

**WORKING PAPER**

**FOREIGN DIRECT  
INVESTMENT AND APEC  
ECONOMIC INTEGRATION**

*Working Paper Number 8  
February 1996*



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*It should be emphasized that the foreign direct investment (FDI) data presented in this report are generally based on two different sources – FDI approvals/notifications and balance of payments. These two types of data are not strictly comparable. However, given data limitations, data from the two different sources are often aggregated to examine the trends and geographic patterns of FDI of host and home countries. The FDI tables (Tables 21-31) were prepared by making use of direct investment data from various national and international sources, adjusting for consistency as much as possible. Responsibility for the numbers rests solely with the authors. A major objective of our initial effort in developing the FDI database for the APEC region is to focus the future research of APEC towards the development of a more comprehensive and systematic database, using a standard definition of FDI.*

*We regret that we could not obtain reliable trade and direct investment data for Papua New Guinea and Brunei Darussalam. As well, data for this research project was collected before Chile joined APEC, therefore this country has not been included in the analysis.*

The views expressed in this working paper do not necessarily reflect those of Industry Canada or of the federal government.

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## EXECUTIVE SUMMARY

The Asia-Pacific is the fastest growing economic region in the world. Accessing markets in member economies of the organization for Asia-Pacific Economic Cooperation (APEC) will be instrumental in promoting jobs and growth in Canada.

While many studies have been published in recent years relating to the Asia-Pacific, little empirical work has been done on investment and economic integration in the region. In part, this is due to a lack of data. This study develops a reasonably consistent set of data on direct investment for APEC member economies. It examines in some detail the investment linkages among APEC members and investigates the relationship of trade to international investment.

The main findings of the study are as follows:

### *Economic Dynamism*

- All the Asia APEC member economies, except the Republic of the Philippines, enjoyed very rapid growth rates in output and real incomes and gained significant ground over the industrialized economies in the post-War period.
- However, the productivity and real income levels in Asian countries, (except Japan, Hong Kong and Singapore) are still well below those of non-Asia APEC member economies.
- High savings and investment rates, the rapid growth of exports, the presence of well educated and skilled workers, low labour costs, favourable exchange rate movements, a well developed infrastructure, and outward looking and market oriented micro- and macro-economic policies seem to have contributed to the Asian growth miracle.
- The Asia APEC region will continue to outperform the non-Asia Pacific region because of very large productivity and technology gaps, provided these countries continue to apply appropriate micro and macro policies and strengthen their trade and investment linkages with countries inside and outside of APEC. In other words, the APEC market, with over 2 billion people, has tremendous growth potential.

### *Openness*

- On average, Asia APEC member economies (except Japan) have a much higher trade propensity than non-Asia APEC member economies. In the 1980s, relative share of trade increased dramatically in the domestic economy of the Peoples' Republic of China (PRC) and Mexico.
- The share of foreign direct investment (FDI) flows in domestic capital formation more than doubled in most of APEC member economies during the second half of the 1980s.

- In 1992, FDI inflows in the PRC jumped to US\$ 11.2 billion, from only US\$ 4.4 billion one year earlier, making it the second largest FDI recipient in the world (after the US) and the largest FDI host country in the developing world.
- The shares of the two direct investment stocks (inward and outward) in GDP also increased substantially in most of APEC member economies during the 1980s.
- The manufacturing and tertiary sectors account for much of the inward and outward FDI stocks in all APEC member economies, except in the Association of Southeast Asian Nations (ASEAN) countries. The share of the tertiary sector in APEC inward FDI stocks increased markedly in the 1980s.

#### *APEC Economic Integration: Trade Linkages*

- Between 1980 and 1992, trade linkages between the Asia APEC and the non-Asia APEC member economies strengthened considerably. Similarly, the importance of intra-Asia APEC and intra-non-Asia APEC trade in the total trade of these two sub-groups increased substantially. As a result, the share of intra-APEC trade in total APEC trade climbed from about 58 percent in 1980 to about 70 percent in 1992.
- Trade linkages between APEC and the rest of the world (ROW) declined dramatically in the 1980s while trade linkages with the European Union (EU) remained virtually unchanged.

#### *APEC Economic Integration: Investment Linkages*

- In 1992, intra-APEC inward FDI stock accounted for about 50 percent of the total APEC FDI stock, with roughly equal shares coming from Asia APEC and non-Asia APEC.
- In both the ASEAN and the newly industrializing economies (NIEs), the single most important source of FDI was Asia APEC, with Japan and the NIEs being the main source countries. Non-Asia APEC member economies are more important investors in the NIEs than in the ASEAN countries.
- The shares of Japan and the EU in the total inward FDI stock of the non-Asia APEC region increased considerably during the 1980s. On the other hand, the importance of the US as a source country declined markedly.
- In 1992, almost half of the APEC outward direct investment stock went to other APEC member economies, 30 percent went to the EU and 20 percent to other countries around the globe. During the 1980s, the shares of APEC and EU increased significantly at the expense of a decline in the ROW share.

- While APEC as a source of FDI in other APEC member economies is declining, overall investment linkages between the region's countries are strengthening.
- Within APEC, non-Asia APEC countries are linked more closely through direct investment ties with other member economies than are Asia APEC countries.
- In terms of overall investment linkages, Asia APEC is predominantly linked to non-Asia APEC member economies. In terms of inward flows alone, however, intra-Asia APEC linkages dominate.

#### *Interrelationship Between Trade and Investment Linkages*

- The following factors seem to have played a major role in shaping the trade and investment patterns of APEC member economies in the 1980s: faster rates of economic growth in APEC member economies, especially in the Asia APEC region; the complementary nature of trade among APEC member economies; very low labour costs in the Asian countries (except Japan); geographic proximity and rapid changes in the comparative advantage position of APEC member economies; cultural affinity of economies in the three APEC sub-groups: Asia APEC, North America, and Australia-New Zealand (ANZ); regional free trade agreements (FTA, NAFTA, ASEAN and ANZ); the opportunities and fears associated with the advent of the EU; slower economic growth in the ROW countries; declining real commodity prices; and, more importantly, the stronger investment linkages between APEC member economies.
- The trade and investment patterns of all APEC member economies showed a strong and positive correlation in both 1980 and 1992, suggesting trade and FDI are complements rather than substitutes. The trends in trade flows and the two direct investment stocks in APEC member economies in the 1980s also imply complementarity between trade and investment linkages.
- The total elasticity of trade flows to inward and outward FDI stocks for the APEC region averages around 0.6. Nevertheless, it varies significantly across APEC member economies (between 0.3 and 0.8), with a lower elasticity in Asia APEC countries.

Investment is leading the integration of APEC economies and trade linkages are developing in response to investment patterns. In policy terms, the analysis suggests that efforts to facilitate investment and trade should continue; this will inevitably bring pressures to harmonize policies among APEC countries in areas such as corporate law, intellectual property, and competition.



## 1. INTRODUCTION

The economies of the world are becoming more closely integrated. As a result, international institutions and organizations that foster economic cooperation are becoming increasingly important. One of the most important of these organizations is APEC, the organization for Asia-Pacific Economic Cooperation.

Over two billion people live in APEC member economies. In 1992, the combined GDP of the seventeen APEC countries exceeded US\$ 12 trillion. Together, APEC economies account for about 5 percent of the world population, output, trade and direct investment stock, and that proportion is increasing.

The Asia-Pacific region is expected to play a pivotal role in Canada's future economic growth. It is the most populous and dynamic region in the world today, with huge growth potential. For the past three decades, it has achieved a faster rate of economic growth than any other. Exploiting markets in this region is becoming increasingly important to the achievement of Canada's economic goals in terms of trade, tourism and investment opportunities; in technology acquisition; in job creation; in sustaining a sound macroeconomic environment; in managing the demographics of immigration; and in responding to regional shifts in Canada's domestic economy and employment patterns.

Almost all of Canada's trade (over 86 percent) is done with APEC member countries. During the 1980s, Canada sent a rising proportion of its exports to APEC countries (primarily the US). It also imported more from APEC countries during that period. In particular, the share of our imports coming from Asia APEC countries doubled from 7 percent to 13 percent between 1980 and 1992.

In terms of investment linkages, APEC member economies (again, primarily the US) remain the most important to Canada. While the 1980s have seen the share of Asia APEC double, as both a home country for FDI in Canada and as host for Canadian direct investment abroad, the region still only accounted for 6 percent of foreign direct investment in Canada and received only 7 percent of Canadian direct investment abroad in 1992.

Canada's trade and investment linkages with Asia APEC economies are growing very fast, but from a small base. Hence, there is considerable scope for Canada to strengthen its commercial ties with these economies.

At present there are no reliable and consistent time series data available on inward and outward direct investment stocks and flows in APEC countries, and we do not know much about the relationship between direct investment flows and trade. This places serious constraints on our understanding of the dynamics of economic integration in the APEC region and what it means for Canada. A previous APEC study of foreign direct investment by Dobson, Safarian and Chia (1993) suggested that FDI is playing a dominant role in furthering economic integration

among APEC countries, especially between Asia and non-Asia APEC countries and within the Asian group of countries.

Therefore, the main focus of this study, an earlier version of which has been published by the APEC Secretariat, is to build on the work of Dobson, Safarian and Chia (1993), and to develop a reasonably consistent direct investment database for APEC, and to examine in some detail the trends in investment linkages among APEC countries in the 1980s and their relationship to trade flows. The main objectives of the study are:

- to develop a time series database of direct investment flows and stocks for the APEC region over the period 1980-92;
- to analyse the growth dynamism of APEC countries;
- to examine the role of trade and direct investment in APEC economies;
- to investigate trends in intra-regional investment linkages between Asia APEC and non-Asia APEC countries as well as within these two sub-groups, and to examine investment linkages with non-APEC countries;
- to analyse the linkages between APEC trade and investment; and
- to examine the implications of direct investment-led economic integration for market framework laws and policies.

To achieve these objectives, we first put together a database on direct investment flows and stocks and trade flows, drawing on various national and international sources.

For analytical purposes we divided the fifteen APEC countries for which we obtained data into two broad groups: Asia APEC and non-Asia APEC. Asia APEC is sub-divided into four groups: Japan, the Peoples Republic of China, the Newly Industrializing Economies or NIEs (Hong Kong, Singapore, the Republic of Korea and Chinese Taipei) and the Association of South-East Asian Nations or ASEAN countries (Malaysia, Thailand, Indonesia and the Philippines). The five non-Asia APEC countries are divided into two groups: North America (United States, Canada and Mexico) and ANZ (Australia and New Zealand).

The report is organized as follows. Chapter 2 examines the growth dynamism and diversity of APEC countries. The growing importance of trade and direct investment for APEC countries is analysed in Chapter 3. Chapter 4 investigates the trends in APEC trade and investment and examines the relationship between trade and investment in these countries. The final chapter summarizes the main findings of the study and discusses the implications for market framework laws and policies.

Between 1980 and 1992, the trade linkages between Asia APEC and non-Asia APEC member economies strengthened considerably. Intra-APEC trade increased from 58 percent in 1980 to 70 percent in 1992. Overall, investment linkages between APEC countries also strengthened. In addition, trade and investment patterns among APEC member economies showed a strong and positive correlation. Investment appears to lead trade in the APEC region. Clearly, as APEC member economies become increasingly integrated over time, there will be pressures toward policy convergence and harmonization.





## **2. DIVERSITY AND DYNAMISM OF APEC MEMBER ECONOMIES**

### **Introduction**

Total trade of APEC member economies was more than US\$ 3.1 trillion in 1992, slightly more than that of the European Union (EU). But, the combined GDP of APEC member economies was almost US\$ 12.4 trillion, compared to only US\$ 6.9 trillion for the EU. In addition, the combined population of APEC member economies in 1992 (2.1 billion people) was more than six times that of the EU, suggesting a huge market potential in the APEC region.

APEC, however, is a heterogeneous group of economies. Enormous diversity exists among member economies in terms of population and GDP, the industrial structure of production and trade, resource endowment, level of economic development and living standards, technological sophistication, and outward orientation.

### **Population**

The population of APEC member economies varies from a low of 0.3 million people in Brunei Darussalam to almost 1.2 billion people in the PRC (see Table 1). Asia APEC member economies account for more than four-fifths of APEC's 2.1 billion people. As a result, this region offers huge export market potential for both APEC and non-APEC countries. These economies represent one of the most populous and fastest growing regions in the world.

The PRC, the most populous country in the world, has about 1.2 billion people, about ten times the population of the next two populous Asian countries, Indonesia and Japan, each with a population exceeding 100 million. In contrast, two member economies, Hong Kong and Singapore, have fewer than 10 million people. The four NIEs together have about 73 million people, compared to more than 335 million people in the four ASEAN countries.

The US, with 255 million people, is the second most populous member economy in APEC after the PRC and it accounts for two-thirds of the non-Asia APEC population of 393 million. Mexico's population, at about 80 million, is larger than the combined population of the NIEs. New Zealand's population of 3.3 million ranks closely with Papua New Guinea (PNG) and Singapore, and is considerably smaller than Australia's 17.5 million population.

### **Size of the Economy and Living Standards**

Per-capita income, measured in market exchange rates, varies from a meagre US\$ 374 in the PRC to a high of more than US\$ 29,000 in Japan. The five Organization for Economic Cooperation and Development (OECD) countries (United States, Canada, Japan, Australia and New Zealand) and Hong Kong and Singapore have achieved a similar level of economic development, as measured by per-capita income, and are much more advanced than the other APEC member economies (see Table 1)<sup>1</sup>.

The five non-Asia APEC member economies accounted for approximately 60 percent of APEC GDP in 1992, compared to their population share of only 19 percent. However, the US is the dominant player in APEC. It accounted for almost 50 percent of APEC GDP and more than 80 percent of non-Asia APEC output.

Japan is the predominant economy in Asia APEC. Its GDP of almost US\$ 3.7 trillion is more than two and one-half times the combined total of other Asia APEC member economies. The PRC, with the second largest GDP in Asia APEC (US\$ 435 billion), is only slightly more than one tenth the size of the Japanese economy. The NIEs and ASEAN countries individually do not have sizable domestic markets, but their combined GDP in 1992 was nearly US\$1 trillion, more than the combined output of Canada and Mexico (see Table 1).

### **Growth Record**

Between 1980 and 1992, real GDP growth in Asia APEC member economies averaged 4.8 percent annually, more than double the rate in the non-Asia APEC member economies (see Tables 1 and 2). Within Asia APEC, the real output of the PRC grew at an exceptional rate of 9.2 percent a year, or almost twice the average growth rate of the entire Asia APEC region. Economic growth of the NIEs averaged almost 8 percent, while output of the ASEAN countries expanded at an average rate of only 5.5 percent. The growth record of the Republic of the Philippines, Brunei Darussalam and PNG was an exception to the Asian growth miracle. For instance, the GDP of the Republic of the Philippines grew at a meagre 1.3 percent per year, significantly less than its population growth of 2.4 percent, resulting in a per-capita real income decline during the decade.

In addition, in the 1980s, real GDP growth exceeded population growth in all APEC member economies by significant margins (with the exception of Brunei Darussalam, PNG, Mexico and the Republic of the Philippines), resulting in considerable improvements in per-capita real incomes. Asia APEC member economies experienced the most success in this regard. Real per-capita income in Asia APEC member economies grew at an average annual rate of 3.3 percent during the 1980-1992 period, compared to only 0.8 percent in non-Asia APEC and 1.4 percent in the EU. The fastest growth in real incomes occurred in the ROK and PRC, at about 8 percent per year. Among developed APEC member economies, Japan led the way in per-capita income growth during this period (3.4 percent); followed by Australia and Canada (1.2 percent), United States (1.1 percent) and New Zealand (1.1 percent) (see Table 1).

As a result of the faster growth of per-capita real incomes in the Asia APEC member economies, the relative differences in per-capita income levels among APEC member economies have narrowed considerably in the post-war period. For instance, Japan's per-capita income, measured in Purchasing Power Parity (PPP) exchange rates, increased from a mere 17 percent of the US level in 1950 to over 80 percent in 1990. Similarly, the other Asian economies, particularly the NIEs, gained considerable ground over the US and Canada during this period, (see Table 3). The narrowing of income gaps among economies is often a phenomenon referred to by economists as economic convergence.

### ***Possible Explanations of Economic Convergence***

As mentioned above, recent research by the World Bank and others shows that the post-war growth performance of industrialized countries and the Asia APEC member economies is consistent with the economic convergence thesis. This theory postulates that if the "follower" countries (those with lower levels of productivity and real incomes) pursue appropriate micro- and macro-economic policies, they should be able to improve their real incomes faster than the "leader" country (the technology and productivity leader). This is because they enjoy the "opportunities of backwardness". The follower countries can emulate the leader's production technologies and management practices and achieve very high rates of output and real income by increasing investments in infrastructure, physical capital and R&D, without running into diminishing returns. Similarly, the scope for rapid structural change and improvement in competitiveness and comparative advantage positions are much larger in follower countries than in the "leader" country. In short, the convergence thesis asserts that having relatively low levels of productivity and per-capita income carries the potential for rapid advancement.

There is some evidence that the rapid diffusion of "frontier" technologies in Asia APEC member economies over the last thirty years or so, particularly in Japan and the NIEs, has contributed in a significant way to the process of economic convergence.<sup>2</sup> A 1988 study showed that in many production processes, the technology used in the ROK and Chinese Taipei was either equivalent to that used in Japan, or would be equivalent in the next five years.<sup>3</sup> In contrast, the technology gap between the PRC on one hand, and the NIEs and ASEAN countries on the other, is substantial. However, technology gap could plausibly narrow significantly over the next two decades or so as the PRC strengthens its trade and investment linkages with other APEC member economies, especially Japan, the US and the NIEs (see Chapter 4 of this paper).

A number of studies have attempted to explain the phenomenal growth of Asia APEC member economies and the resulting convergence of their real incomes toward those of the developed market economies. These studies show that the convergence process is not automatic. Instead, both the level and speed of economic convergence depend on a number of key economic factors. The marked expansion of exports, high savings and investment rates, low-external debt servicing payments, a well-educated, well motivated, and skilled work force, flexible and dynamic factor and product markets, outward-looking and market-oriented economic development policies, well developed infrastructure and economic institutions, and a stable political climate, seem to have contributed to the Asian growth miracle.<sup>4</sup> This research attributes the large cross-country differences in real income growth rates among developing countries (including Asia APEC member economies) over the past 30 years to differences in three major factors: savings and investment rates, growth of exports, and levels of human capital (proxied by secondary school enrolment rates).

It seems that economic integration and outward orientation — in particular increased importance of FDI and trade flows in the APEC economies — played a significant role in the convergence process.<sup>5</sup>

*Investment and Savings Rates*

A necessary, though not sufficient, condition for a country to improve its long-term growth potential is to significantly increase its rate of savings and investment.<sup>6</sup> Developing countries are expected to finance a large part of their substantial investment in infrastructure and physical capital (structures, machinery and equipment) during the early stages of their economic development through foreign borrowing. The experience of Asia APEC member economies generally conforms to this norm. Rapid GDP growth in Asia APEC member economies has been accompanied by relatively high shares of investment in GDP, financed partly by high domestic savings and partly by foreign borrowing.

Aggregate savings and investment rates, on average, are substantially higher in Asia APEC member economies than in non-Asia APEC member economies. In 1992, the investment rate averaged 31.6 percent in Asia APEC member economies, more than twice the rate of non-Asia APEC member economies. More importantly, the domestic savings rate in the Asia APEC region exceeded its investment rate by a significant margin. These excess domestic savings were made available to other countries, especially to non-Asia APEC member economies (see Table 4).

Between 1980 and 1992, the investment rate increased substantially in the PRC, the ROK and three of the four ASEAN countries. The domestic savings rate of these countries also increased significantly during this period. However, the rise in domestic savings was not sufficient to fully finance the large increase in investment in the ROK and Thailand, resulting in significant foreign borrowing (see Table 4).

In 1992, the savings rate exceeded the domestic investment rate in three of the four NIEs. As a group, the NIEs' savings rate exceeded its investment rate by 3.0 percent in 1992, compared to a resource gap of -5.0 percent of GDP in 1980 (the investment rate exceeded the savings rate in 1980). In the ROK, both the savings and investment rates increased markedly during this period. However, the savings rate fell slightly short of the investment rate in 1992, resulting in some foreign borrowing. In Japan, the high domestic savings rate combined with a slight decline in the investment rate led to considerable net foreign lending and direct investment abroad (see Table 4).

Household or personal savings as opposed to corporate or government savings account for the bulk of high domestic savings in Japan, Chinese Taipei and the ROK.<sup>7</sup> Various factors explain the high savings propensity of households: the occupational composition of households — a large proportion of non-farm self-employed persons with high savings propensities; the "bonus" effect stemming from the large share of transitory income in total wage income in these countries, which increases the savings rate because of the higher savings propensity of transitory income; limited consumer credit; the absence of social security; and a cultural proclivity to save.<sup>8</sup>

A notable feature of investment in Asia APEC is the high share of private investment relative to other low- and middle-income economies. A World Bank Report indicates that the

ratio of private investment to GDP for 1970-1989 in Asia APEC (excluding Japan and the Republic of the Philippines) was on average 7 percentage points higher than in other middle-income economies.<sup>9</sup> Private investment in these countries rose from about 15 percent of GDP in 1970 to nearly 22 percent in 1974, then declined and held at about 18 percent between 1975 and 1984. Private investment contracted sharply between 1984 and 1986, reflecting the global recession, then recovered by 1988. In contrast, private investment in other low- and middle-income economies has remained relatively low at about 11 percent of GDP.

The share of public investment in GDP of Asia APEC member economies has generally been counter-cyclical to the reduction in private investment, which is in sharp contrast to the experience of other middle-income economies. For example, while fiscal contraction of macro-economic adjustment in the 1980s resulted in lower public investment rates in most middle-income economies, the public investment's share in Asia APEC member economies as a group actually rose between 1979 and 1982 and remained at nearly 14 percent — 4 percentage points higher than in the 1970s. Only after 1986 did it begin to decline toward historical levels.

The World Bank Report (1993) also indicates that the drain of external debt servicing on foreign exchange earnings is negligible in Japan, Hong Kong, Singapore, Chinese Taipei, and Malaysia. In addition, debt service charges as a percentage of exports are low in Indonesia, the ROK and Malaysia (less than 20 percent) compared to some other developing areas (in Latin America, for example, they are in excess of 35 percent). These factors are generally conducive to attracting foreign investment flows to the Asia APEC region.

Unlike Asia APEC, both savings and investment rates declined significantly in all non-Asia APEC member economies between 1980 and 1992. The average savings rate of this group of countries declined from 19.4 percent in 1980 to 15.5 percent in 1992. In addition, the decline in the savings rate was larger than the decline in the investment rate, requiring increased foreign borrowing (see Table 4).

### *Growth of Exports*

Asia APEC member economies, by and large, have pursued an aggressive export-led growth strategy rather than import protection. Although most Asia APEC member economies, with few exceptions, passed through an import-substitution phase, marked by high and variable protection of domestic import substitutes, that period ended earlier than in other economies, typically because of a compelling need for foreign exchange. Rather than preserve foreign exchange through stricter import controls, the NIEs and ASEAN countries set out to earn additional foreign exchange by increasing exports.<sup>10</sup>

Thus, the rapid growth of exports has been one of the major contributing factors to the phenomenal growth of output, real incomes, and productivity in Asia APEC member economies. Between 1980 and 1992, merchandise exports from the region increased at an average annual rate of about 10 percent, compared to only 6 percent in non-Asia APEC member economies (see Table 1).

Within Asia APEC, the PRC, the NIEs, Thailand and Malaysia have enjoyed very high export growth, ranging from 10.4 to 15.7 percent per year during 1980-1992. Japanese exports during this period grew at an annual rate of 7.9 percent. On the other hand, Indonesia (3.1 percent), the Republic of the Philippines (4.1 percent), and PNG (4.8 percent) experienced low rates of export growth. In Brunei Darussalam, exports declined substantially between 1980 and 1992. Unlike the large divergence found in export growth rates in the Asia APEC region, the growth rate of merchandise exports was more or less similar across non-Asia APEC member economies (see Table 1).

### ***Factors Contributing to Rapid Export Growth***

#### *Export Composition*

What factors could account for the superior export performance of Asia APEC member economies? Did changes in the commodity composition of exports play a role? Manufactured exports account for almost 90 percent of merchandise exports of Asia APEC member economies. However, the reliance of the ASEAN countries and the PRC on primary exports is substantially higher than in Japan and the NIEs. Japan concentrates heavily on high-tech and high value-added manufactured products (machinery and equipment, and chemicals). NIEs exports consist mostly of light machinery, consumer goods (electronics) and labour-intensive manufactured products. However, the share of high-tech and high value-added products in total trade has increased rapidly over the last 25 years. On the other hand, the PRC and the ASEAN countries' exports are dominated by resources, resource- and labour-intensive manufactured products and light machinery.<sup>11</sup>

The remarkable growth of manufactured exports from Asia APEC member economies could be attributed to four main factors: the liberalization of world trade and investment flows and increased global economic integration; low wage rates; superior productivity and cost performance; and the high quality of their exports.

#### *Compensation Levels*

Average compensation levels probably played a role in the export success of these countries as well. Although the productivity levels of Asia APEC member economies (except Japan) are still well below the Canadian and US levels, their manufactured exports remain highly competitive because of very low wage costs. For instance, hourly compensation in manufacturing in the NIEs was less than 20 percent of the Canadian level in 1988. Consequently, their unit labour costs were less than one third of the Canadian and US costs.<sup>12</sup> The absolute labour cost advantage could be even higher for the PRC and the ASEAN countries.

#### *Exchange Rate Movements and Cost Competitiveness*

Nominal exchange rates (relative to the US dollar) varied a great deal across APEC member economies during the 1980-1992 period — from an average annual depreciation of more

than 50 percent for the Mexican peso to an 11.5 percent appreciation for the Japanese yen. However, nominal changes in exchange rates, were generally in line with variations in relative inflation rates. As a result, variations in real exchange rates were considerably smaller than variations in nominal rates (see Table 5).

Did the variations in real exchange rates improve the cost competitiveness of Asia APEC member economies vis-a-vis non-Asia APEC member economies, especially the US, during the 1980-1992 period? The answer is mixed. Japan, Hong Kong, Chinese Taipei, Singapore and Papua New Guinea experienced real appreciation in the value of their currencies during the 1980s (ranging from 0.4 percent to 26 percent), resulting in a deterioration in their relative costs position vis-a-vis the US. On the other hand, other Asian countries benefited from a real depreciation of their currencies — from 3 percent to 179 percent. Between 1980 and 1992, the PRC and Indonesia experienced the largest real depreciation of their currencies (107 and 179 percent). Depreciation of the real exchange rate in the ROK, Malaysia, Thailand and the Philippines did not occur in the same magnitude as in Indonesia and China. However, exchange rate policies in Malaysia and Thailand were liberalized and currencies frequently devalued in order to support export growth.<sup>13</sup> Among non-Asia APEC member economies, real appreciation occurred in Canada only (7.7 percent); all other non-Asia APEC member economies experienced a real depreciation of their currency relative to the US dollar, ranging from a low of about 8 percent in New Zealand to a high of 16 percent in Australia (see Table 5).

In short, between 1980 and 1992, exchange rate movements considerably improved the cost competitiveness of the PRC, Indonesia, Malaysia, Thailand, the Republic of the Philippines, Mexico, Australia, New Zealand, and to a much lesser extent, the ROK vis-a-vis the US. At the same time, the cost position of Japan, Chinese Taipei, PNG and Canada deteriorated substantially relative to the US.

In summary, the APEC market, with over 2 billion people, has tremendous growth potential. All Asia APEC member economies, with the exception of the Republic of the Philippines, enjoyed rapid growth rates in output and real incomes in the post-war period and gained significant ground over the industrialized countries. But despite impressive gains, their per-capita real income levels remain well below the levels of most OECD countries. According to the economic convergence thesis, this implies that with the possible exception of Japan, Hong Kong and Singapore, Asia APEC is likely to outperform the OECD countries over the next quarter century or so, provided member countries continue to follow appropriate micro- and macro-economic policies and strengthen their trade and investment linkages with countries inside and outside APEC.





### 3. INTERNATIONALIZATION OF BUSINESS AND APEC MEMBER ECONOMIES

#### Introduction

A number of factors have contributed to the internationalization of business, or globalization as it is often called. The liberalization of trade, direct investment, and financial flows under successive GATT Rounds and various regional trade and investment arrangements (both formal and informal) are principal among these factors. Working in conjunction with liberalization has been a number of interrelated trends such as dramatic innovations in communication and information technologies, rapid changes in product and process technologies, shorter product life cycles, and increasingly fierce global competition for markets, skills, capital and technology.

The competitive position of Multinational Enterprises (MNEs) and the economic survival of many small- and medium-sized firms increasingly depend on their ability to innovate, penetrate and compete in regionally and globally integrated markets. In addition, firms operate under difficult conditions of rising R&D costs and shorter product life cycles. Hence, these costs must be recouped over a shorter time span through greater volume and larger production runs. These developments have intensified the pace of globalization as MNEs increasingly look to secure and expand market access, and obtain critical product and process technologies through greenfield investments, international acquisitions, joint ventures, and strategic and technological alliances.

Increased trade and investment linkages between countries also fuelled the economic convergence process that, as noted earlier, characterizes the experiences of most Asia APEC member economies in recent years. Freer trade and investment flows influence globalization and convergence through a number of channels. They permit the full utilization of productive resources; they allow economies to reap the full benefits of international specialization, capital accumulation, and scale and scope economies; they facilitate the transfer of technology and best-practice production, organizational and managerial techniques; they permit the broadening of comparative advantage, the minimization of costs through outsourcing, and the international spillover of knowledge and know-how.

In the previous chapter, we noted the phenomenal growth of merchandise exports from the Asia APEC member economies. Some of the factors behind this growth were also examined including export composition, compensation rates, exchange rate movements and cost competitiveness. In this chapter, we will examine in some detail the trade and investment patterns evident in the APEC member economies in recent years. The outward orientation (openness) of APEC member economies will be gauged by measuring export orientation, import penetration, the importance of foreign direct investment for domestic capital accumulation and the shares of inward and outward foreign direct investment stocks in GDP.

## **Trade Orientation**

In 1992, APEC member economies, on average, exported 13.1 percent of their GDP, compared to 21.6 percent in the EU. However, the small overall export propensity of APEC masks a wide diversity across individual APEC member economies: in 1992, the share of exports in GDP varied from a low of 8.0 percent in the US to a high of 137 percent in Singapore (see Table 6).

The average export propensity of economies in the Asia APEC region was 17.7 percent in 1992, compared to only 9.8 percent in the non-Asia APEC member economies. Within Asia APEC, the NIEs and the ASEAN countries, on average, depend much more on exports than the two largest Asian countries: Japan and the PRC. In 1990, the share of exports in Japan's GDP was only 9.4 percent, compared to an average of 55 percent among the NIEs and 35 percent among the ASEAN countries. The export propensity of China, while increasing by more than three fold — from 6.5 percent in 1980 to 19.9 percent in 1992 — was still well below the average levels of the NIEs and the ASEAN countries (see Table 6).

The importance of exports also varies considerably across the five non-Asia APEC member economies. The share of exports in GDP averaged a mere 8.0 percent in 1992 in the world's largest economy, the US. Smaller non-Asia APEC member economies, on the other hand, are relatively more export dependent, with export-to-GDP ratio ranging from 9.2 percent in Mexico to a high of 25.4 percent in Canada.

Mexico experienced a significant increase in its export propensity in the 1980s, as was the case for the PRC in Asia APEC. Mexico's share of exports in GDP increased sharply in the 1980s as it made considerable progress in diversifying its export base in response to declining oil prices, the consequent deterioration in terms of trade, and the ensuing debt crisis in 1982. The share of primary products (fuels, minerals and metals) in Mexico's total export earnings fell from 73 percent in 1980 to 42 percent in 1990, while the corresponding share of manufactured exports rose from 12 percent to 45 percent during this period.<sup>14</sup> The remarkable shift in the composition of exports was achieved through a series of major trade liberalization measures between 1985 and 1988, coupled with other structural adjustment measures (privatization, investment liberalization) as well as other stabilization policies to complement trade reform.

The pattern of import penetration (share of imports in GDP), as expected, is very similar to the pattern of export orientation across APEC member economies. In 1992, APEC member economies, on average, imported 12.4 percent of their GDP, compared to 22 percent in the EU. As with exports, the average import propensity of the Asia APEC member economies (14.8 percent) is significantly higher than that of non-Asia APEC member economies (10.7 percent). The average import propensity of the NIEs and the ASEAN countries were also considerably higher than that of other APEC member economies (see Table 6).

Meanwhile, in terms of trends, the PRC, Mexico and the ASEAN countries recorded large increases in their import propensities in the 1980s. On the other hand, the import

propensities of Japan, the NIEs (except Hong Kong) and PNG declined considerably during this period.

In short, Asia APEC's overall dependence on trade exceeds that of non-Asia APEC by a considerable margin. In 1992, merchandise trade accounted for 32.6 percent of GDP in Asia APEC compared to 20.6 percent in non-Asia APEC. By comparison, the trade propensity of the EU was almost twice as high as that of APEC (see Figure 1).

The NIEs and the ASEAN countries, on average, exhibit a relatively higher trade dependency than other APEC member economies. Dependence on trade is the least in the US and Japan (see Table 6). Asia APEC member economies as a group also enjoyed a large merchandise trade surplus of 2.9 percent of their total GDP in 1992. In contrast, Mexico recorded a whopping trade deficit of 9.6 percent of its GDP.

The unusually large trade orientation (between 250 and 300 percent of GDP) of the two city states — Hong Kong and Singapore — is primarily a reflection of the large amount of *entrepôt* trade in those economies. Both member economies serve as important trade channels to the rest of the world for the PRC and the ASEAN countries, respectively. A considerable amount of merchandise re-exports takes place from these countries, which explains why their respective export and import propensity ratios are well above 100 percent.

### **Importance of Inward and Outward Foreign Direct Investment**

The APEC region accounts for a significant share of global direct investment activity. In all APEC member economies, FDI liberalization has arguably been the most important policy trend since the 1990s, as part of broad-based efforts to attract foreign investors. This trend is embedded in a broader liberalization movement — covering international trade in goods, external financial transactions, transfer of technology and, more recently, services — that seeks to enhance economic efficiency through the elimination of market distortions caused by restrictive and discriminatory governmental measures. The rapid growth of exports, in particular manufactured exports, from the NIEs, ASEAN and China can be attributed in part to the acquisition of technology through openness to FDI and licensing which were crucial for achieving rapid productivity growth.<sup>15</sup>

The remainder of this chapter highlights the trends in the relative importance of APEC and the major sub-regions in global inward FDI flows during the 1980s, the share of inward FDI flows in domestic capital formation, and the importance of the activities of MNEs to the economies of the host and home countries, indicated by the ratio of inward and outward FDI stock to GDP, respectively. It is important to note at the outset that FDI data are not strictly comparable across all APEC member economies mainly due to the fact that member economies differ in their definition of FDI, the method of data collection are not similar across all regimes, and accounting practices and valuation methods differ between member economies.

### ***Foreign Direct Investment Inflows***

During the 1987-1992 period, total world inward flows of FDI averaged US\$ 172 billion per year, compared to just US\$ 57 billion in the 1981-1986 period. APEC member economies attracted 46.7 percent of the world's total inward FDI flows during the 1987-1992 period, compared to the EU's 44.4 percent. However, between 1987 and 1992, APEC member economies steadily lost their share of global inward FDI flows to the EU. APEC's share declined from 60.3 percent in 1987 to 35.7 percent in 1992. The opportunities and fears associated with Europe 1992 ("Fortress Europe") might have contributed to the dramatic increase in the EU's share, which almost doubled during this period (see Table 7).

The decline in APEC's share of the world's inward FDI flows was entirely due to the decline in the US share, which declined from 41.2 percent in 1987 to only 7.0 percent in 1992. The large slowdown in US economic growth, the deterioration in its cost competitiveness, and the increased attractiveness of the EU market (as a result of Europe 1992) could explain the decline in the US share.

On the other hand, the share of Asia APEC member economies in total world inward FDI flows rose sharply from 8.2 percent in 1987 to 19.5 percent in 1992. Within Asia APEC, the ASEAN countries and the PRC experienced large increases in their shares of world FDI flows. The share of ASEAN countries increased more than fivefold between 1987 and 1992. Similarly, the PRC's share rose from 1.6 percent in 1987 to 6.8 percent in 1992. In 1992, the PRC was the second largest FDI recipient in the world (following the US) and the largest FDI host country among the developing countries, accounting for nearly three-quarters of the increase in FDI flows to the developing world during that year.<sup>16</sup>

The rapid expansion of domestic markets, liberalization of trade and investment policies, low-cost production, rich natural resources and a well educated and motivated labour force could explain the FDI boom in the PRC and the ASEAN countries over the past decade.

Japan accounted for a meagre 0.4 percent of total world inward FDI flows in 1992. A large number of formal and informal barriers to FDI and trade flows in Japan and its huge trade surplus could account for the relatively low share of global FDI flows into Japan. Unlike the ASEAN countries, the share of world FDI flows going to the NIEs remained more or less stable at around 4 to 5.5 percent during the 1987-1992 period. Marked improvement in the savings/investment imbalance of the NIEs (as reflected in the huge improvement in their merchandise trade balance) could explain their reduced dependence on foreign capital.

### ***FDI Inflows and Domestic Capital Formation***

The importance of FDI flows to domestic capital formation increased dramatically in all APEC member economies during the 1986-1992 period (except Japan and Malaysia). Overall, the share of FDI flows in the domestic capital formation of APEC member economies increased from an average of 1.9 percent during the 1981-1985 period to 3.8 percent between 1986 and

1991. However, the role of FDI flows in domestic capital formation varies a great deal across APEC member economies. It ranges from a low of 0.1 percent in Japan to a high of 29.4 percent in Singapore (see Table 8). Inward FDI flows also play a much more significant role in the domestic capital formation of non-Asia APEC member economies than Asia APEC member economies (see Figure 2). Between 1986 and 1991, inward FDI flows as a percent of gross domestic capital formation averaged 5.7 percent in non-Asia APEC member economies. Meanwhile, in Asia APEC economies it averaged only 1.4 percent.

The increased importance of FDI flows in APEC member economies is a reflection of increased trade and investment linkages among them, increased specialization of production and increased commercial relations with non-APEC countries.

FDI flows tend to be very volatile and pro-cyclical. The stock of FDI at any given point, on the other hand, is the accumulation of past FDI flows. Hence, inward and outward direct investment stocks in relation to GDP provide a more accurate and reliable picture of trends in the true importance of direct investment in APEC member economies.

### ***Inward Foreign Direct Investment Stock***

The share of APEC inward FDI stock in APEC GDP averaged 7.4 percent in 1992 (see Table 9). The importance of inward FDI stock, as expected, differs considerably across APEC member economies. In 1992, the share of inward FDI stock in GDP ranged from a meagre 0.7 percent in Japan to 75 percent in Singapore. It was more than 20 percent in Australia, New Zealand, Indonesia, Malaysia, Hong Kong and Singapore. In contrast, it was below 10 percent in the PRC, Japan, Chinese Taipei, the ROK, the Republic of the Philippines and the US. Overall, inward FDI stock represents a more significant share of GDP in non-Asia APEC (9.0 percent) than in Asia APEC (5.2 percent).

Between 1980 and 1992, the share of inward FDI stock in GDP increased dramatically in all APEC member economies except Canada and the ROK. As a result, the share of APEC inward FDI stock in APEC's GDP increased sharply, rising from 4.0 percent in 1980 to 7.4 percent in 1992. During this period, the importance of inward FDI stock in output more than doubled in the ASEAN countries, the US, Mexico, Japan, the PRC and ANZ. On the other hand, the share of FDI stock declined slightly in Canada.

### ***Outward Direct Investment Stock***

Similarly, the stock of outward direct investment increased from 5.7 percent of APEC GDP in 1980 to 8.7 percent in 1992. The share of outward direct investment stock in GDP also varies a great deal across APEC member economies, ranging from a low of 0.3 percent in the PRC to 45 percent in Hong Kong in 1992. The outward direct investment stock to GDP ratio was over 10 percent in Canada, Japan, Hong Kong, Singapore and ANZ. In contrast, the ratio was below 1 percent in Mexico, the PRC, and Thailand. While a sharp divergence between Asia APEC and non-Asia APEC is found in terms of the share of inward FDI stock in their GDP,

outward direct investment as a share of GDP is roughly the same for the two major APEC sub-regions (see Table 9).

More importantly the shares of outward direct investment stock in GDP also expanded considerably in the 1980s in all APEC member economies (except the US). The importance of outward direct investment stock to the economy more than doubled in Mexico, Japan, the PRC, the ROK, Hong Kong, Singapore, Chinese Taipei, Indonesia, Malaysia, Thailand, the Republic of the Philippines and ANZ. Canada, also recorded substantial increases in its ratio of outward direct investment stock to GDP. The share increased only slightly in the US (see Table 9). The rise in the importance of inward and outward direct investment stocks increased considerably the ratio of total direct investment stock to GDP in both Asia APEC and non-Asia APEC member economies (see Figure 3).

### ***Industrial Distribution of FDI Stock***

Although the manufacturing sector still accounts for a significant proportion of inward FDI stock in many APEC member economies, the importance of the tertiary sector, including finance and insurance, construction, trade and commercial services, to FDI stock has increased dramatically during the past 20 years or so (See Table 10). This is true of the NIEs where, in the ROK for instance, the tertiary sector share of inward FDI stock increased from 19 percent in 1976 to almost 38 percent in 1988. In the PRC, the importance of the manufacturing and tertiary sectors in the inward FDI stock has increased dramatically in the last 10 years or so at the expense of the primary sector. In the PRC, the combined manufacturing and tertiary sector shares of inward FDI stock increased from about 33 percent in 1983 to almost 92 percent in 1988 (see Table 10).

The increased importance of the tertiary sector in the inward and outward stocks of FDI in many APEC member economies is consistent with the rising share of the service sector in GDP in these countries and worldwide (see Table 11) and with the liberalization of financial services in these countries.

Unlike the NIEs, in the resource-abundant ASEAN countries, the primary sector is still a major recipient of FDI (except Thailand). In 1988, the share of the primary sector in total inward FDI stock ranged from about 28 percent in Malaysia and the Republic of the Philippines to 82 percent in Indonesia. In addition, the share of FDI going to the primary sector in the ASEAN countries has either remained constant or increased during the last fifteen years.

As with the NIEs, the share of the tertiary sector in total inward foreign direct investment stock has increased considerably in all five non-Asia APEC member economies and Japan in the last fifteen years, at the expense of the primary and secondary (manufacturing) sectors (see Table 10).

Similarly, during this period, the share of the tertiary sector in the outward direct investment stock has increased considerably in all these countries.

## **Summary**

The Asia APEC member economies (with the exception of Japan) depend much more on trade than the non-Asia APEC member economies. While direct investment plays a significant role in all APEC member economies, it appears that currently it is most significant for non-Asia APEC member economies. In the 1980s, the importance of trade and direct investment in the domestic economy increased dramatically in the PRC and Mexico.

The share of FDI flows in domestic capital formation increased markedly (more than doubled) in most APEC member economies during the second half of the 1980s. Likewise, the shares of direct investment (both inward and outward) stocks in GDP also increased substantially in most of these countries.

The manufacturing and tertiary sectors account for much of the FDI stocks in all APEC member economies, except in the ASEAN countries. In addition, during the last fifteen years, the share of the tertiary sector in direct investment (both inward and outward) stocks increased considerably in the NIEs, the PRC, Japan, the non-Asia APEC member economies, and, to a lesser extent, Thailand.

The growing importance of both inward and outward direct investment stocks in APEC and the growing share of the tertiary sector in these stocks strongly points to the increasing product specialization in APEC member economies, the strengthening of trade and investment linkages between these economies, and the stronger commercial links between APEC and non-APEC member economies.





## 4. APEC ECONOMIC INTEGRATION

### Introduction

FDI and trade linkages significantly raise the overall efficiency and real incomes of both home and host countries in various ways: increased specialization, scale and scope economies, technology transfer, international spillovers of knowledge and ideas, increased innovation and competition, broadened areas of competitive advantage, and stimulation of trade, to name a few.

In the previous chapter, we analysed the trends in the overall openness of APEC member economies, as measured by export orientation, import propensity, the share of FDI flows in capital formation and the ratio of FDI (inward and outward) stocks to GDP.

In this chapter, we examine the evolution of APEC member economies' trade and investment linkages with other APEC member economies as well as with non-APEC countries in the 1980s. We also investigate the inter-relationship between trade and investment, the two vehicles of APEC economic integration.

To this end, the country/regional distribution of APEC exports, imports, and inward and outward direct investment stocks are analysed. The similarity (correlation) of APEC member economies' trade and direct investment patterns in 1980 and 1990 and the correlation between changes in trade flows and direct investment stocks are also examined and discussed.

### Trade Linkages

The country/regional distribution of APEC exports, imports and total merchandise trade for 1980, 1990 and 1992 are recorded in Tables 12 to 20. The rows represent the country/region (percent) distribution of exports/imports/total trade of individual APEC member economies and non-APEC countries. The last row, however, gives the shares of individual member economies/countries in world exports, imports and total merchandise trade.

### *APEC's Role in World Trade*

The share of APEC member economies in total world merchandise trade rose from under 32 percent in 1980 to almost 41 percent in 1992. However, more than 80 percent of the increase was due to the growing importance of Asia APEC (the NIEs and PRC) in world trade. In 1992, total trade of Asia APEC member economies accounted for 21.5 percent of world trade, compared to 19.4 percent for non-Asia APEC member economies (see Table 12).

Within Asia APEC, the share of the NIEs and the PRC in world trade increased dramatically (more than doubled) between 1980 and 1992 (see Tables 12 to 14). Rapid economic growth, the huge absolute cost advantage, and improved relative cost position of these countries due to a real exchange rate depreciation and an increased specialization are factors that

could explain the phenomenal growth of their exports and imports. On the other hand, the shares of Japan and the ASEAN countries in world trade recorded only moderate growth.

North America's share of world trade increased from 16.3 percent in 1980 to about 18.0 percent in 1990 and 1992 (see Tables 12 and 13). The US accounted for almost 70 percent of the increase in the North American and non-Asia APEC shares of world trade. The rise in the US share of world trade, however, was primarily due to the increase in its share of world exports (see Tables 18 and 20). The substantial improvement in US cost competitiveness, due to a real depreciation of its currency, especially vis-a-vis Canada, Japan and the EU, could explain its improved export performance. The share of ANZ in world trade remained constant at 1.4 percent.

### ***Trade Patterns***

Between 1980 and 1992, the importance of intra-APEC trade in total APEC trade increased considerably. The share of intra-APEC trade increased from about 58 percent in 1980 to more than 70 percent in 1992 (see Tables 12 and 14).

### ***Asia APEC Member Economies***

The importance of Asia APEC member economies in total APEC trade increased substantially during the 1980s. The share of Asia APEC member economies in APEC trade increased from 27 percent in 1980 to 38 percent in 1992 (see Figure 4). Similarly, trade linkages among Asia APEC economies strengthened considerably during this period. The share of intra-Asia APEC trade in total Asia APEC trade increased from 35 percent in 1980 to 46 percent in 1992. The NIEs accounted for more than 80 percent of the growth in intra-Asia APEC trade shares (see Figure 5).

Asia APEC's trade linkages with the US and CANMEX (Canada and Mexico) remained more or less stable during this period, while the share of trade with the ANZ declined very modestly. In sum, Asia APEC trade linkages with non-Asia APEC member economies remained virtually unchanged between the two periods while that with the EU strengthened significantly. On the other hand, the share of all other countries (Rest of World) in Asia APEC trade declined dramatically, falling from 28 percent in 1980 to less than 14 percent in 1992.

Between 1980 and 1992, Japan's trade linkages with both Asia APEC and non-Asia APEC member economies strengthened considerably. The APEC share of Japanese total merchandise trade increased to 66 percent by 1992, a rise of 13 percentage points. The Asia APEC share of Japanese trade rose from 25 percent to 32 percent during this period, the bulk of which was accounted for by a substantial increase in the relative importance of NIEs in Japanese trade (see Tables 12 to 14). The NIEs share of Japanese total merchandise trade jumped from 10.6 percent in 1980 to 18.7 percent in 1992. On the other hand, the share of the ASEAN countries in Japan's merchandise trade declined. The US accounted for all of the increase in the share of the non-Asia APEC member economies in Japanese trade. Outside of APEC, the share

of the EU also increased significantly, rising from 9.6 percent in 1980 to 15.9 percent in 1992 (see Tables 12 and 14). The increase in the shares of APEC member economies and the EU came at the expense of a huge drop in the share of the ROW. Relatively much slower economic growth in these countries and the large decline in real commodity prices could explain the sharp drop in the ROW share.

Asia APEC member economies accounted for almost 70 percent of total merchandise trade of the PRC in 1992, compared with less than 50 percent in 1980. However, the marked increase in Asia APEC's share was entirely due to the substantial increase in the importance of the NIEs, especially Hong Kong, in PRC's overall merchandise trade.

In 1992, APEC's share of NIEs' total merchandise trade was almost 75 percent, up from about 65 percent in 1980. The bulk of the increase was primarily due to a significant rise in the importance of Asia APEC member economies, particularly the PRC and the NIEs. Intra-NIEs trade share increased from slightly under 9 percent in 1980 to almost 14 percent in 1992. On the other hand, non-Asia APEC's share of NIEs' trade declined somewhat during this period — it fell from about 26 percent in 1980 to just under 25 percent in 1992. Canada and the US recorded slight reductions in their respective shares of NIEs trade during 1980-1992. Similarly, the combined share of ANZ dropped from 2.9 percent in 1980 to 2.5 percent in 1992 (see Tables 12 and 14).

The NIEs' trade linkages with the EU more or less remained unchanged in the 1980s. The NIEs conducted about 13 percent of their trade with the EU. The increase in APEC's share, as with Japan and the PRC, came largely at the expense of the huge drop in the relative importance of the ROW countries, whose relative share in NIEs trade fell sharply from 23 percent in 1980 to 12 percent in 1992.

Unlike the other Asian countries, the trade linkages of ASEAN countries with Asia APEC member economies strengthened only slightly during the 1980s. In addition, ASEAN trade linkages with non-Asia APEC member economies weakened somewhat. The share of the EU in ASEAN trade increased significantly, largely at the expense of a decline in the share of the ROW countries. Similarly, the share of intra-ASEAN trade in total ASEAN trade continued to be small (under 4 percent) and did not increase significantly in the 1980s.

### ***Non-Asia APEC Member Economies***

Between 1980 and 1992, the share of non-Asia APEC member economies merchandise trade with both Asia APEC and non-Asia APEC member economies rose sharply, which resulted in strengthening the overall trade linkages with the APEC region as a whole. The stronger trade linkages with APEC occurred at the expense of a substantial fall in the share of the ROW countries as well as a modest decline in the share of the EU (see Figure 6). The share of Asia APEC in non-Asia APEC trade rose from 21 percent in 1980 to almost 29 percent in 1992, primarily driven by stronger trade linkages between the US and Asia APEC member economies, most notably with the NIEs. The rise in intra-non-Asia APEC shares resulted mainly from

stronger intra-North American trade linkages, reflecting the strengthening of regional trade ties by Canada, Mexico and the US.

The importance of Asia APEC member economies in the total North American trade, however, improved considerably during the 1980s (see Figure 6). It increased from just under 20 percent in 1980 to more than 27 percent in 1992. During this period, both Canada and the US strengthened considerably their respective trade linkages with Asia APEC member economies. However, in 1992, the US accounted for about 70 percent of total Canadian and Mexican trade, a considerable increase from the 1980 levels. Similarly, the importance of these two economies in American merchandise trade increased significantly during this period. ANZ still account for a small percentage (less than 1.5 percent) of North American trade. The substantial increase in APEC member economies' share of North American trade came largely at the expense of a huge drop in share of the ROW countries, which went from almost 27 percent in 1980 to just under 15 percent in 1992. Likewise, during this period, trade linkages between North America and the EU weakened somewhat (see Tables 12 and 14).

Between 1980 and 1992, the shares of Asia APEC and non-Asia APEC in total ANZ trade increased significantly. In contrast, linkages with the EU and the ROW weakened considerably.

In short, trade linkages between Asia APEC and non-Asia APEC member economies strengthened considerably in the 1980s. Similarly, the importance of intra-Asia APEC and intra-North American trade in the two trade blocks increased substantially.

Relatively faster rates of growth in the APEC region (especially in Asia APEC economies), the complementary nature of trade, increased specialization, very low unit labour costs in the Asian countries (excluding Japan), formal and informal regional trade agreements (Free Trade Arrangement/Agreement (FTA) and the ASEAN) and geographic proximity could have contributed to the growing trade integration among APEC member economies. The strengthening of trade linkages in turn might have created a cycle of increased economic integration by strengthening the intra-APEC FDI linkages.

### **Investment Linkages: Inward Direct Investment**

#### ***APEC's Importance in World FDI***

Based on data from host countries for 1980, 1990 and 1992, the stock of inward FDI in APEC member economies recorded almost a fivefold increase to reach US\$ 908 billion at the end of 1992. However, since the stock of FDI was increasing at phenomenal rates in all countries during this decade, APEC's share of world inward FDI remained stable at about 50 percent. Similarly, the shares of the EU and the ROW also remained constant during the decade at around 40 percent and 10 percent, respectively (see Tables 21 and 23).

Non-Asia APEC constitutes the largest recipient of total inward FDI stock among the APEC member economies. Between 1980 and 1992, non-Asia APEC's share of the world's inward FDI stock remained relatively constant at around 35 percent. During the 1980s, however, the US witnessed a significant increase in its share of both APEC and world FDI stock. Much of the increase in the US FDI stock came from Japan. On the other hand, Canada's share of world FDI stock declined considerably (more than halved) during this period, while the share of the ANZ region increased significantly. However, this trend was entirely due to Australia; New Zealand's share actually fell.

Unlike non-Asia APEC, Asia APEC's share of world inward FDI stock increased by about 5 percentage points since 1980 to 13 percent in 1992. Within the region, shares of world FDI stock increased in all countries except Malaysia and the Republic of the Philippines. ASEAN and NIEs account for much of inward FDI stock in Asia APEC. However, the importance of the PRC has been increasing markedly, reaching 2 percent of total world inward investment stock in 1992 (see Tables 21 to 23).

### ***Investment Patterns of APEC Member Economies***

In 1992, more than 53 percent of the FDI stock in APEC was sourced from APEC member economies, with roughly equal shares coming from Asia APEC and non-Asia APEC (see Figure 7). The EU accounted for about 35 percent of FDI in the region, while the ROW accounted for the balance (13 per cent). The share of the EU in APEC's FDI stock more or less remained the same from 1980 to 1992 (see Tables 21 and 23).

The 1980s also witnessed considerable change in intra-APEC sources of inward FDI going into APEC member economies. The most notable development was a 14 percentage point decline in the share of inward FDI stock sourced from non-Asia APEC member economies, down to 25 percent in 1992 (see Figure 7). The bulk of this fall in relative shares can be attributed to the US, while there was a modest decline in the share of Canada and Mexico as well. In sharp contrast, the importance of the Asia APEC region as a source of inward FDI for APEC member economies increased considerably between 1980 and 1992. Japan alone accounted for nearly three quarters of the 16 percentage point increase in the share of Asia APEC in APEC FDI stock during the period.

### ***Asia APEC Member Economies***

The share of inward FDI stock in Asia APEC which was sourced intra-regionally rose from 42 percent in 1980 to 48 percent in 1992. The share of non-Asia APEC in Asia APEC's inward FDI stock also rose from 20 percent to 22 percent while that of the EU declined by five percentage points to 14 percent in 1992. The ROW also increased its relative share as a source of inward FDI in Asia APEC (see Figure 8).

In 1992, Asia APEC accounted for 50 percent and 44 percent of the inward FDI stock in the ASEAN and NIEs countries, respectively. In particular, Japan and the NIEs are the main

sources of FDI in Asia APEC. Non-Asia APEC member economies are more important investors in the NIEs than in the ASEAN countries (see Tables 21 and 23). The US accounts for much of this investment. The EU and the ROW together account for about 30 percent of inward FDI stock in Asia APEC member economies (see Figure 8).

Unlike the ASEAN and NIEs, which receive most of their FDI from Asian countries, almost one-half of Japan's inward FDI stock in 1992 originated from non-Asia APEC, the bulk (90 percent) of which came from the US. The EU and the ROW each account for approximately 20 percent of the FDI stock in that country. Asia APEC also accounts for about 14 percent of FDI in Japan. During the 1980s, the share of APEC investment in Japan declined while the significance of the EU and the ROW increased (see Tables 21 to 23).

In 1992, more than 60 percent of PRC's FDI stock came from Hong Kong; Japan and the US accounted for an additional 21 percent of the PRC's inward FDI stock. The importance of Hong Kong as a home country for the PRC's inward investment increased considerably during the 1980s, primarily at the expense of Japan and the US.

### *Non-Asia APEC Member Economies*

In 1992, Asia APEC member economies accounted for 19 percent of the inward FDI stock of non-Asia APEC member economies, up sharply from 4 percent in 1980 (see Figure 9). Japan alone accounted for 90 percent of the rise in Asia APEC's share, with a significant part of Japanese FDI being destined for the US. In 1992, Asia APEC and the EU combined together contributed about 62 percent of the inward FDI stock of non-Asia APEC member economies. The US is the source of about 16 percent of the FDI stock in North America. At the same time, the US accounted for roughly two-thirds of the FDI stock of both Canada and Mexico in 1992; its relative share of inward FDI in these two economies declined from 70 percent in 1980. Japan, as a major investor in North America, accounted for almost 23 percent of the FDI stock in the US in 1992, up from 6 percent in 1980. The importance of EU and Asia APEC investments in North America increased significantly in the 1980s, whereas the share of the ROW declined somewhat (see Tables 21 and 23).

In ANZ, almost 60 percent of the foreign direct investment stock comes from APEC member economies, more than one-quarter from the US alone (it was one-third in 1980). The EU is a major investor in the region but its share declined significantly in the 1980s.

## **Investment Linkages: Outward Direct Investment**

### *The Importance of APEC Member Economies in World Outward Direct Investment*

Based on data from home countries of FDI, the outward stock of direct investment by APEC member economies amounted to some US\$ 1.1 trillion at the end of 1992. This was three times the level of outward FDI stock in 1980. However, APEC's share of world outward direct investment stock declined from 59 percent in 1980 to 52 percent in 1992. By comparison, the

share of the EU in total world outward investment stock rose from 34 to 39 percent during the same period. Similarly, the importance of the ROW increased somewhat, reaching 9 percent in 1992 (see Tables 24 and 26).

Within APEC, there was considerable change in the balance of world outward direct investment stock attributable to non-Asia APEC and Asia APEC during the 1980s. Specifically, non-Asia APEC experienced a significant decline in its share of world outward direct investment stock, which fell from 50 percent in 1980 to 30 percent in 1992. This fall resulted entirely from a dramatic decline in the relative importance of the US — its share of world outward investment stock shrunk from 45 percent in 1980 to 24 percent in 1992. The share of other non-Asia APEC member economies in world outward direct investment stock (excluding Canada), albeit small in comparison to that of the US, increased significantly during the 1980s.

Asia APEC, on the other hand, witnessed a phenomenal increase in its share of world outward investment stock during the 1980s. It rose from 9 percent to 22 percent during the decade. This increase was largely due to an 11 percentage point increase in Japan's share of world outward direct investment during this period. The NIEs also saw their share of world outward direct investment increase markedly, reaching 3.1 percent in 1992. Although the ASEAN countries and the PRC also experienced a significant increase in their respective shares, they are not yet major sources of global FDI.

### *Investment Patterns of APEC Member Economies*

In 1992, half of the outward direct investment stock from APEC member economies was located within the APEC region itself, 30 percent in the EU and 20 percent in the ROW countries. Moreover, between 1980 and 1992, intra-APEC's share of outward FDI stock increased by 10 percentage points, at the expense of a decline in the EU and the ROW shares (see Tables 24 to 26).

North America, primarily the US, emerged as the most popular destination of APEC outward investment during the 1980s, with a share of almost 30 percent in 1992. However, during this period, the proportion of APEC investment going to Canada declined substantially (more than halved). This development largely reflects the sharp decline in Canada's share of outward US direct investment stock over the course of the 1980s. On the other hand, the importance of Asia APEC member economies, mainly the PRC, the NIEs and the ASEAN countries increased considerably (see Tables 24 to 26).

### *Asia APEC Member Economies*

In 1992, the NIEs sent about 70 percent of their outward direct investment in Asia APEC member economies, primarily in the PRC, the ASEAN countries and within the NIE themselves.



Similarly, the ASEAN countries invested mainly in APEC member economies. Approximately two-thirds of their outward direct investment stock in 1992 was in Asia APEC, mostly in the NIEs and within the ASEAN region itself. However, the importance of non-Asia APEC and EU for NIEs and the ASEAN countries increased substantially in the 1980s (see Tables 24 to 26).

The importance of APEC and the EU for Japanese direct investment increased significantly between 1980 and 1992. During the decade, the share of Japan's direct investment going to the US increased considerably while that destined for the ASEAN countries and NIEs declined sharply.

### ***Non-Asia APEC Member Economies***

North American foreign investors demonstrate an equal interest in both APEC and the EU as an investment destination (about 38 percent in each region). These trends reflect the importance of the EU market for non-Asia APEC. The importance of Canada to North American investors declined significantly in the 1980s while the shares of Asia APEC member economies and EU countries increased (see Tables 24 to 26).

In 1992, more than half of the outward investment stock from the ANZ region was located in APEC member economies, 41 percent in the EU, and 13 percent in the ROW. However, in 1980, APEC accounted for almost three quarters of direct investment from the ANZ, the EU for one-quarter, and the ROW for one percent. Within APEC, the bulk of ANZ investment goes to North America. The share of ASEAN countries in ANZ outward direct investment plummeted in the 1980s (see Tables 24 and 26).

### **Total Direct Investment Patterns**

Investment linkages between APEC member economies are strong and strengthening. The 1980s have seen the proportion of inward FDI in APEC member economies which is sourced from other APEC member economies increase from close to 50 percent in 1980 to 52 percent in 1992. Moreover, total direct investment share (the sum of both inward and outward FDI stock) within APEC increased by almost 7 percentage points between 1980 and 1992 (see Tables 27 and 29, and Figure 10).

The EU is becoming an increasingly important investment partner for APEC member economies, both in terms of inward total direct investment stocks. In 1992, the EU accounted for almost 35 percent of APEC's inward investment stock and 32 percent of its total investment stock (see Figures 7 and 10).

In 1980, non-Asia APEC member economies were linked much more closely in terms of total direct investment (inward plus outward FDI stock) ties with other APEC member economies than were Asia APEC member economies (see Figures 11 and 12). This observation was still true in 1992. However, a different picture emerges when we consider the inward FDI

stock of APEC alone: in this case, both non-Asia APEC and Asia APEC account for roughly 25 to 27 percent of APEC inward FDI stock in 1992 (see Figure 7). A 15 percentage point fall in non-Asia APEC inward FDI stock share and a 16 percentage point increase in the Asia APEC share of inward FDI stock between 1980 and 1992 brought the two sub-regions into balance during the 1980s.

In terms of overall investment linkages, Asia APEC is more strongly linked to non-Asia APEC member economies than to Asia APEC member economies. This represents a reversal from 1980 when intra-Asia APEC links were most significant. In terms of inward FDI stock alone, however, intra-Asia APEC linkages dominate and have dominated since 1980. In terms of overall investment, the EU has become a more significant partner for Asia APEC since 1980, accounting for 14 percent of the total investment stock in the region in 1992.

In contrast to Asia APEC, non-Asia APEC is less dependent on other APEC member economies as investment partners. Dominant investment linkages exist between non-Asia APEC and the EU. Both in overall terms and in terms of inward FDI stock, investment linkages between the EU and non-Asia APEC have increased by about 4 percentage points during the 1980-1992 period. As was the case with Asia APEC, the intra-non-Asia APEC investment linkages are the most significant relationships that this sub-region has within APEC. However, both in terms of total direct investment and inward flows, the intra-regional linkages have eroded during the past decade. In turn, the significance of linkages with Asia APEC member economies have increased.

Rapid advances in the comparative advantage position of individual Asia APEC member economies, due to closing technology gaps, large movements in real exchange rates and labour costs, liberalization of trade and investment flows in APEC member economies, and globalization of business by MNEs, appear to have contributed to the increased economic integration among APEC member economies.

### **Possible Explanations**

The most striking development in the sources of inward FDI in APEC member economies during the 1980s was the emergence of Japan as an important source of FDI for non-Asia APEC member economies, particularly the US and ANZ. Within Asia APEC, Japan's importance as a source of FDI for the NIEs also increased dramatically between 1980 and 1992; in the interim, the NIEs themselves became an important source of Asia APEC's inward FDI stock (see Tables 21 and 23).

The significant rise in Japan's share of FDI stock in the US was influenced by a host of factors, of which the rising wave of protectionism in America during the 1980s, the advent of the North American Free Trade Agreement (NAFTA), and the substantial excess Japanese domestic savings were predominant. On the other hand, Japan's increased importance to the NIEs as a source of FDI appears to have been largely influenced by large shifts in the comparative advantage position of home and host APEC member economies.

The sharp appreciation of the yen following the Plaza Accord of September 1985 triggered a series of responses by Japanese manufacturers to counteract rising cost pressures at home. First, a resurgence of Japanese FDI in Asia APEC's manufacturing sector, especially in the NIEs, was driven mainly by its need to remain cost competitive in order to compete effectively in international markets. FDI by Japanese multinational enterprises grew in the region as part of their long-term systematic globalization strategy, centred on the creation of a regional core network of Japanese manufacturing (OECD, 1993). This strategy, in which the output of Japanese manufacturing affiliates is sold in the host market or is exported back to Japan or to other regions, acted as a catalyst for the rapid expansion of Japanese FDI in the region, and in the process, contributed to regional integration.

The comparative advantages of Asia APEC which attracted Japanese FDI included access to natural resources, abundant supply of skilled labour at low wages, geographical proximity, and long historical and cultural ties. In addition, regional integration was facilitated by the creation of duty-free export processing zones (for example in Chinese Taipei and the ROK) and the absence of significant barriers to trade and investment in Singapore and Hong Kong.<sup>17</sup>

The upsurge in the importance of the NIEs as a source of FDI in Asia APEC, especially for the ASEAN countries and the PRC, was motivated by much the same factors that contributed to the rise of Japan's FDI in Asia APEC. In the post-1987 period, rising labour costs and currency appreciation in most NIEs, arising from sustained and strong economic growth, caused a deterioration in their comparative advantage in labour-intensive manufacturing. Thus, cost-push considerations dictated a need to relocate labour and energy-intensive industries to neighbouring countries with abundant low-wage labour and lax labour and environmental standards.<sup>18</sup> The NIEs provide a good example of ownership advantages that can be acquired through FDI.

The process of redeploying labour intensive manufacturing from higher to lower wage economies in Asia APEC also gained considerable momentum in Hong Kong and Chinese Taipei. It is suspected that a large part of Hong Kong investment in the PRC, a substantial part of which originates in Chinese Taipei, is of this variety.

The NIEs, and to a much lesser extent, the ASEAN countries, are gradually emerging as important direct investors in non-Asia APEC. For the ROK, Hong Kong and Chinese Taipei, 75 per cent of their outward FDI stock in non-Asia APEC is in North America, the bulk of which is located in the US. As in the case of Japan, the rising wave of protectionism in the US has been cited as an important factor for the recent upsurge in outward FDI from the NIEs, thus safeguarding access to one of their major export markets. In addition, the need to gain access to advanced technology has been an important consideration which has accelerated the flow of outward FDI from the NIEs to the US.<sup>19</sup> Investing in industrialized countries allows Asian enterprises to take full advantage of technological spillovers.

## Interrelationship Between Trade and Investment Linkages

Are trade and direct investment complementary? The above analysis of patterns and trends of trade and direct investment stock demonstrates clearly that both trade and investment linkages among APEC member economies strengthened considerably during the 1980s. The complementarity between trade and direct investment in the APEC region is also supported by empirical analysis. In this chapter, we examine the interrelationship between trade and investment patterns of APEC member economies.

In the past, trade and FDI were viewed largely as substitutes for one another, because much of the FDI was induced by trade protection in host countries. It was argued that multinationals were compelled to locate production facilities abroad in response to tariff and non-tariff barriers to imports in host countries. However, as discussed in chapters 3 and 4, the large increase in FDI flows worldwide as well as among APEC member economies is mainly due to the increased globalization of production, innovation and financing by multinationals. This internationalization of business is largely the result of multinational firms diversifying risk, minimizing costs and maximizing performance through increased specialization and a drive to take full advantage of scale and scope economies.

Therefore, the globalization of production and innovation is expected to stimulate trade because of the large and growing importance of intra-firm trade and service flows in the overall cross-border activities of multinationals. For instance, 80 percent of North American trade is carried out by multinationals. In addition, recent research suggests that intra-firm trade accounts for nearly 50 percent of all trade between the US and Canada.<sup>20</sup> Furthermore, in 1990, intra-firm imports accounted for 75 percent of all imports of US affiliates of foreign companies.<sup>21</sup>

In other words, increased investment linkages among countries will strengthen trade linkages. In turn, these closer trade relations will further strengthen the investment linkages for two important reasons: increased investments in activities associated with wholesale and retail trade and financial services, and increased investments due to improved economic performance of both the home and host countries and increased specialization. In short, more and better investment linkages would strengthen trade linkages and set in motion a cycle of close economic integration among countries and improve the economic performance of all nations.

### APEC Evidence

The correlation between trade and investment patterns of individual APEC member economies in 1980, 1990 and 1992 — i.e. the correlation coefficient between the *percentage* distribution of total trade and total direct investment stock — strongly suggests that direct investment and trade are complements, not substitutes.<sup>22</sup> The correlation between trade and the FDI shares of all APEC member economies in 1992, is found to be positive, high and significant. The correlation coefficients vary between 0.768 to 0.995. In addition, the correlation between the two variables is very strong (i.e. over 0.900) for eleven of the fifteen APEC member economies. Moreover, between 1980 and 1992, the correlation between the two variables

increased in most APEC member economies (see Table 30). Similarly, the correlation between trade and investment linkages for the APEC and EU regions increased significantly during the period.

Moreover, the correlation between the percent changes in total direct investment stock (inward and outward) and total trade flows (exports and imports) between 1980 and 1992 is also positive for all APEC member economies. The total elasticity of changes in trade flows to changes in total direct investment (inward and outward FDI) stock averages about 0.6 for the APEC region (see Table 31). This implies that a 10 percent increase in total direct investment stock increases trade flows by 6.0 percent a year. Nevertheless, the size of the overall trade elasticity with respect to direct investment varies significantly (from 0.3 to 0.8) across APEC member economies. It is generally significantly smaller in Asia APEC member economies than in non-Asia APEC member economies. The difference between the two sets of elasticities could be attributed to the differences in the length of experience with direct investment activity. Direct investment (both inward and outward) is a more recent phenomenon in all Asia APEC member economies than in non-Asia APEC member economies. These results are generally consistent with previous findings for both APEC and non-APEC member economies.<sup>23</sup>

## 5. CONCLUSIONS AND POLICY IMPLICATIONS

The strong and growing trade and investment linkages among APEC member economies could encourage further specialization, improve resource allocation and efficiency, and increase the flexibility, adaptability and dynamism of all APEC member economies. The Asia APEC region, however, will likely benefit the most from increased economic integration and the convergence process.

Since trade and direct investment are complementary, efforts should continue to clarify and relax the rules governing investment and services trade in member economies. Easing impediments to trade and investment flows would greatly facilitate APEC economic integration.

A receptive domestic environment to increased domestic and foreign competition and rapid structural change in APEC member economies would substantially reduce the adjustment difficulties in the short- to medium-term and accentuate the longer term benefits of increased economic integration to countries.

However, the FDI-led integration of APEC member economies is increasingly making traditional trade statistics (exports, imports and trade balances) less useful — if not misleading — indicators for evaluating the competitiveness of individual APEC member economies and assessing the fundamental economic trends in the region. This is because of the large and growing importance of intra-firm trade in world trade. For instance, "ownership-based" trade statistics for the US and Japan, constructed by Julius DeAnne, contrast dramatically with traditional trade statistics.

In addition, increased APEC economic integration would greatly reduce the scope and effectiveness with which national market framework laws and policies could influence market structure and the participants' behaviour.

Consequently, increased trade and investment linkages will create a powerful internal movement toward policy convergence across APEC member economies. This will increase the need and scope for cooperation and coordination in the formulation and implementation of business framework laws and policies on trade and investment, innovation, competition, intellectual property protection, corporations and consumer protection.<sup>24</sup>

While market-led policy convergence, cooperation and coordination are generally beneficial from a global and APEC perspective, they could significantly constrain the policy-making autonomy of national governments.

Furthermore, the findings of this study strongly suggest that a clear understanding of the dynamic role of FDI in APEC countries and economic integration in the region would be useful for successfully carrying out the ambitious work program of the Economic Committee of APEC in several key areas: privatization, infrastructure, exchange rate fluctuations, environment, market framework laws and policies, trade liberalization, etc.



## ENDNOTES

1. Some studies have used Purchasing Power Parities (PPPs) to convert member economies' national currency expenditures to a common currency unit (US dollar), thus making real quantity comparisons across member economies possible. For example, Table 3 shows estimates of real per capita GDP relative to the US level for selected APEC member economies based on PPP exchange rates for different time periods. In general, the data indicate a trend toward a closing of the relative per capita GDP "gap" in most Asia APEC member economies, in particular Japan, Hong Kong and Singapore. Japan's real GDP per capita accounted for about 80 percent of US real per capita GDP in 1990, although in market exchange rate terms it is estimated to be the highest among the APEC member economies in 1992. Similar trends for the APEC member economies are found in the study by Summers and Heston (1992), who estimated, among other variables, real per capita GDP for 139 countries from 1950 to 1988.
2. In general, "frontier" technology refers to the "state of the art" technology that results from the successful application of research findings or other scientific knowledge for the creation of new or significantly improved products or processes. Devices or processes which represent an improvement in the "state of the art" are likely to be patentable.
3. See Rao (1992), p. 27-28.
4. See World Bank (1993), Heliwell (1993), and Rao and Magun ((1990).
5. To examine the impact of trade and FDI on growth in the APEC region, a cross-country regression of the following equation was estimated.

$$(YGDPG) = \alpha_0 + \alpha_1(PCFDI/GDP) + \alpha_2(XM/GDP)$$

Where,

YGDPG = The average annual growth rate GDP of each of the fifteen APEC member economies between 1980 and 1992.

PCFDI/GDP = The percentage change in the ratio of inward and outward FDI stock to GDP of each of the fifteen APEC member economies between 1980 and 1992.

X+M/GDP = The ratio of total trade (exports plus imports) to GDP of each of the fifteen APEC member economies for 1992.

The estimates of the regression coefficients with t-statistics in parentheses are as follows:

$$(YGDPG) = 2.8009 + 0.0039(PCFDI/GDP) + 0.0157(X+M/GDP)$$

(2.528)     (1.8601)                                 (1.9230)



$R^2 = 0.330$      $D.W. (1) = 1.860$      $D.W. (2) = 1.261$      $F_{2, 12} = 2.954$

The two explanatory variables, representing an index of openness, are both positive and statistically significant at the 0.05 level of significance. The two variables explain about 33 percent of the variations in the growth rates across the APEC region.

6. See Solow (1957) and Otani and Villanueva (1988).
7. See Kuznets (1988).
8. According to the World Bank (1993), a combination of fundamental and interventionist policies in Asia APEC member economies provided a foundation for high and rising saving rates. First, by avoiding inflation, the Asia APEC member economies have generally offered higher real interest rates on deposits in the financial system than other developing countries. Second, they ensured the security of banks and made them more convenient to small and rural savers. This was largely achieved through strong prudential regulation and supervision, limits on competition, and institutional reforms.

The study also cites interventionist policies which were adopted in some APEC member economies to increase the savings rate. For example, Malaysia and Singapore compelled high private savings rates through mandatory provident fund contributions. Japan, the ROK, and Chinese Taipei all imposed stringent controls and high interest rates on loans for consumer items, and levied stiff taxes on so-called luxury goods. The net effect of policies seem to have been positive: the welfare losses due to forced savings were clearly offset by substantive benefits, as evidenced by the consistently high rates of return to investment.

9. The World Bank study (1993) defines middle-income economies as those with a GNP per capita of more than US\$635 but less than US\$7,911 in 1991. A further division, at GNP per capita of US\$2,555 in 1991, is made between lower-middle-income and upper-middle-income economies.
10. Hong Kong and Singapore adopted trade regimes that were close to free trade; Japan, the ROK and Chinese Taipei adopted mixed regimes that were largely free of export industries. In the 1980s, Indonesia, Malaysia, and Thailand adopted a wide variety of export incentives while gradually reducing protection. Exchange rate policies were liberalized and currencies frequently devalued, to support export growth. See World Bank report (1993), p. 22-23.
11. See Rao (1992).
12. See Rao (1992), p. 20-27.

13. Through pragmatic macroeconomic management, both Malaysia and Thailand have been able to maintain remarkable stability of real exchange rates when confronted with external shocks. See World Bank (1993), *The East Asian Miracle*, p. 114-115.
14. See OECD (1994), p. 170.
15. See World Bank (1993), p. 21.
16. See UNCTAD (1994), *World Investment Report 1994*, p. 13.
17. See Oman (1994).
18. See Chia (1992), p. 81-84.
19. See Chia (1992), p. 84-86. Other factors influencing outward FDI from the NIEs include the need to secure market access in response to the loss of benefits under the US Generalized System of Preferences (GSP) and concern over impending withdrawal of similar benefits by other GSP donors, and the emergence of trading blocs such as NAFTA and the Single European Market.
20. See Eden (1994).
21. See Industry Canada (1994), Working Paper #2.
22. In order to empirically determine the relationship between trade and foreign direct investment stock in the APEC region, we estimated the following trade propensity equation:

EQUATION I

$$(X+M/GDP) = - 5.7317 + 3.0202 (DINV/GDP) - 4.4678 (TREND) + 59.6061 (DUM)$$

$$(0.353) \quad (11.036) \quad (3.217) \quad (4.174)$$

$$R^2 = 0.772 \quad D.W. (1) = 1.883 \quad D.W. (2) = 2.388 \quad F_{3, 41} = 46.377$$

Where,

X+M/GDP: The ratio of total trade to GDP of each of the fifteen APEC member economies for the years 1980, 1990 and 1992.

DINV/GDP: The ratio of inward plus outward FDI stock to GDP of each of the fifteen APEC member countries for the years 1980, 1990 and 1992.

TREND: Time trend with a value of "1" for 1980, "10" for 1990 and "12" for 1992.

DUM: A dummy variable with a value of "1" for Asia APEC member economies and "0" for non-Asia APEC member economies.

It is a pooled regression of fifteen APEC member economies for the years 1980, 1990 and 1992. The t-statistic of the estimated coefficient is shown in parentheses.

The estimated equation explains about 77 percent of the variation in the dependent variable. The estimated coefficient of DINV/GDP turns out to be highly significant and positive, suggesting a strong complementarity between total trade and total direct investment for the APEC region as a whole. In addition, the coefficient of the dummy variable is also found to be positive and significant, implying that Asia APEC member economies on average have higher trade propensities than non-Asia APEC member economies.

A second regression equation examines the determinants of knowledge-intensive trade in the APEC region.

#### EQUATION II

$$\begin{aligned}
 (\text{KTRADE}/\text{GDP}) = & -9.0204 + 0.3419 (\text{X}+\text{M}/\text{GDP}) + 0.45825 (\text{DINV}/\text{GDP}) + \\
 & (0.831) \quad (8.689) \qquad \qquad \qquad (3.963) \\
 & 0.0613 (\text{RWAGE}) - 0.3042 (\text{PRIM}) + 13.2534 (\text{DUM}) \\
 & (0.624) \qquad \qquad \qquad (1.473) \qquad \qquad \qquad (2.012)
 \end{aligned}$$

$$R^2 = 0.948 \quad \text{D.W. (1)} = 2.503 \quad \text{D.W. (2)} = 2.186 \quad F_{5, 39} = 141.484$$

Where,

KTRADE/GDP: The ratio of exports plus imports from knowledge-intensive industries to GDP of each of the fifteen APEC member economies for the years 1980, 1990 and 1992. Chemicals and related products, and machinery and transportation equipment were considered as knowledge-intensive industries.

X+M/GDP: The ratio of total trade to GDP of each of the fifteen APEC member economies for the years 1980, 1990 and 1992.

DINV/GDP: The ratio of inward plus outward FDI stock to GDP of each of the fifteen APEC member economies for the years 1980, 1990 and 1992.

- RWAGE: The hourly compensation cost in each APEC country relative to hourly compensation cost in the US in 1980, 1990 and 1992. This variable is used as a proxy for relative skill levels in the APEC member economies.
- PRIM: The share of primary industries (agriculture and minerals) in total output of each of the fifteen APEC member economies for the years 1980, 1990 and 1992.
- DUM: A dummy variable with a value of "1" for Asia APEC member economies and "0" for non-Asia APEC member economies.

It is estimated as a pooled cross-section regression equation of the fifteen APEC member economies for the years 1980, 1990 and 1992. The t-statistic of the estimated coefficient is shown in parentheses.

The explanatory variables account for almost 95 percent of the variation in knowledge intensive trade in the APEC region. According to the regression results, total trade intensity in the APEC region is a significant (at a 0.001 level of significance) and positive determinant of trade of knowledge intensive industries, implying that, other things remaining constant, as the share of total trade in output increases, the proportion of knowledge intensive trade will increase as well. Similarly, total direct investment stock as a proportion of GDP is also positively and significantly (at the 0.05 percent level of significance) related to trade intensity in knowledge intensive goods, and supports the general complementary relationship between technology flows and trade activity. The results imply that the greater the proportion of total output produced by the primary industries, the smaller will be the share of knowledge intensive industries in total trade. Finally, the results also indicate that the share of Asia APEC's knowledge intensive trade in total trade, on average, is higher than in the non-Asia APEC member economies. This result could be attributed to the fact that most Asia APEC member economies are not resource-rich economies.

In sum, the two regression equations strongly suggest that FDI activity increases trade and technology flows among APEC member economies.

23. See Globerman (1994).
24. For a detailed discussion of these issues, see Canada's paper to APEC (1994): *FDI and Market Framework Policies: Reducing Frictions in APEC Policies on Competition and Intellectual Property*.



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