. 2001, 'Should Countries Promote Foreign Direct Investment?', United Nations Conference on Trade and Development G-24 Discussion Paper Series, No. 9, February.
- Hooke, G., Warr, P., Shaw, B., Fforde, A. and Brassard, C. 1999, *Agriculture in Times* of Crisis: Impacts in South East Asia of the Economic Crisis, AusAID, Canberra.
- International Monetary Fund (IMF) 1999, Seminar on Revenue Implications of Trade Liberalisation, 3 February.
- 2005, Coordinated Portfolio Investment Survey, http://www.imf.org/external/np/ sta/pi/cpis.htm, IMF website.

- Kaufmann, D., Kraay, A. and Mastruzzi, M. 2003, 'Governance Matters III: Governance Indicators for 1996-2002', World Bank Policy Research Department Working Papers.
- 2005, 'Governance Matters IV: Governance Indicators for 1996-2004', Draft, May.
- Klein, M., Aaron, C. and Hadjimichael, B. 2001, 'Foreign Direct Investment and Poverty Reduction', World Bank Policy Research Working Paper, No. 2613, June.
- Krugman, P. 1994 'The Myth of Asia's Miracle', *Foreign Affairs*, Vol. 73, Issue 6 (Nov/Dec), pp 62-78.
- Lim, E. 2001, 'Determinants of, and the relation between, foreign direct investment and growth: a summary of the recent literature', IMF Working Papers, No. 01/175, November.
- Lucas, R.E Jr. 1990, 'Why Doesn't Capital Flow from Rich to Poor Countries?', *The American Economic Review*, Vol. 80, No. 2, pp 92-96, May.
- Mallon, R. 2004 'Managing Investment Climate Reforms: Vietnam Case Study', Background Paper for the World Development Report 2005.
- Morriset, J. 2003, 'Does a country need a promotion agency to attract foreign direct investment? A small analytical model applied to 58 countries', *World Bank/FIAS Policy Research Working Paper*, No. 3028.
- Nicoletti, G., Golub, S., Hajkova, D., Mirza, D. and Yoo, K. 2003, 'The influence of policies on trade and foreign direct investment', OECD Economic Studies, No. 36, 2003/1.
- Nunnenkamp 2004, 'To What Extent Can Foreign Direct Investment Help Achieve International Development Goals?', Kiel Institute for World Economics Working Papers, No. 1128.
- OECD 2003, Checklist for Foreign Direct Investment Incentive Policies, OECD.
- Olson, M. 1996, 'Big Bills Left on the Sidewalk: Why Some Nations are Rich, and Others Poor', Journal of Economic Perspectives, Vol. 10, No. 2, pp3-24.
- Ravallion, M. 2004, 'Looking beyond averages in the trade and poverty debate', World Bank Policy Research Working Paper, No. 3461, November.
- UNCTAD 2005a, World Investment Report 2005: Statistical Annex Tables, New York and Geneva.
- 2005b, 'Measures of Restrictions on Inward Foreign Direct Investment in the Services Sector of Developing Countries', unpublished.
- 2006, 'Better Data Needed to Assess FDI Impact', UNCTAD Investment Brief, No. 2, 2006.

- UNDP 2006, *Human Development Indicators*, accessed from UNDP website, http://hdr.undp.org/statistics/data/.
- World Bank 2004, World Development Report 2004: Making Services Work for Poor People, World Bank, Washington DC.
- 2005, World Development Report 2005: A Better Investment Climate for Everyone, World Bank and Oxford University Press.

—— 2006, World Development Indicators on-line database, http://publications. worldbank.org/WDI/.

- World Trade Organisation 1996, Annual Report: Trade and Foreign Direct Investment, Geneva.
- Zalduendo, J. 2005, 'Pace and Sequencing of Economic Policies', International Monetary Fund Working Papers, No. 05/118, June.

Appendix

A

Growth accounting

Growth accounting is the process where growth is attributed to changes in inputs (labour, land, capital and human capital) and to changes in the efficiency with which these inputs are used to create outputs.

Growth accounting takes as its base a Cobb-Douglas production function. The function allows for constant, increasing or decreasing returns to scale. That is, if the quantity of inputs into the production function were to double, output would double, more than double, or less than double under constant, increasing or decreasing returns to scale respectively. Assuming constant returns to scale (doubling inputs leads to double the output), the Cobb-Douglas production function may be written as:

$$Y = \beta L^{\alpha} K^{1-\alpha}$$

where *Y* is real output, β is a measure of technology that relates to multifactor productivity, *L* is labour inputs, *K* is capital stock and α is the partial elasticity of output with respect to labour. When empirically tested, the estimates for α are typically within the range 0.7 to 0.8.

Re-arranging the production function to consider growth in per capita income gives:

$$\frac{Y}{L} = \frac{\beta L^{\alpha} K^{1-\alpha}}{L}$$
$$= \beta \left(\frac{K}{L}\right)^{1-\alpha}$$
$$y = \beta k^{1-\alpha}$$

That is, income per person, y, is now determined by the level of technology in the economy, β , and the amount of capital per worker, k.

From this, it is clear that the only way to increase *income per person* is through improving the productivity (β) or by increasing the level of *capital per person* (k).

Rearranging to give the percentage change in per capita income gives:

$$\hat{y} = \hat{\beta} + (1 - \alpha)\hat{k}$$

where \hat{y} is the percentage change in output per person, $\hat{\beta}$ is the percentage change in technology and \hat{k} is the percentage change in capital per worker.

In this form, we are able to determine the percentage impact on income per person from changes in either (or both) the capital stock or level of technology in the economy.

Prepared By: The Centre for International Economics GPO Box 2203, Canberra ACT 2601. Australia. Tel: (61) 2 6245 7800 Fax: (61) 2 6245 7888 Email: info@TheCIE.com.au Website: www.TheCIE.com.au

FOR THE ASIA-PACIFIC ECONOMIC COOPERATION SECRETARIAT 35 Heng Mui Keng Terrace Singapore 119616 Tel: (65) 6775-6012 Fax: (65) 6775-6013 Email: info@apec.org Website: www.apec.org

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