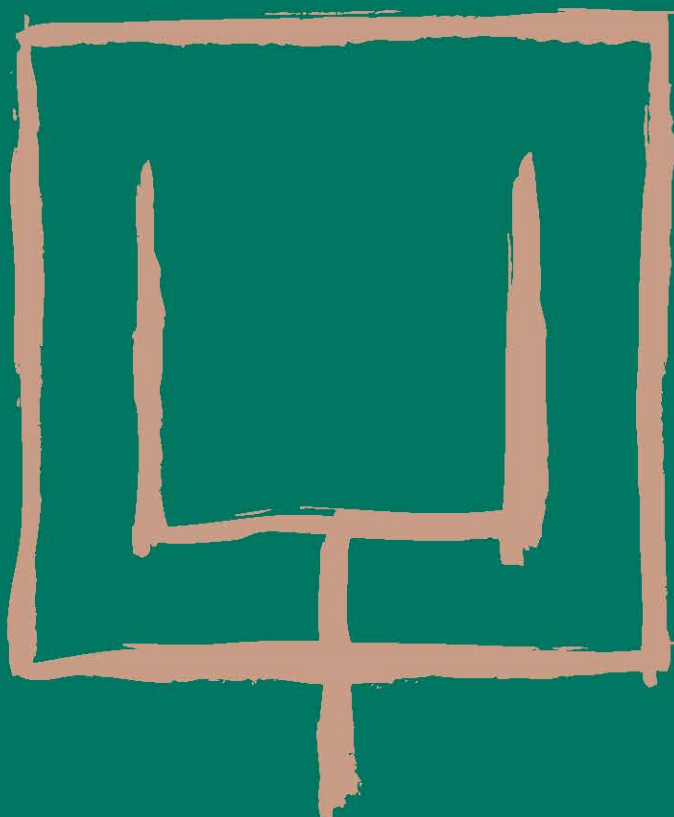


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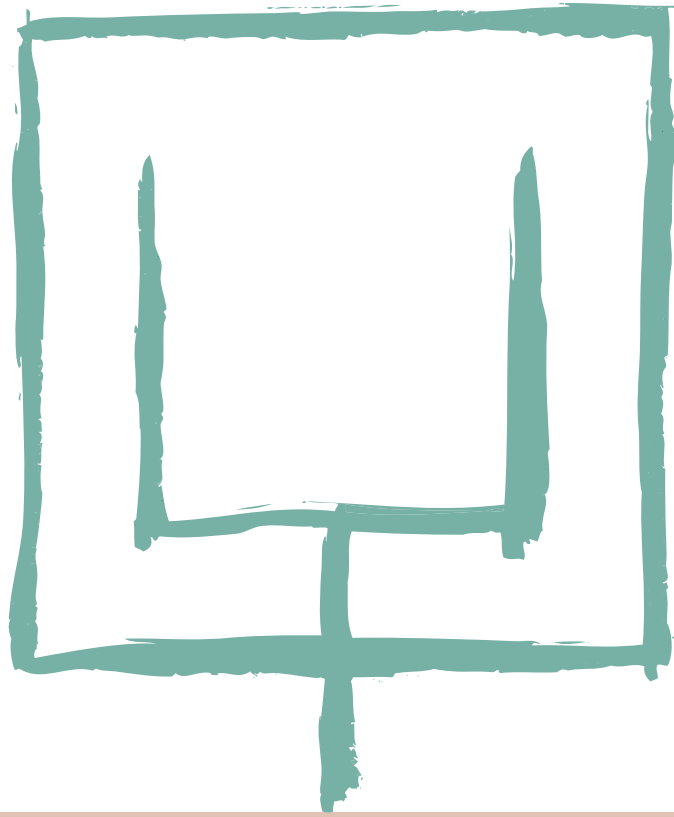
Foreign Direct Investment
in Latin America and the Caribbean



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2010



Foreign Direct Investment
in Latin America and the Caribbean



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Notes and explanations of symbols

The following symbols have been employed in this edition of *Foreign Direct Investment in Latin America and the Caribbean, 2010*:

Notes and explanations of symbols

Three dots (...) indicate that data are missing, are not available or are not separately reported.

Two dashes and a full stop (-.-) indicate that the sample size is too small to be used as a basis for estimating the corresponding values with acceptable reliability and precision.

A dash (-) indicates that the amount is nil or negligible.

A blank space in a table indicates that the concept under consideration is not applicable or not comparable.

A minus sign (-) indicates a deficit or decrease, except where otherwise specified.

The use of a hyphen (-) between years (e.g., 1990-1998) indicates reference to the complete number of calendar years involved, including the beginning and end years.

A slash (/) between years (e.g., 2003/2005) indicates that the information given corresponds to one of these two years.

The word “dollars” refers to United States dollars, unless otherwise specified.

Individual figures and percentages in tables may not always add up to the corresponding total because of rounding.

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Summary and conclusions

In 2010 the Latin American and Caribbean region showed great resilience to the international financial crisis and became the world region with the fastest-growing flows of both inward and outward foreign direct investment (FDI). FDI inflows were up by 40% with respect to 2009 and stood at a total of US\$ 113 billion. Outflows increased almost fourfold to reach an all-time high of US\$ 43 billion, reflecting the strong growth of trans-Latin firms. The upswing in FDI in the region has occurred in a context in which developing countries in general have taken on a greater share in both inward and outward FDI flows.

This briefing paper is divided into five sections. The first offers a regional overview of FDI in 2010. The second examines FDI trends in Central America, Panama and the Dominican Republic. The third describes the presence China is beginning to build up as an investor in the region. Lastly, the fourth and fifth sections analyse the main foreign investments and business strategies in the telecommunications and software sectors, respectively.

A. Overview of foreign direct investment in Latin America and the Caribbean

1. Inflows of foreign direct investment and the activities of transnational companies

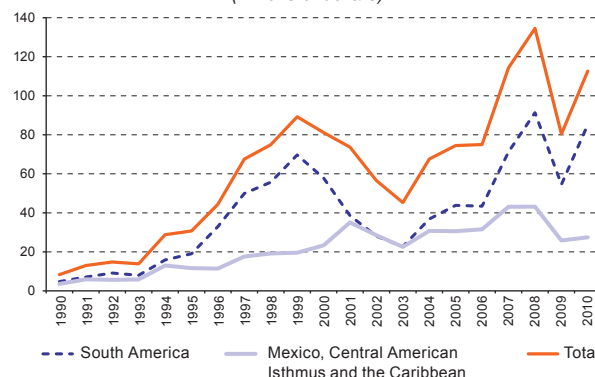
Globally speaking, in 2010 FDI underwent only a slight upturn, still showing the effects of the international economic and financial crisis which had started in the developed countries. Worldwide FDI flows edged up by just 1% and the rates of the upswing were uneven across destination regions. FDI flows to developed economies contracted further in 2010 (down 7% on 2009), while flows to developing regions climbed by 10%. As a result, for the first time FDI flows to developing countries and transition economies passed the mark of 50% of global flows. Outward flows of FDI from developing countries and transition economies have also climbed and, according to preliminary figures, reached 22% of global outward FDI flows in 2010. In this context in which developing countries are taking on a greater role in FDI flows, Latin America and the Caribbean has been the most dynamic region in 2010, with the greatest increase in both inward and outward FDI flows.

FDI flows started to recover in the last quarter of 2009 and continued to trend upwards in 2010. Excluding the main financial centres, Latin America and the Caribbean attracted US\$ 112.634 billion, 40% more than the US\$ 80.376 billion received in 2009 (see figure 1). The FDI volumes received in 2010 exceeded the annual average for the decade and maintained an upward trend, reflecting the region's solid position as an investment destination and location choice for transnational companies.

A number of factors were behind the upturn in FDI flows: the small upswing in the developed economies; growth in some emerging economies which provided demand-side impetus for certain sectors (this is evident in natural resources such as metal mining, hydrocarbons and foods, but also in manufactures, such as the automobile sector and the production of integrated circuits, and in services such as software development and telecommunications); burgeoning domestic demand in Brazil, Chile Colombia, Mexico and Peru, which has spurred domestic-market-seeking

investment by transnational and trans-Latin firms; and, lastly, an increase in outsourcing, especially in the form of remote business services, by foreign firms in response to the crisis.

Figure 1
LATIN AMERICA AND THE CARIBBEAN: FOREIGN DIRECT INVESTMENT INFLOWS BY SUBREGION, 1990-2010
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates.

The upswing in inward FDI flows has been strongest in South America, where they surged by 56% over the 2009 figure to reach US\$ 85.143 billion. Four countries experienced a very large jump in FDI: Brazil (87%), Argentina (54%), Peru (31%) and Chile (17%). FDI flows into Colombia were down on the previous year, but still amounted to US\$ 6.76 billion, while investment in the Bolivarian Republic of Venezuela continued to be negative as a result of the nationalization of foreign enterprises.

In Mexico and the countries of the Central American Isthmus, FDI has sought not only to capture domestic markets, but also to establish export platforms to take advantage of wage and location advantages. FDI flows into those countries have grown more slowly than flows to South America, owing to the slow economic recovery

in the United States, and fell short of the highs recorded in 2008. FDI flows to Mexico were 17% higher than in 2009, while those to the Central American Isthmus were up by 16%. In absolute terms, Panama and Costa Rica are the largest recipients in this subregion, and in 2010 received US\$ 2.363 billion and US\$ 1.412 billion, respectively. Honduras, Guatemala and Nicaragua posted growth rates of 52%, 18% and 17%, respectively. The Caribbean subregion continued to feel the effects of the economic crisis, especially the economies which rely most on tourism. FDI flows into the Caribbean fell by 18% to US\$ 3.917 billion. This performance was heavily influenced by the 25% drop in FDI flows into the Dominican Republic, the subregion's main recipient. Haiti shows the subregion's largest upturn in FDI, since, following the earthquake in January 2010, investment quadrupled over 2009 driven by heavy investments in telecommunications.

To recap, different factors have helped to consolidate the region's position as a recipient of FDI. Raw-material-seeking strategies by transnational firms have been driven by high commodity prices, which have prompted large investments throughout the region, but especially in South America. Firms seeking local and regional markets have been attracted by rising domestic demand, particularly in large countries such as Brazil and Mexico. Strong economic growth in Brazil in 2010, on the back of the successful countercyclical policy response to the crisis of 2009, was reflected in record FDI figures. Similar developments occurred in Chile, Colombia, Peru and Uruguay.

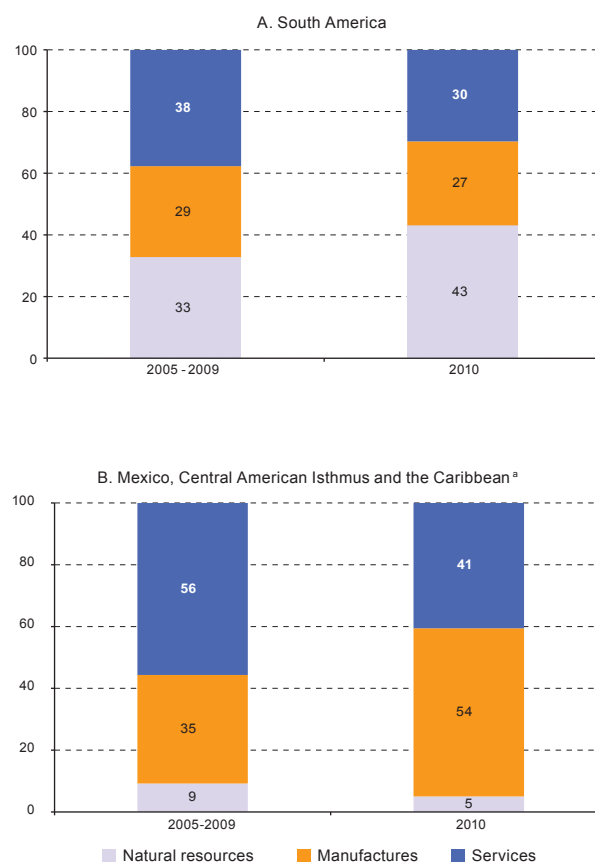
The destinations of FDI by sector varied from one subregion to another. In South America, natural resources and services drew the largest shares in 2010, with 43% and 30%, respectively (see figure 2). Natural resources are still very important as an FDI destination in this subregion and the weight of the primary sectors in investments actually increased in 2010 by comparison with 2005-2009. In Mexico, the Central American Isthmus and the Caribbean, investments continued to go mainly to manufacturing (54%) and services (41%), while the primary sector received only 5% of the total.

In terms of the origin of FDI flows, the United States remained the main investor in the region in 2010, accounting for 17%, followed by the Netherlands (13%), China (9%), and Canada, Spain and the United Kingdom (4% apiece). The Latin American and Caribbean region itself is increasingly important as a source of FDI, reflecting the rise of trans-Latins. Whereas in 2006-2009, FDI originating within the region accounted for 8%, in 2010 this figure rose to 10%. The information on investment

in mergers and acquisitions and in greenfield projects shows the region itself playing a growing role in those areas of investment, as well.

Information on new FDI projects in Latin America and the Caribbean announced by destination sector shows the following pattern of technology content: the bulk of investment projects in the region are low-tech and medium-low-tech; FDI has risen in the past few years in projects in medium-high-tech sectors and projects associated with research and development. The region's involvement in high-tech projects is still limited by comparison with other regions, and such projects are concentrated in Brazil and Mexico.

Figure 2
LATIN AMERICA AND THE CARIBBEAN: DESTINATION
SECTORS OF FOREIGN DIRECT INVESTMENT
BY SUBREGION, 2005-2010^a
(Percentages)



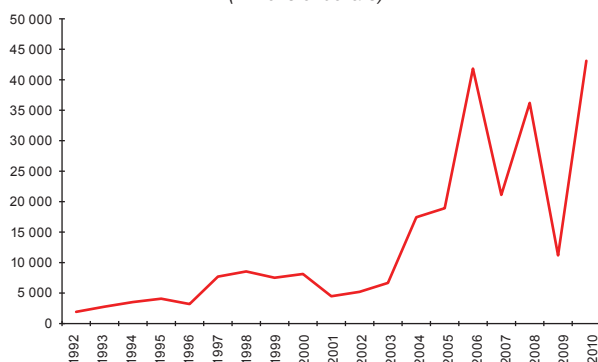
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates.

^a El Salvador and the Dominican Republic include maquila in the "other" category, and the Dominican Republic includes commerce under "manufactures".

2. Outward foreign direct investment and trans-Latin companies

In 2010 outward FDI from the Latin American and Caribbean countries nearly quadrupled with respect to 2009 to set a new record of US\$ 43.108 billion (see figure 3). The region is thus becoming increasingly important as an investor and its share of direct investment flows from all developing countries rose from 6% in 2000 to 17% in 2010. The higher flows of outward FDI in 2010 reflect weightier investments by firms from Mexico, Brazil, Chile and Colombia, which together accounted for over 90% of the region's outward FDI in 2010. In three of these countries—Mexico, Chile and Colombia—direct investment abroad reached all-time highs.

Figure 3
LATIN AMERICA AND THE CARIBBEAN: NET OUTFLOWS OF
FOREIGN DIRECT INVESTMENT, 1992–2010
(Millions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates.

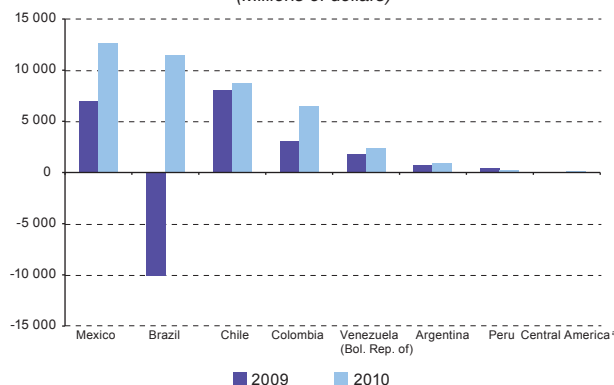
The surge in investments by trans-Latins has come about in a context in which the emerging economies are noticeably shifting patterns in the global economy. Transnational companies from developing countries have been making increasingly significant contributions to global FDI flows. Moreover, transnational companies based in developing countries are expanding even amid mounting competition and consolidation at the global level. This process is occurring not only in final consumption industries with differing levels of technology intensity, but also in some supply industries.

The firms which have internationalized the most in the past decade have been those from Brazil, Chile, Mexico and, more recently, Colombia. Much of this process has taken place in basic industries (hydrocarbons, mining, cement, pulp and paper, and iron and steel), mass consumption manufactures (food and beverages) and some services (energy, telecommunications, air transport and retail commerce). A significant proportion of Latin American

and Caribbean transnational investments are directed at neighbouring countries. For example, 47% of the mergers and acquisitions concluded by Latin American companies in 2010 took place in a country in the region. Trans-Latin greenfield investments also largely stay within the region—59% of the total in 2010—which underlines the importance of trans-Latins as agents of regional integration and as a means of sharing production-related practices and know-how.

By country, Mexico made the largest foreign investments in 2010. Its outward investment jumped by 81% to a record US\$ 12.694 billion (see figure 4). Although Mexico's outward investments went mainly to manufacturing in earlier years, the services sector has gained greater prominence recently. In 2010 in particular, outward investments consisted mainly of large acquisitions in the media, telecoms and food sectors. Brazil's foreign investments rose to US\$ 11.5 billion in 2010, bouncing back strongly from the contraction seen in 2009. New investments were channelled to a number of sectors: within natural resources, the largest proportion went to metallic minerals; within manufacturing, to food and metallurgy; and within services, to financial services. It should be recalled that Brazilian firms have received substantial support from public funds for their internationalization efforts. The country's leading firms have long benefited from strong public policy impetus, which gained further strength from the production development policy launched in 2008.

Figure 4
LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES):
OUTWARD FOREIGN DIRECT INVESTMENT, 2009 AND 2010
(Millions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates.

* Costa Rica, El Salvador, Guatemala and Honduras.

Investments abroad by Chilean firms rose 8% in 2010, to reach a record US\$ 8.744 billion. The largest proportion of this—58%—went to other Latin American countries,

mostly to financial services, the retail trade and, to a lesser extent, manufacturing. Colombia's outward FDI totalled US\$ 6.504 billion in 2010, double the amount registered in 2009, led by investments in mining and quarrying, which represented US\$ 4.5 billion, or 70% of all flows of outward direct investment. Outward investments also rose considerably for the Central American countries in 2010 (119% up on 2009), to reach US\$ 119 million. Firms from El Salvador made the largest investments outside their home country in 2010, followed by those of Guatemala and Costa Rica. Although no official figures are available for Panama, a number of sources indicate that the country makes hefty outward investments in financial services and transport.

Aside from the dynamics of internationalization by Latin American firms, the impacts on the countries of origin and, therefore, the associated policy debate, are complex and have only recently found their way onto the region's research agenda. The decision on whether to pursue a proactive policy in this direction must take several points into account, such as how to distinguish the benefits for the company from the benefits for the economy as a whole. The arguments in favour of a proactive policy include improved production and management standards, increased productivity,

the acquisition of new knowledge and the strengthening of technological capacities across the national productive structure through leveraging of externalities. The positive effects of internationalization can thus be multiplied through the company's linkages with the local innovation system. Conversely, those who oppose public assistance for business internationalization argue that, as leaders in their countries, these companies are not the agents most disadvantaged when competing in global markets, and that it is no easy matter to guarantee that the benefits of internationalization will spill over into the rest of the economy.

The prevailing uncertainty surrounding the economic recovery in the developed countries makes it difficult to forecast FDI flows for Latin America and the Caribbean in 2011. On the basis of the region's economic growth prospects, long-term trends in FDI flows and preliminary information, however, ECLAC projects FDI flows into the region could rise between 15% and 25% to reach a new all-time record in 2011.

Be this as it may, the region is becoming increasingly internationalized and globalized and FDI is a key part of that process. Accordingly, it is important to make progress towards greater understanding of the impacts of FDI and better distribution of its benefits.

B. Central America, Panama and the Dominican Republic: foreign direct investment and export platforms

FDI has played a fundamental role in the development of Central America, Panama and the Dominican Republic (hereinafter referred to as the subregion) and, during a period spanning over a hundred years, a number of different phases have been observed. Since the 1990s, inward FDI into the subregion has increased sharply, triggered by supply and demand factors, privatization of State-owned energy and telecommunications companies and mechanisms for access to the United States market, including the Caribbean

Basin Initiative, the Generalized System of Preferences and the United States-Caribbean Basin Trade Partnership Act (CBTPA) and, more recently, the entry into force of the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR). This boom was driven by the integration process under way in the subregion, which encouraged intraregional investment and, overall, increased the share of FDI in GDP, thus acting as a complement to domestic saving.

1. Pattern of foreign direct investment in the subregion

In recent decades, notably in the 1980s, FDI flows into the subregion were particularly sluggish, owing mainly to the civil and political conflicts waged in El Salvador, Guatemala and Nicaragua. The countries that proved most

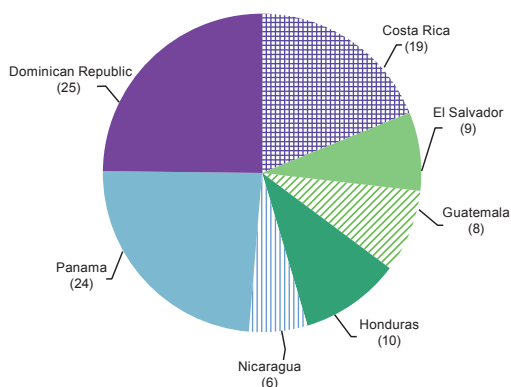
attractive for FDI were Panama, the Dominican Republic and Costa Rica, all of which enjoyed a sounder business climate at that time. The decade saw the involution of manufacturing for the domestic market and the beginning

of a flow of investments from the United States and Asia into the garment industry and the free economic zones. At the same time, countries in the subregion sought to diversify their exports in an effort to achieve integration in the United States market.

In the 1990s, FDI inflows started to pick up from the low levels recorded in the 1980s, thanks in no small measure to the peacemaking processes taking place in the subregion but, above all, to business opportunities resulting from privatization of State-owned firms (for the most part in El Salvador, Guatemala and Nicaragua), the improved business climate and the first proactive FDI-promotion policies. Along with the establishment of free economic zones and other special regimes, new tax and financial incentive schemes and FDI promotion policies were introduced and a new public framework of investment promotion agencies and business partnerships took shape geared to export and investment promotion. This occurred amid growing international competition, resulting in global offshoring of production driven by cost-cutting concerns.

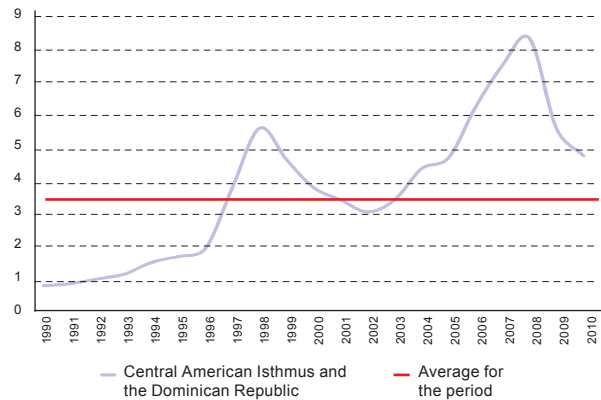
The countries that attracted the highest FDI inflows in absolute terms between 1999 and 2010 were Panama and the Dominican Republic (24% and 25%, respectively), followed by Costa Rica (19%), Honduras (10%), El Salvador (9%), Guatemala (8%) and Nicaragua (6%) (see figure 5). From the mid-1990s, FDI grew significantly as a percentage of GDP (see figure 6), to stand at 3.6% on average during the period 1990-2010. The highest values were recorded by Panama and Nicaragua—in the first case because of the amount of FDI received and in the second, in relation to its relatively low GDP— while in El Salvador, Guatemala and the Dominican Republic, FDI represented a smaller percentage of GDP.

Figure 5
THE CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC: NET FOREIGN DIRECT INVESTMENT INFLOWS BY COUNTRY, 1999-2010
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), estimates on the basis of official figures.

Figure 6
THE CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC: FOREIGN DIRECT INVESTMENT AS A PERCENTAGE OF GDP, 1990-2010
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), estimates on the basis of official figures.

From a longer-term perspective, one noteworthy feature is the restructuring and gradual transformation of the industrial matrix following the decline in exports from the textile and garment sector and the rise in services, especially those provided by call centres and business process outsourcing (BPO). The transnationals adhered to their strategy of generating low-cost export platforms, although the type of sector targeted did vary, with consequences in terms of diversification, investment and exports. Export promotion has been based on fiscal incentives, which, along with economic openness, have helped to redirect resources towards the export sector.

Between 1999 and 2010, FDI shifted from the manufacturing sector to services, in particular tourism, the real estate industry and business process outsourcing. Whereas, in 1999, manufacturing was a major investment target in all the countries of the subregion, except Panama, within a decade, a decline was evident, especially in textiles and garment manufacturing (except in Honduras and Nicaragua), while investments in services expanded in all countries. The expansion in Panama is unsurprising since it has traditionally been a recipient of investment in the services sector. In the other countries, this category of FDI has soared, especially in business process outsourcing. In the Dominican Republic, services continue to be significant, but their percentage decline from 80% of total FDI in 1999 to 56% in 2009 was due to major investments in mining. Growth in FDI in services in the other countries was driven by incentives (tax exemptions and financial incentives), which continue to apply to investments in export-oriented activities that operate under special regimes, and by the new export orientation that has been emerging in the past decade. In most of the countries of the subregion, investment in

free economic zones accounts for a significant percentage of total FDI. As regards the source of the FDI, the United States was the leading investor in the subregion (38%) between 1990 and 2010, followed by Spain (8%), Canada (6%) and Mexico (4%).

Efforts by the countries of the subregion to attract FDI and promote exports under special regimes and, subsequently, under CAFTA-DR boosted exports strongly and were successful in diversifying the export mix. This outcome was due in no small measure to the success in attracting FDI. The composition of the sectors targeted by FDI has led to changes in the export mix, particularly given the growth in exports by companies operating in free economic zones or under inward-processing or other similar arrangements.

Exports of goods under special regimes account for over 50% of goods exported by Costa Rica, El Salvador,

Honduras and Nicaragua. In the case of Panama, exports of goods subject to special regimes account for a very small share of the total because export figures do not include reexports from the Colón Free Zone. Exports produced under the free-zone regime account for the bulk of all exports subject to special regimes, except in the case of Guatemala and Panama. If exports of services are included, then exports from free zones account for an even higher proportion of total exports of goods and services.

Outward investments from the Central American economies also trended upwards until 2008, when the financial crisis struck. Costa Rica, El Salvador and Guatemala are the main outward investors. Panama is a special case with outflows in the past four years estimated at over US\$ 2 billion, including operations by foreign companies that invest in third countries through their Panamanian subsidiaries.

2. Current incentives and reforms for attracting investments and promoting exports

Countries in the subregion have used fiscal or financial incentives or FDI promotion and attraction policies as part of efforts to encourage foreign companies to set up local operations. Trade liberalization and strategies for international integration unleashed a “race to the bottom” for attracting FDI to the region. The fiscal cost of export incentives has been hotly debated in the different countries, especially the grant of tax credit certificates and the exemption from income tax awarded to export companies.

With a view to attracting investments, legislation on tax incentives conditional on export performance has been enacted in all countries, but will need to be amended since export conditionality is prohibited by the Agreement on Subsidies and Countervailing Measures. Thus, Costa Rica, the Dominican Republic, El Salvador and Panama have drawn up proposals for reforming their incentive regimes and some of them have enacted new legislation. Guatemala is the only country bound to amend its incentive regime which has yet to present a reform proposal. Honduras and Nicaragua do not have to change their incentive schemes as long as their per capita income remains low.

Prior to the reforms, the tax incentives were offered to all companies that set up operations under the free-zone regime. With the recent reforms, Costa Rica and Panama will continue to grant tax incentives but only to

sectors deemed strategic and to relatively undeveloped areas. The proposal in the Dominican Republic is to continue to grant incentives to all types of companies and to add new beneficiary categories, such as science or technology parks and utility companies. There are still no proposals for reform of the free-zone regime in the other countries.

Various elements are common to the reforms approved or under discussion: first, total or partial exemption from income tax; second, the inclusion of high-technology- and research-and-development-intensive activities as a strategic beneficiary sector. In addition, Costa Rica and the Dominican Republic have provisions for fostering production linkages between companies operating under the free-zone regime and local companies.

El Salvador and Panama revised their export promotion regime legislation, which granted conditional subsidies. No modification of this incentive regime will be necessary in the remaining countries, except for Guatemala, which has not prepared a proposal. In El Salvador and Panama, the changes have led to inroads into new areas with major policy steps for boosting productive sectors within the framework of their national innovation systems.

The reforms, albeit far-reaching, are subject to discussion, in particular the reform of free-zone legislation. One option would be to expand them into a broader development policy, incorporating measures for harnessing

the potential of FDI to act as an instrument of technology and knowledge transfer. The proposal is that existing tax incentives should be valued also in terms of their impact on public finances and viewed as an instrument for creating the conditions for establishing FDI and linking it with local economies, with a view to transferring technology and knowledge and permitting local businesses to move up the value chain.

Countries have seized the opportunity to design “new generation” incentives. These seek not only to attract FDI and generate employment, as has occurred in the past, but also to facilitate the transition from an export-promotion scheme to an investment-support scheme, the idea being to enhance productivity and reduce structural heterogeneity.

Although the Agreement on Subsidies and Countervailing Measures and the more stringent regulations of the World Trade Organization (WTO) have restricted opportunities for developing an industrial policy, such opportunities still exist and should be seized proactively by the countries as a way of improving their production specialization and creating new competitive advantages. This can be achieved by promoting production linkages as a strategic focus for expanding and deepening knowledge-

based assets. To this end, it is important to look at the type of FDI that is being established in each country and to try to attract fresh investments that are able to generate technological externalities. Thus, the effort to attract FDI must go hand in hand with development of the capacity to absorb new knowledge and technical and economic paradigms. This calls for the development of new production capacities.

The countries of the subregion are making headway with the reform of their export incentive legislations in order to bring them in line with WTO regulations. The reforms already approved and under discussion seek to eliminate the performance requirements that have been called into question and move towards replacing the export promotion scheme with an investment promotion scheme. The advances towards the establishment of an integral development policy are, however, still insufficient for defining an integral diversification strategy. In this strategy, FDI could contribute to advances in value chains, knowledge-building and product differentiation, with a view to achieving stronger linkages with the global economy. This would reinforce the role that FDI has played as a catalyst and modernizer of the region’s production structure and services.

C. Direct investment by China in Latin America and the Caribbean

China is now the world’s second largest economy and largest exporter of goods. Although the country has undoubtedly been a key player in world trade for over a decade, Chinese companies have only recently begun to invest large amounts overseas. Chinese FDI took off at a time, in fact, when world flows were plunging owing to the financial crisis: in 2008 China’s investments overseas exceeded US\$ 50 billion for the first time and in 2009 it was the world’s fifth largest investor country.

Recent trends in Chinese FDI have been influenced by a number of domestic and external factors. One of the most important of these is the Government of China’s policy of encouraging its companies to expand abroad. This policy has been in place since 2000 and its principal instrument is the financing offered by State-owned banks for companies’ overseas expansion projects. Almost all of the biggest Chinese transnational companies are State-owned.

Even in the case of State-owned companies, however, government policy alone cannot account for Chinese FDI. The State may have been promoting international expansion, but Chinese companies were also persuaded to invest abroad by their own growth, diversification strategies and technological development. The strong growth of the Chinese economy, extremely high savings levels, a strong export performance and advances in science, technology and innovation have created capacities in many companies that have been leveraged through foreign investment. In many cases, Chinese firms have bought companies overseas to secure key assets such as technology or brands in advanced economies, or to access natural resources in developing countries.

Chinese direct investment in Latin America gained significant momentum in 2010, when Chinese transnationals invested over US\$ 15 billion in the region, the vast majority in natural resource extraction. China has thus

become the third largest investor in the region, behind the United States and the Netherlands. In the medium term Chinese companies are expected to continue to invest in the region and diversify into infrastructure development and manufacturing.

The recent wave of investments was preceded by a strong trading relationship over the past decade. China is now the region's third largest trading partner, behind the United States and the European Union, and will soon overtake the latter. China's impact on trade in Latin America covers three areas: as an exporter of manufactured goods to almost every country in the region; as a buyer of raw materials, principally from South American countries; and as a strong competitor in the region's export markets, in particular for Mexico and Central America. The first two areas have defined investment relations between China and Latin America.

For the most part, Chinese companies have invested in Latin America to reduce their exposure to raw material price rises. This business rationale was combined with pressure from the Government of China to secure sufficient supplies of energy and raw materials, which accounts for the considerable support provided by public banks for these operations. Accordingly, over 90% of confirmed investments by Chinese companies in Latin America have gone to natural resource extraction. Table 1 provides an estimate of acquisitions and greenfield investments in Latin America and the Caribbean up to 2010 and those expected from 2011 on.

Table 1
FOREIGN DIRECT INVESTMENT FROM CHINA IN SELECTED ECONOMIES OF LATIN AMERICA AND THE CARIBBEAN
(Millions of dollars)

Country	Confirmed investments		Investments announced
	1990-2009	2010	2011 onwards
Argentina	143	5 550	3 530
Brazil	255	9 563	9 870
Colombia	1 677	3	...
Costa Rica	13	5	700
Ecuador	1 619	41	...
Guyana	1 000	...	...
Mexico	127	5	...
Peru	2 262	84	8 640
Venezuela (Bolivarian Republic of)	240	...	...
Total	7 336	15 251	22 740

Source: (ECLAC), estimates on the basis of information from Thomson Reuters, iDI Markets [online] <http://www.fdimarkets.com/> and interviews with representatives of the respective companies.

The main recipient countries have been Brazil, Argentina and Peru, all of which have a close trading relationship with China. The country is also sometimes an important source of investment for smaller economies, as has recently been seen in Ecuador and Guyana. With the

exception of Costa Rica, Chinese investment has almost no relevance in Mexico and Central America.

The biggest investments have been made in the hydrocarbons sector, in two stages: the first involved individual exploration and production concessions tied to agreements between States (in the Bolivarian Republic of Venezuela, Ecuador and Peru); and in the second, more recent stage, Chinese companies have opened up to partnerships with international private companies, principally in Brazil and Argentina. In the mining sector, Peru has been the main recipient of investment, largely for copper extraction, followed some way behind by Brazil, for iron-ore mining. Investments in agriculture are also driven by the strategy to secure supplies of raw materials. These have been much smaller in volume terms, but can still have a significant impact domestically. The entry of Chinese companies into this sector has caused concern among governments in the region over the implications of allowing land to be controlled by foreign investors and the possible impacts on food security and livelihoods in rural areas.

Chinese FDI in the region will probably continue to be dominated by companies specializing in natural resources, given the ambitious expansion plans they have announced. In any event, the pace of investment in this industry will depend on raw material prices, while other factors will encourage diversification towards other sectors. As the Chinese economy grows and its biggest companies develop, the number and variety of firms with the resources and motivation to invest abroad, including in Latin America and the Caribbean, will gradually increase. In addition, steadily rising domestic production costs, a trend towards geographical diversification of production to sidestep trade barriers, and the proactive policy of the Government of China will all drive foreign investment.

Infrastructure construction is one sector in which Chinese companies will increase their presence in the region. The rapid pace of construction in China has built up considerable capacity in this sector. Chinese construction companies are characterized by low costs and an ability to offer financing to their customers (often with the official assistance of the government). Furthermore, many firms, such as those setting up telecommunications networks or building railway equipment, have demonstrated remarkable technological progress over the past few years.

In manufacturing, investments are primarily designed to sidestep trade barriers in certain domestic markets. Companies aspiring to be world leaders in their industry are keen to diversify their production base to avoid real or potential trade barriers, while the Government of China looks favourably on any measures that help reduce its foreign exchange surplus. Brazil has been the main destination for manufacturing projects, although preliminary investments are under way in Mexico with

a view to establishing an export platform in the country. No significant investments in export platforms in Central America or the Caribbean have been recorded thus far.

The fact that such large sums have been invested by China, for the first time and within a short space of time, has prompted criticism from some governments, business people and civil society stakeholders in the region. In particular, it has been suggested that the focus of Chinese investment on natural resource extraction hinders domestic industrial development and technological upgrading. Criticism has also been levelled at the fact that the vast majority of Chinese transnational companies are State-owned, meaning that assets acquired in business transactions are ultimately controlled by a foreign government. Lastly, some Chinese companies in the natural resources sector have been accused of maintaining lower social and environmental standards in their operations than other transnational companies.

The advent of a new source of investment in the region provides opportunities for companies in need of capital and technology to sustain their growth. This applies to copper

mining in Peru and to the hydrocarbons sector in Argentina and Brazil, which have been the focus of the biggest investments to date, and may soon apply to infrastructure construction and some manufactured goods. The governments of Latin America and the Caribbean may be able to take advantage of this investment impetus to create new paths to development, by, for instance, tying the exploitation of raw materials to the construction of public infrastructure, or by offering incentives to establish domestic industries for processing these resources.

To capitalize on these opportunities, policies need to be formulated and implemented that reshape the industrialization pattern of the Latin American and Caribbean countries, promoting structural change in favour of sectors that are more knowledge- and technology-intensive. However, the first step must be to recognize that there are huge differences between the strategic vision that has guided China in its economic and industrial development, and the prevailing view in the region regarding the way to advance in the process of economic development.

D. Telecommunications operators and the transition to convergence and broadband

Over the last decade, telecommunications services have undergone a thorough reorganization and transformation at the global, regional and national levels. That change is attributable to the progressive breakdown of the barriers between the traditional segments (fixed telephony, mobile telephony, broadband access, Internet, pay television and broadcasting) and the gradual shift of the industry's focus from voice to broadband. In this scenario, consumer habits are changing, companies are reviewing their business models and national authorities are facing the urgent need to adapt existing sector-specific regulations in the light of technical convergence and to reconsider the role of broadband access in society and in national development strategies.

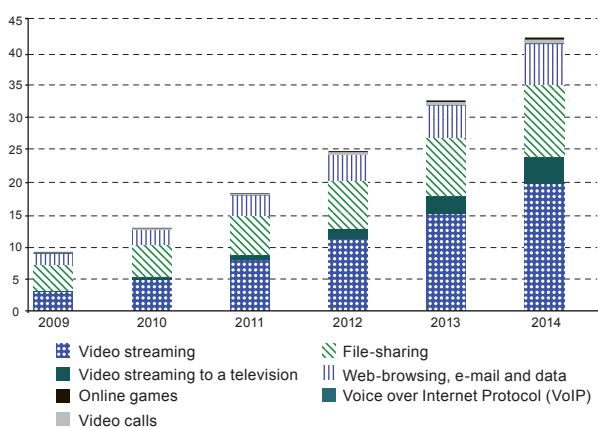
In the business sector, the rapid decline in traditional sources of revenue from voice traffic is putting pressure on operators to seek new business segments associated with data traffic. Old networks are increasingly overloaded by new applications that require a high bandwidth, mainly for video, which can lead to bandwidth saturation (see figure 7). Operators are therefore being driven to migrate to next generation networks (NGN) based entirely

on Internet Protocol. This presents the industry with two challenges: making the necessary investments in infrastructure to meet the technical requirements of new services and, at the same time, strengthening and increasing the demand for new services in order to reverse falling revenues and ensure the sustainability of the new business models.

At present, the high costs and deep uncertainty associated with this inevitable transition have forced operators to seek hybrid formulas (based on twisted-pair copper wiring and cable modem) to prolong the useful life of their traditional businesses. These include package offers (often referred to as triple play), which have made it possible for companies to continue earning revenue from voice services and have helped to extend the use of broadband, develop pay television and stem the migration of their customer base. At the same time, mobile communications have seen a rapid improvement in infrastructure, which has set in motion a mass migration towards third-generation (3G) technology and the first steps towards the deployment of new fourth-generation (4G) networks, thus enabling the speedy development

and expansion of wireless data traffic. That said, fixed technologies have so far led the way in the development of broadband access, as they still have a greater capacity available than the mobile segment. However, even though mobile technologies are still not a perfect substitute for fixed infrastructure, they do complement it and the convergence of these two technologies indicates that the difference between the services they provide will diminish significantly in the near future.

Figure 7
GLOBAL CONSUMER INTERNET TRAFFIC (HOUSEHOLDS,
UNIVERSITIES AND INTERNET CAFES), 2009-2014
(Thousands of exabytes per month)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by CISCO, *Hyperconnectivity and the Approaching Zettabyte Era*, 2 June 2010.

In a context marked by volatility and borrowing constraints, the larger companies with more financial clout were better prepared to take advantage of the opportunities offered by an industry experiencing rapid transformation. The large companies therefore sought assets that would enable them to offer full convergent packages, scale up by increasing their share in competitive markets and secure access to emerging markets with high growth potential (Brazil, China and India). Pursuit of this objective has led to an intensive process of corporate mergers centred on the domestic markets of the advanced economies and more rapid internationalization of the leading operators. Particularly in the wireless segment, in the more advanced markets consolidation has led to there being no more than three operators, which seems to be the number needed to achieve a return on operations in the domestic market. Without doubt the consolidation process will continue with the next stage involving the largest emerging markets, which remain very fragmented.

Although the epicentre of this process has thus far been in the industrialized countries, the Latin American and Caribbean region has not been unaffected; however, the markets of the region are lagging somewhat behind in terms

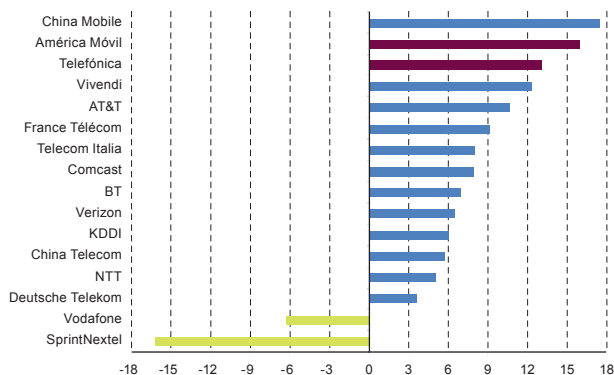
of consolidation and the different sectors of the population are more segmented. Notable changes have occurred: the penetration of mobile telephony has reached almost 100%; fixed telephony has stagnated; broadband access is gaining ground, albeit more slowly than in the advanced economies; regulatory changes favouring convergence have prompted offers of bundled services packages, which are very popular in many countries, though not in the largest ones; and operators are showing a clear strategic preference for the mobile segment, in terms of coverage, deployment of infrastructure, promotional tariffs and loyalty policies. This situation has led to the rapid consolidation centred on two transnational operators: the Spanish company Telefónica and the Mexican company América Móvil. These operators currently dominate more than 60% of the Latin American communications market. However, in some countries they are facing serious competition from alternative operators, especially pay-television companies, which are often part of large audio-visual media groups (Cablevisión of Grupo Clarín in Argentina, Megacable and Cablevisión of Televisa in Mexico, and VTR in Chile), and mobile telephony companies, some of which have large local capital shares (Entel in Chile, Oi and TIM in Brazil, Nextel in Mexico, Millicom and Digicel in Central America and the Caribbean).

The vast majority of countries in Latin America and the Caribbean still have rigid regulatory frameworks and lack policies that proactively and explicitly promote the development of the industry. Regulation must be brought into line with a reality that is changing quickly as a result of rapid and continuous technological progress, which is stimulating a convergence towards a single multifunctional IP-based infrastructure. It is also important to progress towards ways of finding a balance between offering prices low enough to enable the mass uptake of services and earning revenues high enough to make a return on the large investments that operators must make to modernize their fixed and mobile network infrastructure.

Overall, with the exception of mobile telephony, the gaps with respect to the advanced economies have continued to grow, particularly in the new broadband technologies. Fixed broadband connections are dominated by ADSL (Asymmetric Digital Subscriber Line), a data transfer technology that works over conventional copper telephone wires, while the vast majority of mobile communications users are subscribed to second-generation (2G) prepaid services, even though there is wide 3G coverage. These characteristics of the Latin American market lead to a low average revenue per user (ARPU); companies have therefore focused their strategies on taking advantage of economies of scale in order to maximize returns on old infrastructure by creating bundled services packages, thus cream-skimming the market. The market for convergent data services is still limited as it is confined to high-income

sectors. Against this backdrop, the main regional operators have secured positions among the leading companies in the industry and, even more importantly, have become the most profitable communications companies in the world, surpassed only by China Mobile (see figure 8).

Figure 8
WORLD'S LARGEST TELECOMMUNICATIONS SERVICES COMPANIES: AVERAGE PROFITS AS A PERCENTAGE OF SALES, 2005-2009
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from *Fortune Global 500*, various issues.

After achieving a solid and broad regional presence, the leading operators, put under pressure by the rapid rate of obsolescence of their infrastructure, have begun to reorganize and integrate their assets, and to develop new business models to take advantage of the future spread of broadband and guarantee the sustainability of their operations.

The first stage focused on the most dynamic and profitable segment of the industry: wireless communications. Operators have implemented different measures designed to improve the quality of services with a view to customer retention. Companies are striving to facilitate and encourage the migration of their prepaid customers to bundled products and postpaid service contracts. As well, they are gradually shifting their focus from attracting new customers to retaining existing customers, increasing the emphasis on efficiency by seeking ways of using the network infrastructure more effectively. With broad 3G coverage and embryonic plans to deploy 4G infrastructure, operators are trying to increase the capacity and coverage of Internet access in order to take advantage of the growth and emergence of new services and applications designed for mobile broadband and thus reverse the downtrend in average revenue per user.

To the same end, regional operators are seeking to simplify their range of products and services, strengthen partnerships with providers and other companies in the industry and, above all, continue to bundle services and

improve their infrastructure in order to update their services and enhance access speeds, prioritizing the use of ADSL technology for the moment in order to get the most out of their copper networks. Operators are currently working towards integrating their infrastructure to offer multiple services. However, they still lag behind in the deployment of optical fibre next generation networks, although this technology is already being used to lay trunk and backhaul networks for base stations in the main urban areas in the region. The investments needed in next generation network infrastructure are considerable and the conflicts faced by companies in the developed economies have spread to the countries of the region. The leading operators are therefore paying close attention to the debate on the future model for the Internet, especially where unlimited plans and network neutrality are concerned. In this connection, it has been suggested that content providers should contribute to network maintenance and that it is necessary to offer a variety of Internet tariffs in order to make the current business models sustainable. As well as their efforts made regarding fixed and mobile communications, companies are trying to further integrate those segments and regionalize their operations. Integrated operators are therefore looking for ways to reduce operating costs and optimize investments so that they can then concentrate on offering a new range of integrated fixed-mobile services.

Lastly, two policy areas are under discussion in the global and regional debate: first, the adaption of regulation to a reality that is changing rapidly as a result of an ongoing technological revolution which is moving towards convergence; and, second, the difficulties involved in finding a balance between service prices low enough to allow their mass uptake and revenues high enough to ensure returns on the large investments that operators must make to modernize their networks.

In this context, ECLAC has recommended two lines of action: strengthening the technical capacity and independence of the sector's regulators; and initiating a substantive dialogue between governments and operators to arrive at specific definitions for standards, networks and rates of access and profitability. Progress has been made, but thus far at an inadequate pace which has left the region lagging behind in terms of the mass uptake of broadband access, its appropriation by users and investments in advanced networks. Measures must be taken rapidly to implement these lines of action, especially given that decisions now being considered will affect not only the size of investments, but also which areas will benefit: whether the development of advanced mobile networks or the installation of optical fibre fixed networks. Strengthening effective mechanisms for technical dialogue between the authorities and the large operators with a view to taking policy decisions seems to be the best path.

E. Foreign direct investment in the software industry in Latin America

The significance of the software industry lies in its contribution to structural change in developing countries by transferring and disseminating new technologies, creating skilled jobs and generating exports of services. International experience shows that the software industry, like the manufacturing industry, has spillover effects on all sectors of the economy, spurs productivity and helps to diversify the supply of exports, making it a driver of economic growth. Accordingly, this industry is generating employment opportunities and new business around the world, especially in developing countries, thanks to increasing returns to scale and the high elasticity of export revenue. Latin America in particular has become known not only for its potential as a destination for offshoring of software operations but also as an emerging force in the industry.

The region continues to strengthen its presence in the software industry, and FDI in the sector has been on the rise. Since the early 2000s, the combination of internationally competitive costs, ready availability of qualified human resources and time-zone proximity to the United States and Europe has made Latin America an attractive destination for the offshoring of software centres. In the current stage of development of FDI in the software sector, transnational companies have sited major projects in Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico and Uruguay, most of them with high levels of specialization and standards on a par with the leading international centres. But the situation varies widely from country to country, with three patterns of specialization identified: countries with a large domestic market that is not very export-oriented (Brazil and Mexico); countries with a small domestic market that is highly specialized in exports (Costa Rica and Uruguay); and countries with a medium-sized domestic market that combines both strategies (Argentina, Chile and Colombia).

Transnational software companies can be an effective means of transfer of new knowledge and technologies, with the consequent impacts on productivity and growth. The business strategies of these companies have shifted from cost arbitrage to a geographically diversified global production model (global offshoring).

The software industry has thus globalized in successive stages of offshoring and international deployment from the developed countries towards new, emerging markets. The industry is now entering a new growth cycle that will be shaped by changes associated with new technologies,

business models and business strategies. There are at least four trends linked to this new phase: (a) integration of global operations; (b) migration of the hardware industry towards higher-value-added service segments; (c) adoption of new business models in the industry; and (d) changing innovation processes.

Latin America could establish itself as a global software location (as China, India and countries of Eastern Europe have), thanks to the new strategies being pursued by transnational software companies. These strategies consist of combining global operations over different time zones, cost levels and operational risks. The major transnational software companies can thus combine operations in high-cost countries like Canada, the United States and the countries of Western Europe with operations in countries that are relatively lower in cost but pose greater operational risks, such as in Asia and the Pacific, Eastern Europe and Latin America. This global operating model enables companies to better balance customer preferences for nearshore or farshore locations, gain better access to skilled human resources, manage operational risks better and take advantage of time-zone differences to speed up the project and service cycle.

The software industry displayed relative stability as to the number of new projects developed at offshore locations during the period 2004–2008, but a substantial drop from 2009 in the wake of the international crisis. A total of 2,749 cross-border software investment projects were recorded between January 2003 and November 2010, located primarily in India (24%), China (10%) and the United States (10%). Latin America's share of the total number of projects was 6%, compared with 48% for Asia and the Pacific, 21% for Western Europe and nearly 10% for Eastern Europe. The 10 principal companies with global software projects were IBM, Microsoft, Hewlett-Packard, Oracle, SAP, Google, Sun Microsystems (owned by Oracle), Fujitsu, Siemens and Capgemini, which together accounted for 22% of the total.

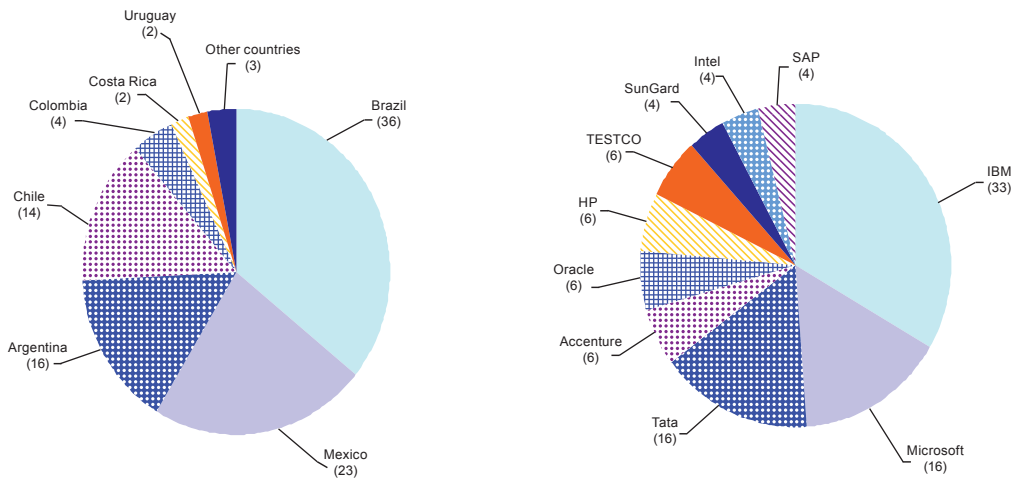
Three differences have been observed between the trend in new project launchings in Latin America and the Caribbean and the worldwide trend. The first is the growth in the number of projects after the crisis. The second has to do with the growing share of companies from India and Spain. The third concerns the participation of trans-Latin software companies. Of the 102 companies that have invested in Latin America, IBM is the most active,

with 17 new projects announced; it was followed by Microsoft, Tata Consultancy Services (TCS), Accenture, Oracle and Hewlett-Packard, which, together, accounted for 26% of the projects. Trans-Latin companies accounted for 10 projects; a noteworthy example is Sonda in Chile. The principal locations included Brazil, with 36% of the projects; Mexico, with 23%; Argentina, with 16%; and Chile, with 14% (see figure 9).

The development of the software industry in Brazil and Mexico and, to a certain extent, in Argentina can be traced

back to former industrialization strategies that led to the establishment of a productive manufacturing base and to specialization in information technology and electronics. Industrialization along these lines also attracted the main hardware manufacturers at the time and led to the transfer of new, ICT-related technologies and the development of specialized human resources. The main difference between Brazil and Mexico is that the former stands out for its attractive domestic market and the latter for its geographical proximity to the United States market.

Figure 9
LATIN AMERICA AND THE CARIBBEAN: ANNOUNCED SOFTWARE PROJECTS BY COUNTRY AND AMONG THE TOP 10 COMPANIES
(Percentage of total number of projects)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of fDi Markets [online] <http://www.fdimarkets.com/> up to November 2010.

The economic opening that began in the 1990s coincided with the birth of software company offshoring in Latin America as the hardware and electronics industries shifted to China and other Asian countries. The main hardware companies with a presence in Brazil and Mexico (such as IBM, Hewlett-Packard and Unisys) began to turn their manufacturing plants into service centres, taking advantage of the available infrastructure and skilled human resources. That is why the major software development centres in Latin America are found in locations that had a robust specialization in electronics, such as São Paulo, Guadalajara and Monterrey.

Aside from Brazil, software industry offshoring to South America began to develop in the 2000s, albeit with varying paces and areas of growth. Of the 159 new software projects recorded as FDI in Latin America over the past eight years, 25 were set up in Argentina, 23 in Chile and 7 in Colombia. This development was due to the fact that these countries were also able to capitalize on their relative proximity to the United States market, and they placed their skilled human resources on the international market at a competitive cost.

Argentina has led the software offshoring industry in South America thanks to its extensive network of higher education institutions that are capable of providing a constant flow of graduates in cities like Buenos Aires, Córdoba and Rosario at competitive costs. The industry developed more recently in Chile and Colombia than in Argentina, but it grew quickly during the second half of the decade: in both countries, the industry developed over a period of no more than five years.

In Central America there is a wide range of experiences in developing the business services industry. A good example is Costa Rica, which during the 1990s launched a strategy for attracting major international software centres. Uruguay is a special case in that it began to develop its software export industry in the 1990s and has since posted the fastest growth in the region and the best export performance.

Latin America has become a strategic location for most transnational software companies that have implemented successful internationalization strategies and established themselves as leaders, both regionally and internationally. Table 2 shows the major companies that have consolidated

their operations in the region and are taking on a key role in the transfer of new technologies, the training of human resources and export supply development.

United States-based transnational software companies may be divided into two groups, according to corporate strategy. The first group comprises companies with strategies for consolidating their global IT service centres, such as IBM and Hewlett-Packard. The other is made up of companies with strategies for consolidating their software engineering centres, such as Dell, Intel and Motorola. Among the European transnational software companies with a presence in Latin America, the most important ones include SAP (Germany), Capgemini (France) and Indra (Spain), which combine software development services

with business process and ICT consulting services. In addition, Latin America has become a strategic location for Indian companies serving customers in the United States in view of the region's time-zone proximity and competitive costs. These companies arrived in Latin America in the 2000s, after the United States and Europe-based firms.

Latin America has also seen the emergence of a wide variety of local companies engaged in global IT services. These trans-Latin software companies are pursuing internationalization strategies to gain a share of regional and international markets. Notable among them are Mexico's pioneering Softtek, Sonda in Chile as it consolidates regionally, Argentina's emerging Globant and Brazil's TOTVS as it specializes in the region.

Table 2
PRINCIPAL TRANSNATIONAL SOFTWARE COMPANIES OPERATING IN LATIN AMERICA

Segment	Global transnational software companies			Latin American transnational software companies			
	United States	Europe	India	Argentina	Brazil	Chile	Mexico
Software applications	Microsoft Oracle IBM Hewlett-Packard	SAP Indra		Globant	TOTVS		
Software services	IBM Hewlett-Packard/ EDS Accenture Xerox	Capgemini Indra	Tata Infosys HCL WIPRO	G&L Assa	TOTVS CPM Stefanini Politec	Sonda Quintec Adexus Coasin	Softtek Neoris Hildebrando
Software engineering	Hewlett-Packard Google Dell Yahoo Intel Motorola Synopsis McAfee	SAP					

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from interviews with representatives of the respective companies.

There is space for growth in inserting Latin America in this industry, which can benefit new locations and countries in the region. It is clear that this development will not happen on its own; rather, it will require a set of public policy components with an integrated approach to attracting FDI and developing local industry while spurring the participation of transnational software companies in local

and national innovation systems. Noteworthy among the principal policy initiatives to be strengthened are development of human capital, support for research and development, fostering of strategic alliances between businesses and institutions and better regulatory frameworks. On all these fronts, the mechanisms for collaboration among countries and locations both can and should be strengthened.

F. Concluding remarks

The growing share of Latin America in FDI flows heightens the need to devote more intensive efforts to crafting an analytical framework for studying the impacts of FDI on development. For a number of years, the eclectic paradigm offered a framework for analysing the positioning and

expansion of transnational firms in the wake of the free-market reforms that accompanied globalization, by associating business strategies with costs and benefits and identifying mechanisms through which FDI could underpin economic growth. The analysis now needs to be

deepened, however, to look also at the absorptive capacities of recipient economies as a determinant of the impacts of FDI, since that capacity is crucial for broadening the operations of transnational firms and spreading the benefits of their investments through host economies.

A new analytical framework should encompass two dimensions: the strategies of transnational companies, on the one hand, and the host country's absorptive capacity and national innovation system, on the other. From the corporate stakeholder side, it is important to study the strategies of transnationals—which determine the complements that their operations seek—and the characteristics of their subsidiaries (technological capacity, linkages with the parent company's global value chain, role in the

corporate strategy and integration into global corporate and knowledge networks). Absorptive capacity and the national innovation system first act as a draw for investing firms and, later, determine the possibilities of technological progress in their local activities. The interaction between transnational companies and a recipient economy's national innovation system and absorptive capacity, then, determine the impact investment will have on technology transfer, productivity spillovers and the creation of new capacities. The effort to analyse the technology content of new FDI projects and of research and development projects associated with FDI in the region, as undertaken in chapter I of this report, represents a first step towards building a new conceptual framework.

Chapter I

Regional overview of foreign direct investment

A. Introduction

Foreign direct investment (FDI) flows into Latin America and the Caribbean grew more rapidly than those for any other region in 2010, by 40% with respect to 2009. Global FDI rose by just 1% in the aftermath of the financial and economic crisis which broke out in 2008, with patterns varying across regions: while FDI climbed by 10% in developing countries, it fell for the third year in a row in developed countries, by 7% compared with 2009.

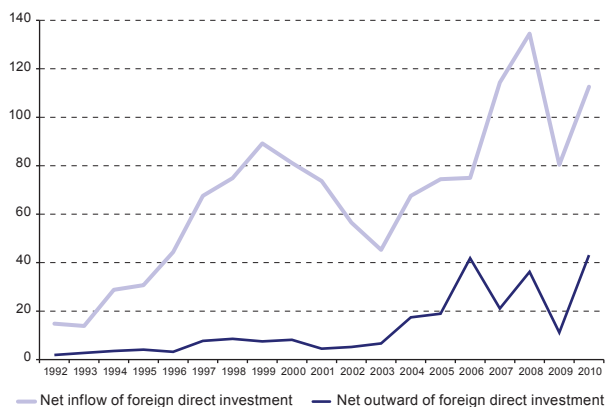
Although the recovery in global FDI flows remained weak in 2010, both inward and outward flows rose strongly for developing and transition countries. As a result, for the first time, FDI flows to developing and transition countries accounted for more than 50% of global flows. Outward FDI from developing and transition countries also continued to grow and, according to preliminary figures, accounted for 22% of global FDI outflows in 2010. In this context of greater FDI activity in developing countries, Latin America and the Caribbean was the most dynamic region in 2010, with the strongest growth in inward and outward FDI.

FDI flows in Latin America and the Caribbean stood at US\$ 113 billion in 2010, close to the record figures posted in 2008 (see figure I.1). FDI in South America rose by 56% to US\$ 85 billion; Brazil was the main recipient,

attracting a record total of US\$ 48.462 billion, equivalent to 43% of the region's total, followed by Mexico, Chile and Peru. In Mexico, FDI resumed its growth and stood at US\$ 17.725 billion, 17% more than in 2009, while flows into Chile reached US\$ 15.095 billion. Peru posted record FDI figures in 2010, attracting US\$ 7.328 billion. Meanwhile, Colombia and Argentina received US\$ 6.76 billion and US\$ 6.193 billion, respectively. FDI in the Central American Isthmus grew again in 2010, led by Panama and Costa Rica. These two countries together account for 64% of the subregion's total FDI figure of US\$ 5.847 billion, which was, in turn, 16% more than in 2009. Only El Salvador continued the downward trend begun in 2009. According to preliminary data, FDI in the Caribbean fell by 18% compared with 2009. The Dominican Republic was the subregion's main recipient, attracting 41% of

flows in 2010. Although the countries of Central America and the Caribbean received small amounts in absolute terms, they were among the region's largest recipients in relation to GDP.

Figure I.1
**LATIN AMERICA AND THE CARIBBEAN: INWARD AND OUTWARD
 FOREIGN DIRECT INVESTMENT, 1992-2010^a**
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as at 15 April 2011.

^a FDI figures indicate inflows of foreign direct investment, minus disinvestments (repatriation of capital) by foreign investors. Outward FDI figures indicate outflows of direct investment by residents, minus disinvestments abroad by those investors. The FDI figures do not include the flows received by the main financial centres of the Caribbean. The outward FDI figures do not include the flows originating in these financial centres. These figures differ from those contained in the editions of the Economic Survey of Latin America and the Caribbean and the Preliminary Overview of the Economies of Latin America and the Caribbean published in 2010, as the latter show the net balance of foreign investment, that is, direct investment in the reporting economy (FDI) minus outward FDI.

Outward FDI from Latin America and the Caribbean also grew considerably in 2010. Direct investment originating in the region quadrupled to reach a new record of US\$ 43 billion. Furthermore, Latin American direct investment abroad has surged in the past decade and the region's share in total FDI flows from developing countries climbed from 6% in 2000 to 17% in 2010. Mexico, Brazil, Chile and, recently, Colombia were the largest investors abroad, contributing more than 90% to the region's total.

In 2010, inward and outward FDI in Latin America and the Caribbean thus resumed their upward trend of the past decade; total FDI received was the third highest ever and total outward FDI set a fresh record. As the region becomes increasingly globalized and internationalized, the analytical framework applied to the structure and dynamics of FDI is in need of review. Although the analysis model based on corporate strategies (known as

Dunning's eclectic paradigm, published in 1981) remains valid, it needs to be expanded to incorporate additional elements related to innovation systems,¹ in particular the building of local absorption capacities and the use of industrial policy as a mechanism for multiplying and strengthening the benefits of FDI in the region's economies (see box I.1).

A new conceptual framework should integrate two dimensions that are often treated separately in the literature: the strategy of transnational companies and the absorptive capacities of recipient countries, which are determined by their national innovation systems. While the first dimension is essentially exogenous for most recipients, the second is within their control and may be affected by industrial policies designed to change the production structure in order to improve technology-absorbing capacity and stimulate long-term growth. These two aspects of a conceptual framework should serve to identify the direct and indirect effects of FDI. An in-depth analysis of these issues obviously constitutes a long-term research agenda; in the meantime, however, this report makes headway in integrating the two dimensions, especially in relation to the technology intensity of transnational companies' projects and the research and development activities associated with FDI entering the region.

The present publication is divided into five sections. Following this introduction, section B gives an overview of FDI worldwide. Section C comprises three parts. The first describes FDI patterns in Latin America and the Caribbean on the basis of official balance-of-payments statistics. The second reviews the strategies of transnational companies by analysing FDI destinations, origins and mechanisms. The third part outlines new FDI projects by technological content and projects relating to research and development activities. Section D outlines the key characteristics of the region's countries as foreign investors and the growth of trans-Latin companies. The final section sets forth the main conclusions.

¹ The concept of the national innovation system was developed in the 1980s to explain the differences in the innovation performance of industrialized countries. Nelson and Rosenberg (1993) focused on organizations that support research and development activities as a major source of innovation and dissemination of knowledge, whereas Lundvall (1992) focuses on production structure and the institutional context. A broad definition includes "all important economic, social, political, organizational and institutional factors that influence the development, diffusion and use of innovations" (Edquist, 2005).

Box 1.1

AN ANALYTICAL FRAMEWORK FOR STUDYING THE EFFECTS OF FOREIGN DIRECT INVESTMENT

Studies developing analytical frameworks for foreign direct investment (FDI) have focused on determinants and effects on recipient economies, with most progress in the last few decades made with regard to determinants (Caves, 1996; Blonigen and Piger, 2011). In terms of the potential effects of the operations of transnational companies, there has been a shift from theoretical views to increasingly holistic empirical approaches. However, the effects of transnational companies' activities, particularly in developing countries, are still hotly debated because of the difficulty in establishing a causal link between FDI and economic growth, productivity and innovation (Gallagher, 2010; OECD, 2002; Lipsey, 2002; Moran and others, 2005; Markusen and Venables, 1999).

A behavioural and strategic view of international expansion by transnational companies was proposed by Dunning (1981) to explain the determinants of FDI. His eclectic paradigm categorizes companies by their predominant strategies: raw-material seeking, market seeking, efficiency (low cost) seeking or strategic-asset seeking. In Latin America and the Caribbean, this approach provided a framework for analysing the positioning and expansion of transnational companies from the time of market opening to international capital and later in the context of increasing globalization. Furthermore, this paradigm helped to link corporate strategies to their benefits and difficulties by establishing mechanisms through which FDI could have an impact on economic growth (ECLAC, 2004). However, the empirical evidence compiled in recent years underlines the importance of recipient economies' absorptive capacity as a key determinant of the impact of FDI (Xu, 2000; Lall and Narula, 2006; Girma, 2005). Absorptive capacity acts as a filter for the establishment of transnational companies in line with their strategies. In addition, once the companies are established, it is the essential factor for expansion of their operations and benefit-sharing (Narula and Lall, 2006; Mortimore and Vergara, 2006; Fu and Li, 2010).

A new conceptual framework should therefore integrate two dimensions: transnational companies and the absorptive capacity of recipient countries, which is determined by their national innovation systems. The strategies of transnational companies determine the complementary factors they seek for their operations (human capital, infrastructure, suppliers and so forth), as well as the linkages and externalities

that may materialize in the recipient economy. Other important factors include the characteristics of the subsidiary in terms of its technological capacity, connections with the parent company's global value chain, importance in the transnational company's corporate strategy and its integration into global knowledge networks, corporate networks or other networks. The empirical literature has highlighted the importance of these factors in understanding the impact of FDI in developing countries, especially in relation to spillovers, which explain the capacity of recipient countries to progress towards activities that are more technologically sophisticated (Marín and Arza, 2009; Todo and Miyamoto, 2002). The evidence from Argentina and from the maquila industry in Mexico confirms the importance of connections with global knowledge networks and the degree of autonomy of subsidiaries as determinants of the technological upgrading of their operations (Giuliani and Marin, 2007; Sargent and Matthews, 2006).

The other core component of the conceptual framework concerns the absorptive capacity and innovation systems of recipient countries, which not only function as determinants of location decisions that are endogenous to the recipient country but are also, in turn, affected by the transnational company's operations. Thus, the location decisions of transnationals and the absorptive capacity and national innovation systems of recipient countries co-evolve, in the process determining the effects of FDI. Various factors in the national innovation system are relevant to understanding both the interaction with transnational companies and the effects of these companies on the economy: human capital; technological base and capacities; infrastructure and local supplier development; the structure and heterogeneity of the productive sector (particularly of industry); the level and quality of interaction between the different stakeholders in the system, including companies, universities, public sector bodies and research institutions; and the institutional context and support for innovation and the generation and adoption of knowledge (Cimoli, Dosi and Stiglitz, 2009). In this context, industrial policy is another key determinant of the destination of FDI and an instrument for increasing its benefits. Indeed, evidence exists of the advantages of pursuing a proactive industrial policy on FDI (ECLAC, 2007; Narula and Lall, 2006).

Based on these dimensions of the conceptual framework, the effects of FDI

can be classified as direct or indirect. The direct effects are not particularly dependent on the interaction between transnational companies and absorptive capacity and the innovation system. These effects include broader access to reserve currencies, higher gross fixed capital formation, increased supply (more production and more access to goods and services, employment growth and the creation of production linkages), increased tax revenue and growth in exports. Thus, the direct effects of FDI on economic growth are in fact similar to those that investments by national companies would have. The indirect effects are determined by the absorptive capacity and the innovation system. The dynamic reciprocal interaction between transnational companies and the innovation system leads to indirect effects on the recipient economy in the form of higher technological content and capacity-building in the productive sector. These include spillovers in productivity and wages, technology transfers and capacity-building, development of human capital, monetary externalities for local businesses and the promotion of innovation and new learning paths. Through these mechanisms FDI contributes to economic growth in a different way to national investment, which demonstrates the benefits of foreign investment.

In short, subsidiaries take advantage first of existing capacities in the national economy. Then, through their interaction with the innovation system and in the context of their global strategies and characteristics, they may undergo either technology upgrading, thereby expanding the scope of their activities, or technological downgrading. Through that process, transnational companies have an impact on the development of recipient countries, particularly in terms of technological capacities.

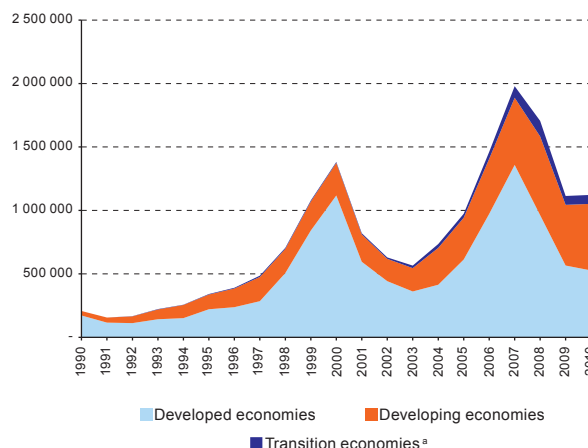
An in-depth analysis of these issues clearly constitutes a long-term research agenda. Chapter I of the 2010 edition of *Foreign Investment in Latin America and the Caribbean* analyses the technology intensity of the ventures of transnational companies and FDI-driven research and development projects in the region. In view of the region's growing share in FDI flows in the past decade and the new records set by several countries in 2010 in both inward and outward FDI, research is urgently needed in this area to narrow institutional gaps and programmes and specific policies are required to expand the benefits of transnational companies' activities in the region.

B. Overview of foreign direct investment worldwide

After falling for two consecutive years owing to the economic crisis in 2008 and 2009, worldwide FDI rose slightly in 2010. Preliminary figures indicate that worldwide FDI flows were US\$ 1.12 trillion in 2010, representing an increase of 1% over 2009 (see figure I.2). As a result of the crisis, FDI flows declined in 2009 in both developed and developing countries. However, in 2010, this category of investment recovered at rates that varied from one destination region to another. In developed economies flows contracted still further in 2010 (-7% compared with 2009), while flows to developing countries rose by 10% (see table I.1).

In developing countries FDI movements also varied across regions: while in Latin America and the Caribbean FDI rose by 40%, in Africa flows contracted by 15% and in Asia and Oceania they rose 10%. As a result of the decline in flows to developed countries and the increase in flows to developing economies, developed countries accounted for less than half of global FDI flows in 2010, with a share falling from 57% in 2008 to 51% in 2009 and 47% in 2010. By contrast, the share of developing and transition countries climbed from 43% in 2008 to 53% in 2010 (see table I.1). The Latin American and Caribbean region attracted 10% of global FDI in 2010.

Figure I.2
GLOBAL FLOWS OF FOREIGN DIRECT INVESTMENT BY GROUP OF ECONOMIES, 1990-2010
(Millions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures; United Nations Conference on Trade and Development (UNCTAD), *World Investment Report, 2010. Investing in a Low-Carbon Economy* (UNCTAD/WIR/2010), Geneva, July 2010. United Nations publication, Sales No. E.10.II.D; and *Global Investment Trends Monitor*, No. 5, Geneva, 2011.

^a South-Eastern Europe and the Commonwealth of Independent States.

Table I.1
FLOW, VARIATION AND DISTRIBUTION OF GLOBAL NET FOREIGN DIRECT INVESTMENT BY REGION, 2007-2010

Region	Investment flows (billions of dollars)				Variation rate (percentages)			Share (percentages)			
	2007	2008	2009	2010 ^a	2008	2009	2010 ^a	2007	2008	2009	2010 ^a
World	2 100	1 771	1 114	1 122	-16	-37	1	100	100	100	100
Developed economies	1 444	1 018	566	527	-29	-44	-7	69	57	51	47
South-Eastern Europe and the Commonwealth of Independent States ^b	91	123	70	71	35	-43	2	4	7	6	6
Developing economies ^c	565	630	478	525	12	-24	10	27	36	43	47
Latin America and the Caribbean	114	134	80	113	18	-40	40	5	8	7	10
Africa	63	72	59	50	14	-19	-15	3	4	5	4
Asia and Oceania	338	375	303	334	11	-19	10	16	21	27	30

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures; United Nations Conference on Trade and Development (UNCTAD), *World Investment Report, 2010. Investing in a Low-Carbon Economy* (UNCTAD/WIR/2010), Geneva, July 2010. United Nations publication, Sales No. E.10.II.D; and *Global Investment Trends Monitor* No. 5, Geneva, 2011.

^a Estimates.

^b Includes the Russian Federation.

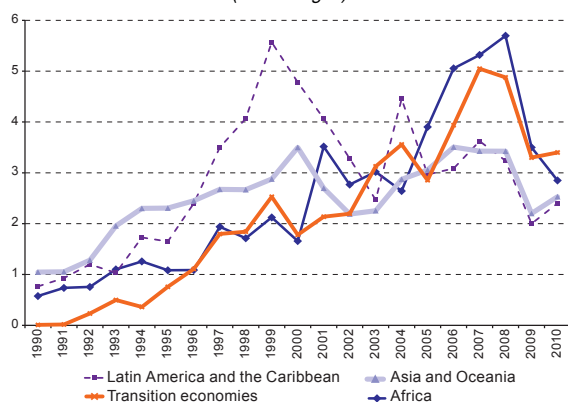
^c The sum of the FDI volumes for Latin America and the Caribbean, Africa, and Asia and Oceania does not correspond to the total FDI figure for developing countries. This is because the FDI volumes used for Latin America and the Caribbean correspond to ECLAC data on the basis of official sources and not to the estimates of the United Nations Conference on Trade and Development (UNCTAD).

In 2010, the main FDI recipients among the developed countries were the United States, where reinvested earnings were up by 43% over 2009, France, Belgium and the United Kingdom. The largest recipients among the developing countries were the BRIC countries (Brazil, the Russian

Federation, India and China), the Hong Kong Special Administrative Region of China and Singapore. The developing and transition countries recorded the highest FDI in relation to GDP, which shows the greater relative importance of these flows in their economies. Among

the developing regions, FDI was lower as a proportion of GDP in Latin America and the Caribbean than in other regions (see figure I.3). In 2010, the FDI-to-GDP ratio of some developing regions rose in response to the increase in investment flows, though this was not the case in Africa, where flows contracted (see figure I.3). The recent global financial crisis has made it clear that FDI is the most stable of the capital flows received by developing and transition countries, even in times of crisis (ECLAC, 2009).

Figure I.3
DEVELOPING REGIONS: INFLOWS OF FOREIGN DIRECT INVESTMENT AS A PROPORTION OF GDP, 1990-2010^a
(Percentages)

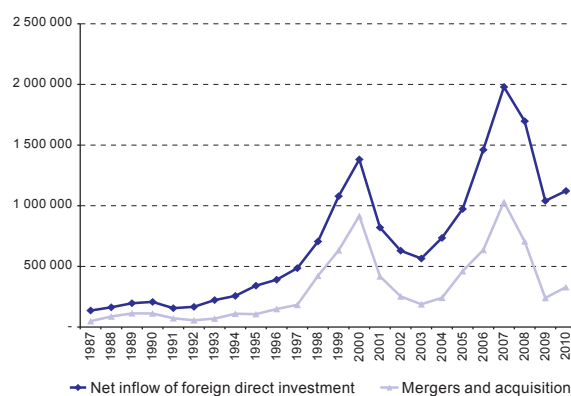


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures; United Nations Conference on Trade and Development (UNCTAD), *World Investment Report, 2010. Investing in a Low-Carbon Economy* (UNCTAD/WIR/2010), Geneva, July 2010. United Nations publication, Sales No. E.10.II.D; and *Global Investment Trends Monitor* No. 5, Geneva, 2011; International Monetary Fund (IMF), *World Economic Outlook. Recovery, Risk and Rebalancing*, Washington, D.C., October, 2010; *World Economic Outlook. Rebalancing Growth*, Washington, D.C., April 2010.

^a The following countries, territories, collectivities and associated States are not included in the calculation due to lack of data: Anguilla, Aruba, British Virgin Islands, Cayman Islands, Cook Islands, Cuba, Democratic People's Republic of Korea, Democratic Republic of the Congo, French Polynesia, Macao Special Administrative Region of China, Marshall Islands, Micronesia (Federated States of), Montserrat, Nauru, Netherlands Antilles, New Caledonia, Niue, Palestine, Saint Helena, Somalia, Timor-Leste, Turks and Caicos Islands, Tuvalu, Wallis and Futuna Islands and Yemen.

Cross-border mergers and acquisitions have been the most dynamic FDI mechanism in recent years, enabling transnational companies to penetrate new markets and take advantage of local firms' capacities and knowledge; global operations of this type rose by 37% with respect to 2009. Although the rise was not enough to reverse the decline posted in 2008 and 2009, it seems to indicate a positive trend that will surely be strengthened in future years (see figure I.4). The gradual growth in cross-border mergers and acquisitions contrasts with the trend in greenfield investments, which continued to decline in both number and value worldwide in 2010. Although announced greenfield investments in developing and transition countries increased, they did not compensate for the fall in announced projects in developed countries, according to data from the *Financial Times* database fDi Markets.

Figure I.4
VALUE OF MERGERS AND ACQUISITIONS WORLDWIDE,
1987-2010^a
(Millions of dollars)

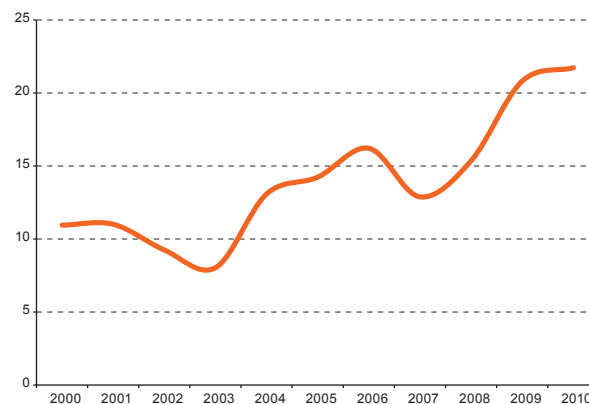


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures; United Nations Conference on Trade and Development (UNCTAD), *World Investment Report, 2010. Investing in a Low-Carbon Economy* (UNCTAD/WIR/2010), Geneva, July 2010. United Nations publication, Sales No. E.10.II.D; and *Global Investment Trends Monitor*, No. 5, Geneva, 2011.

^a The FDI and mergers and acquisitions data are not strictly comparable owing to the nature of the information. However, the values of mergers and acquisitions provide a basis for interpreting their share in total FDI flows.

Developed countries continue to be the main source of FDI, but the share of developing and transition countries has risen sharply—consistent with the growing importance of these economies in the global economy—and has doubled in the past decade to reach 22% of the total in 2010 (see figure I.5). This gradual but steady growth in investment by developing countries will be a key characteristic of FDI flows in the next few years.

Figure I.5
DEVELOPING COUNTRIES: SHARE IN OUTWARD FOREIGN
DIRECT INVESTMENT FLOWS, 2000-2010^a
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures; United Nations Conference on Trade and Development (UNCTAD), *World Investment Report, 2010. Investing in a Low-Carbon Economy* (UNCTAD/WIR/2010), Geneva, July 2010. United Nations publication, Sales No. E.10.II.D; and "Global and regional FDI trends in 2010" *Global Investment Trends Monitor*, No. 5, Geneva, 2011.

^a The classification of developing countries includes transition countries.

C. Foreign direct investment inflows and transnational companies in Latin America and the Caribbean

1. Trends and characteristics of foreign direct investment flows into Latin America and the Caribbean in 2010

FDI flows started to recover from the effects of the global financial crisis in the last quarter of 2009 and continued to trend upwards in 2010. Excluding the main financial centres, Latin America and the Caribbean attracted US\$ 112.634 billion in FDI, 40% more than the US\$ 80.376 billion received in 2009 (see figure I.6). Although FDI volumes received in 2010 fell short of the record set in 2008, they exceeded the annual average for the decade and maintained an upward trend, reflecting the region's solid position as an investment destination and location choice for transnational companies.

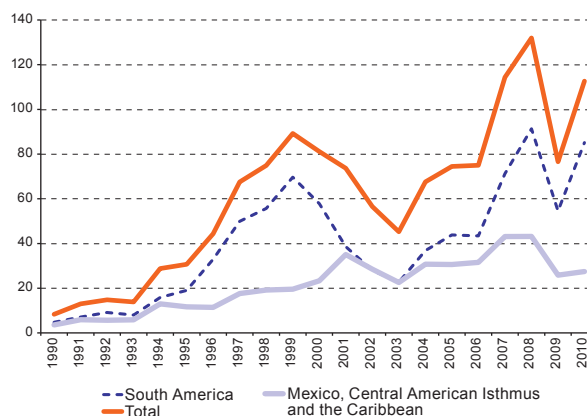
FDI flows rose in the subregions of South America on the one hand, and Mexico, the Central American Isthmus and the Caribbean, on the other in 2010, despite the different productive specializations of each. The upturn was stronger in South America, where FDI flows rose by 56%, while in Mexico, the Central American Isthmus and the Caribbean they rose by 11%. In the Caribbean in particular, however, preliminary figures show that FDI flows were down by 18% on 2009 (see table I.2).

Several factors contributed to the recovery of FDI in 2010. First, growth in the developed economies, although slow, averted further financial constraints and enabled transnational companies to relaunch more active strategies at the global level. Second, the buoyancy of several emerging economies, especially in Asia, led by China, but also those of Brazil and the Russian Federation, has prompted solid growth in certain sectors spurred by sharp growth in demand. Demand has grown for natural resources, for example metal mining products, hydrocarbons and food, but also for manufactures such as automobiles and integrated circuits, and for services such as telecommunications (see chapter IV) and software development (see chapter V). Third, and linked to the previous point, the growth of certain economies such as Brazil, Chile, Colombia and Mexico has stimulated local-market-seeking FDI. Here, the implementation of

countercyclical policies proved important in stimulating domestic demand, especially in Brazil and Chile. Fourth, the crisis actually prompted growth in some activities involving foreign companies, such as the offshoring of business services (ECLAC, 2009).

The factors driving FDI inflows have counteracted the effects that would be expected a priori to result from the widespread local-currency appreciation occurring in many Latin American countries. In countries attracting natural-resource-seeking FDI, high commodity prices have offset the negative effects of exchange-rate appreciation and created incentives for fresh investments. Domestic-market-seeking strategies have also taken advantage of the stronger purchasing power of the countries. Hence, the link between exchange rates and FDI is complex and requires deeper analysis to shed light on its mechanisms, as discussed in box I.2.

Figure I.6
LATIN AMERICA AND THE CARIBBEAN: INFLOWS OF FOREIGN DIRECT INVESTMENT BY SUBREGION, 1990-2010
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates at 15 April 2011.

Table I.2
**LATIN AMERICA AND THE CARIBBEAN: FOREIGN DIRECT INVESTMENT INFLOWS BY RECEIVING COUNTRY
OR TERRITORY, 2000-2010**
(Millions of dollars and percentages)

Country	2000-2005 ^a	2006	2007	2008	2009	2010	Absolute difference 2009-2010	Relative difference 2009-2010 (percentages)
South America	37 969	43 41071	22791 32954	55085 14330	594			56
Brazil	19 19718	822	34 585	45 05825	94948	46222 513		87
Chile	5 0127	29812	53415	15012	87415	0952 22117		
Peru	1 604	3 467	5 4916	924	5 576	7 3281	75231	
Colombia	3 683	6 656	9 04910	5967	1376 760	-377-5		
Argentina	4 296	5 537	6 473	9 7264	0176	1932 176		54
Uruguay	393	1 4941	3291 8091	2581 627			369	29
Bolivia (Plurinational State of)	350	278	362	508	426	651	225	53
Paraguay	48	95	202	209	99	268	169	171
Ecuador	839	2711941	001319164	-155-49				
Venezuela (Bolivarian Republic of)	2 546	-508	1 008	349	-3 105-1	404	1 701	55
Mexico	22 72219	77929	71425	86415	20617	7262 52017		
Central American Isthmus	2 549	5 756	7 235	7 593	5 057	5 847	790	16
Panama	656	2 4981	7772 4021	7732 363590				33
Costa Rica	597	1 4691	8962 0211	3231 412			89	7
Honduras	418	669	9281	006523		798	274	52
Guatemala ^b	334	592	745	754	574	678	105	18
Nicaragua	219	287	382	626	434	508	74	17
El Salvador ^c	3252411	508		784	431	89	-342	-79
The Caribbean ^d	3 557	6 0436	187	9 735	5 563	3 917	-349-18	
Dominican Republic	9321 0851	6672 8702	1651 626	-540-25				
Trinidad and Tobago ^b	842	883	8302	801709		549	-160	-23
Bahamas ^e	383	1 159	746	839	664	499	-92	-16
Suriname	143	323	179	124	242	213	-29	-12
Guyana	50	102	110	179	222	198	-24	-11
Haiti	12	160	75	34	37	150	113	303
Saint Kitts and Nevis ^b	84	115	141	184	136	128	-8	-6
Antigua and Barbuda ^b	127	361	341	176	121	108	-13	-11
Saint Lucia ^b	76	238	277	166	152	105	-48	-31
Belize	56	109	143	180	112	100	-12	-11
Saint Vincent and the Grenadines ^b	43	110	132	159	107	93	-14	-13
Grenada ^b	65	96	167	148	104	90	-14	-13
Dominica ^b	26	29	48	57	42	31	-11	-25
Anguilla ^b	60	143	120	101	46	25	-22	-47
Montserrat ^b	2	4	7	13	3	2	-1	-19
Jamaica	595	882	867	1 437541		...	...	...
Barbados	63	245	338	267	160	...	...	...
Total	66 796	74 987	114 363	134 521	80 376	112 634	32 258	40

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as at 15 April 2011.

^a Simple average.

^b Official estimate for FDI total for 2010.

^c El Salvador updated its methodology for measuring FDI in the fourth quarter of 2009, as a result of which corporate liabilities are deducted in the data for 2010 to show net FDI.

^d The calculation of the absolute and relative difference in FDI in the Caribbean in 2010 compared with 2009 does not include the 2009 data for the Bahamas, Barbados or Jamaica, as these were not available for 2010. This ensures a statistically consistent comparison.

^e The 2010 data correspond to the cumulative amount as at the third quarter. Consequently, the absolute and percentage variations are calculated in relation to the third quarter of 2009.

Box 1.2

THE IMPACT OF EXCHANGE-RATE FLUCTUATIONS ON FOREIGN DIRECT INVESTMENT

In recent decades substantial progress has been made in analysing the determinants of FDI (Blonigen, 2005). Research has also been carried out into the impact of exchange rates on the volume and sectoral destination of FDI (Goldberg and Kolstad, 1995; Sung and Lapan, 2000; Campa, 1993). Although FDI behaves in a more stable manner than other capital flows, the link between exchange rates and FDI has not been fully established. Until the mid-1990s, the most accepted view held that exchange-rate fluctuations did not affect the investment decisions of transnational companies. Thus, local-currency depreciation in FDI-recipient countries—i.e. a higher exchange rate—would reduce the amount of investment required to acquire an asset, but would also reduce the (nominal) return in the foreign currency, leaving the rate of return unchanged.

In recent years it has become clear that there are several mechanisms through which currency depreciation can increase FDI flows. One is the lower labour costs in foreign currency, which create a location advantage, and a second concerns capital markets, in particular the differences in the cost of accessing company financing. The transnational company's stronger financial position owing to depreciation

in the recipient country, together with the lower cost of its own resources in relation to external financing, appears to prompt an increase in FDI flows (Froot and Stein, 1991). Other researchers suggest similar results but by means of a third mechanism: where FDI is geared towards the acquisition of specific assets (technology, managerial skills, patents), depreciation reduces the price of the asset but not necessarily the nominal return. This is because the specific assets could be exploited wherever the company has operations (Blonigen, 1997).

Furthermore, the effects of these mechanisms vary depending on the strategies of transnational companies. The impact of the exchange rate for companies pursuing a strategy seeking natural resources and lower costs for exporting to third markets is not the same as for companies implementing a domestic-market-seeking strategy. In the case of companies seeking to export to third markets, depreciation tends to have a positive effect on FDI. Meanwhile, in the case of domestic-market-seeking FDI, the positive effect of depreciation tends to be counteracted in part by the lower return on the investment (in foreign currency), due to the less favourable exchange rate when profits are remitted to the parent company

and to the lower purchasing power of the national market. Furthermore, in the case of companies focused on local markets, appreciation can increase FDI flows as a result of the higher purchasing power of the domestic market.

In addition, exchange-rate effects can operate through different mechanisms depending on the form of FDI (Dewenter, 1995). It would seem natural to assume that the impact of depreciation conveyed through the capital market, that is, through a reduction in asset prices, will be heavier on FDI that takes the form of mergers and acquisitions, whereas the impact conveyed through the reduction of labour costs would be stronger for greenfield investments. Finally, an aspect that has only just begun to be explored is the interdependence of FDI over time, which could explain why investments do not vary significantly in response to exchange-rate fluctuations (Alba, Park and Wang, 2009).

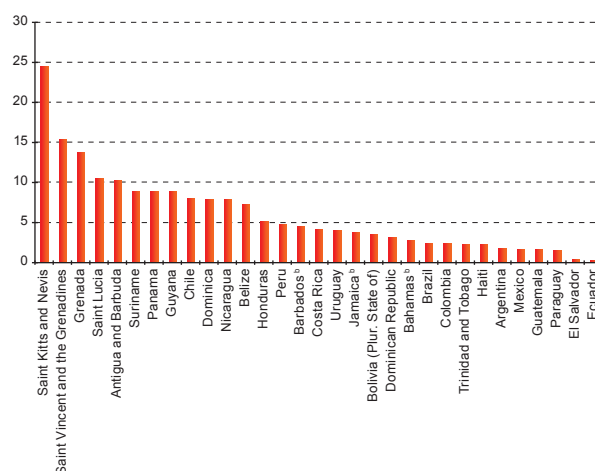
In short, the effects of exchange-rate variations on FDI flows have not been fully established and depend on the strategies of transnational companies and the form of FDI, as well as on mechanisms associated with relative wages, capital markets and specific assets.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

The different rates of FDI growth between South America and Mexico, the Central American Isthmus and the Caribbean are linked to their different patterns of specialization. In South America primary sectors account for a growing share of both exports and FDI, while in Mexico and the Central American Isthmus intensive assembly manufacturing and services are becoming more specialized and are strengthening their ties with the United States, as a result of which they were harder hit by the crisis and weak recovery in that economy. In the Caribbean, the slow recovery in the tourism industry has caused many investments in tourist infrastructure to be frozen (ECLAC, 2009).

An analysis of FDI as a proportion of GDP reveals some peculiarities. For small countries, FDI is an important source of financing, especially for certain Caribbean countries such as Saint Kitts and Nevis, Saint Vincent and the Grenadines, Grenada and Saint Lucia, where FDI accounts for more than 10% of GDP (see figure I.7). In contrast, among the largest recipients in absolute terms FDI accounted for a relatively small proportion of GDP in 2010: 2.4% in Brazil and 1.7% in Mexico. Among these countries, Chile stands out for its high FDI-to-GDP ratio, around 8%, followed by Peru with 4.8%. In Argentina, however, FDI accounts for only 1.8% of GDP.

Figure I.7
LATIN AMERICA AND THE CARIBBEAN: FOREIGN DIRECT INVESTMENT AS A PROPORTION OF GDP, 2010^a
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as at 15 April 2011.

^a The FDI-to-GDP indicator normalizes FDI figures according to the size of the economy. Given that GDP is calculated based on current prices, domestic inflation or exchange-rate fluctuations can affect comparisons between periods or countries.

^b Data correspond to 2009.

(a) South America: dynamic domestic markets and benefits from high raw material prices

As a subregion, South America received the largest proportion of FDI flows into Latin America and the Caribbean in 2010, attracting US\$ 85.143 billion, or 76% of the total received and 56% more than in 2009 (see table I.2). This is the second highest volume ever, exceeded only in 2008. The upturn in 2010 is largely the result of the new records set in Brazil, Chile and Peru and the large volumes received by Argentina and Colombia.

In Brazil FDI reached a new high of over US\$ 48 billion² in 2010, an increase of 87% over 2009. The rise in FDI, mainly new capital contributions, was triggered by economic growth, which rose to 7% in 2010. Investments were directed mainly at natural resources and manufacturing, which attracted 39% and 37% of the total respectively, while services attracted 24%. In natural resources sizeable proportions of FDI were received in oil and gas (22% of total FDI) and metal mining extraction (14%). In manufacturing, the most dynamic sectors were food (9%), metallurgy (9%), chemical products (7%) and petroleum-based products (3%). In addition, as analysed below, Brazil consolidated its position as a regional centre for high-tech investments and research and development projects. In terms of origin, China was the main investor³ in 2010, injecting 15% of the total, or US\$ 7.5 billion dollars, followed by Switzerland (13%) and the United States (11%). Meanwhile, the marked appreciation of the Brazilian real (15% in 2010) together with increased domestic consumption encouraged market-seeking FDI (see box I.2) and FDI flows helped to finance a significant proportion of the country's growing current account deficit,⁴ which rose to US\$ 45 billion in 2010.

FDI in Chile rose by 17% in 2010 to US\$ 15.095 billion and largely comprised new capital investments by transnational companies. Broadly speaking, flows into Chile were not particularly affected by the global crisis and

volumes rose compared with the first half of the decade. Thus, inward FDI between 2000 and 2005 was US\$ 5 billion on average, whereas since 2007 it has exceeded US\$ 12 billion per year. The main investors have historically been the United States, Canada and Spain, which were the source of nearly 60% of the FDI received between 2001 and 2010. In 2010, the largest investor was again the United States (19%), followed by the United Kingdom (12%), Canada (11%) and Spain (8%). Meanwhile, according to the sectoral distribution⁵ statistics, the major destinations in 2010 were mining (with 53% of the total) and services (41%), while the manufacturing industry received only 2%. These figures confirm the distribution pattern of FDI flows in Chile, heavily concentrated in mining⁶ and services. The major announcements of mergers and acquisitions include the merger announced by LAN Chile and TAM Airlines (of Brazil), which could create the region's largest airline group (see box I.3).

FDI flows into Peru rose by 31% in 2010 to set a record of US\$ 7.328 billion, or 9% of the total for South America, growing largely as a result of high levels —US\$ 5.731 billion— of reinvested earnings by transnational companies. Meanwhile, capital contributions totalled US\$ 1.533 billion, while net loans from parent companies stood at only US\$ 64 million. According to the partial figures available on sectoral distribution, FDI targeted services and natural resources in particular, while the limited investment in manufacturing was directed at activities closely linked to natural resources, such as agroindustry and oil refineries. Foreign groups have a large presence in mining and include Grupo México, BHP Billiton (Australia), Freeport McMoran Copper & Golds (United States), Xstrata (Switzerland), Newmont (United States) and Barrick (Canada). In the past two years, large Chinese groups have acquired projects under way, mainly in copper mining, and a sizeable share of the investment in mining in the next decade is therefore expected to come from China (see chapter III).

² Since Brazil does not report data on reinvested earnings, the official amount underestimates the actual FDI amounts.

³ According to official figures from the Central Bank of Brazil, Luxembourg was the main investor in 2010. However, this is because the purchase of 40% of Repsol YPF of Brazil by China Sinopec for US\$ 7 billion was done through Luxembourg (see the official information from Brazil in table I.A-4).

⁴ In 2011 the deficit is expected to reach about US\$ 70 billion, which could be risky from the macroeconomic point of view, especially if FDI flows revert.

⁵ The sectoral distribution covers all FDI in the country and not only FDI received pursuant to Legislative Decree 600.

⁶ A major legislative development in Chile in 2010 was the approval of a new mining royalty, which entails a change to the tax regime applicable to transnational companies. The new regime raises the rate paid by mining companies to between 4% and 9% of their operational taxable income between 2010 and 2012, which is calculated according to the company's operating profit. From 2013 the rate set out in the original agreement will apply until the agreement expires, after which companies will be granted six years of stability with a rate of between 5% and 14%. Most mining transnationals have opted for this new system.

Box 1.3

CONSOLIDATION IN AIRSPACE

The air transport sector has always been regulated and protected, partly for reasons of safety and security and partly because it is a strategic sector. In recent decades it has been radically transformed following further deregulation, the emergence of low-cost airlines and the resulting increase in competition, the privatization of several State companies and the consolidation of regional markets such as the European market. According to the International Air Transport Association (IATA), the air transport industry is still fragmented and there are an estimated 1,000 airlines worldwide, which shows that there is still ample room for consolidation, especially when compared with other sectors such as the automobile industry and pharmaceuticals (IATA, 2010). In recent years, the industry has begun a process of gradual consolidation that has taken the form of alliances between major companies, such as Oneworld, SkyTeam and Star Alliance, together with mergers and acquisitions, such as Air France-KLM, Delta-Northwest, United-Continental, Southwest-AirTran, the absorption of Swiss Air and Austrian Airlines by Lufthansa and the recent merger of British Airways and Iberia.

The Latin American and Caribbean region has been no exception to this trend and in 2010 major operations of this sort were concluded. Several airlines are engaging in mergers, acquisitions and alliances to penetrate regulated local markets, increase the scale of their operations and gain access to best practices in administration. The largest operations include the creation of LATAM Airlines following the merger of the Chilean airline LAN with the Brazilian

airline TAM, creating the region's largest aviation group. The transaction involved an exchange of shares valued at US\$ 3.425 billion, with LAN shareholders acquiring 71% of the new merged company and TAM shareholders acquiring 29%. However, the regulations governing the sector and their possible effects on competition led the National Economic Affairs Investigation Bureau of Chile to impose conditions on the merger, as well as the implementation of a number of improvements for passengers in the form of frequent flyer programmes, price reductions and the entry of new operators on certain routes. Furthermore, the Competition Court of Chile is to review the terms of the merger, which means that it will not take effect until later in 2011 or 2012. Brazilian legislation has also had to be respected, which prevents foreign groups from owning more than 20% of a national airline. To comply with Brazilian law, the agreement established a special ownership structure for TAM. LATAM will own 100% of the economic rights in TAM but Brazilian investors will retain 80% of the voting stock and therefore continue to control the airline. In 2010, LAN also acquired the Colombian airline Aires for US\$ 112 million.

Another major merger in the air industry took place between Synergy Aerospace Corp. (SAC), the majority shareholder of the Colombian company Avianca, and Kingsland Holding Limited, which owns Grupo Taca. This strategic partnership was formed by means of an equity contribution agreement between Avianca and Taca respectively to form a new holding company, Holdco. SAC (Avianca)

controls 67% of the shares in Holdco while Kingsland Holding Limited (Taca) owns the remaining 33%. The transaction also included a 10% contribution by Avianca to Grupo Taca of up to US\$ 40 million, as a result of which Avianca's shareholders have a 75% share in the new controlling company and the Taca shareholders have the remaining 25%. The new group is now part of the Star Alliance network and also acquired 100% of the shares in the Ecuadorian airline Aerolíneas Galápagos S.A (AeroGal). The Commission for the Promotion of Competition of Costa Rica is investigating the scope and effects on competition of the cooperation agreement between Avianca-Taca, United-Continental and Copa Airlines within the framework of the Star Alliance network since previous studies had already raised concerns over the effects of market concentration, especially on regional routes (Cuevas, 2009).

The Panamanian company Copa Airlines has adopted a strategy of specific alliances to sustain its growth. In 2010, it completed its acquisition of the Colombian airline Aero República, strengthening its presence in Colombia and in the regional flights operated by Aero República.

In short, the strategies adopted by airline companies to access regulated national markets and acquire large-scale operations and know-how from other companies is consolidating the regional air industry. The emergence of major trans-Latin companies could boost the industry globally and the effects on competition and the potential benefits for passengers should materialize soon.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

In Colombia, FDI flows fell by 5% in 2010 to US\$ 6.76 billion, though the country retained its position as the subregion's fourth largest FDI destination (with 34% of the total coming from reinvested earnings). The FDI received in the second half of the decade—in excess of US\$ 6.5 billion every year—was considerably higher than that received in the first half when the annual average was US\$ 3.6 billion. The sectors attracting the most investment in 2010 were natural resources with almost 74% of the total (42% in oil drilling, 30% in mining and 2% in agriculture, hunting, forestry and fishing), followed by services with 18% and manufacturing with 9%. Notable investments in the mining sector include the acquisition of Frontino Gold Mines by the Canadian company Medoro Resources for US\$ 198 million, while in services the financial sector (14%) and trade (7%) stood out. In terms of origin,⁷ according to the information on new investments, the main investor in 2010 was Panama,

with 51% of the total, followed by the United Kingdom (16%) and Canada (14%).

In Argentina, FDI flows climbed 54% to stand at US\$ 6.193 billion, which was, however, still far short of the high set in 2008, when inflows exceeded US\$ 9 billion. Major acquisitions included the purchase of Bidas by the Chinese company CNOOC for US\$ 3.1 billion and the purchase of a minority share in YPF by a United States group for US\$ 499 million, both in natural resources.⁸ Among transactions in manufacturing was the purchase of the Argentine company Laboratorios Phoenix by the British firm GlaxoSmithKline for US\$ 253 million.

⁷ The origin of FDI cannot be determined accurately because a large proportion of the investment in Colombia comes from financial centres.

⁸ The Eton Park Capital Management group and Capital group both acquired a 1.63% share in YPF for US\$ 250 million, in the framework of Repsol's disinvestment of its Argentine subsidiary (YPF).

FDI in Uruguay rose to US\$ 1.627 billion in 2010, a 29% increase over 2009. In the second half of the 2000s, FDI has climbed sharply: from an annual average of almost US\$ 390 million in 2000-2005 to over US\$ 1.5 billion in 2006-2010. In terms of destination, announcements of new investments and mergers and acquisitions indicate that the paper industry is one of the most important. In early 2011, an agreement was announced that will set the record for the largest foreign investment in Uruguay, at US\$ 1.9 billion, involving the construction of a new paper plant in the coastal department of Colonia by the Swedish-Finnish company Stora Enso and the Chilean company Arauco. In addition, several mining projects are in the pipeline, particularly in iron ore and granite.

The Plurinational State of Bolivia received FDI totalling US\$ 651 million in 2010, 53% more than in 2009. FDI has been relatively stable since 2006, apart from the drop (16%) the country suffered—in common with the rest of the region—in 2009 owing to the global financial crisis. By sector, official figures show that between 2004 and 2008 extraction activities attracted 56% of FDI, particularly mining and quarrying (34%) and crude oil and natural gas (22%), while the services sector drew 33% of the total, especially hotels and restaurants (18%), wholesale and retail sales (9%) and transport and communications (6%). By origin, the United States was the main investor between 2000 and 2008, with a 10% share.

FDI flows into Paraguay surged by 171% in 2010 to stand at US\$ 268 million, which was a record for the decade. The rise in FDI basically took the form of larger reinvestments of earnings and inter-company loans. Sector information at the third quarter of 2010 shows the largest volumes of investment going to manufactures and services, which each received a 49% share of the total, while only 2% went to natural resources. The largest investors were the United States, Spain, Brazil and Panama. The most significant acquisitions during the year include the purchase of 70% of the Minera Guaira concession by Latin American Minerals of Canada.

In Ecuador FDI reached US\$ 164 million in 2010, a 49% decline with respect to 2009. The most dynamic sectors were mining and quarrying, which received US\$ 159 million, and manufacturing, which received US\$ 123 million.⁹ The largest investors in Ecuador were Panama, Canada and China. Major transactions include the acquisition of the bottling plant Bottling by Embotelladoras Arca, the second largest Coca-Cola system bottler in Mexico, for US\$ 345 million. Also in 2010, the government renegotiated its contracts with the country's major oil companies, which prompted the departure of the Brazilian company Petrobras together with three other smaller companies: Canada Grande (Republic of

Korea), EDC (United States) and part of CNPC (China). The foreign companies remaining in Ecuador include Repsol-YPF (Spain), Agip (Italy), Synopec and CNPC (China) and ENAP (Chile). Based on the new contract model, the government owns the oil pumped and pays the companies a fee for every barrel extracted. In addition, several initiatives to promote FDI in Ecuador are being discussed and the government is expected to announce a package of incentives and tax measures to promote FDI in tourism.

FDI flows into the Bolivarian Republic of Venezuela posted a negative balance of US\$ 1.404 billion in 2010, reflecting a strategy that focuses on the nationalization of foreign assets rather than on FDI as a core development objective. In 2010, for example, the government nationalized the local subsidiary of the United States glass container manufacturer Owens Illinois (O-I) and announced that further nationalizations were in the pipeline. However, several major investment projects were also made, totalling US\$ 668 million, mainly in the form of reinvested earnings. Furthermore, one of the largest acquisitions in the region was of the State-owned oil company Carabobo by a consortium comprising the Indian companies Indian Oil and Oil India, Petronas of Malaysia and Repsol-YPF of Spain, for US\$ 4.848 billion. New joint investment projects were also announced in oil drilling and refining between the State-owned company Petr oleos de Venezuela (PDVSA) and Eni S.p.A of Italy. Lastly, the Chinese company Great Wall Motors (automobiles and autoparts) announced the construction of a new plant in the country (see chapter III).

(b) Mexico, the Central American Isthmus and the Caribbean

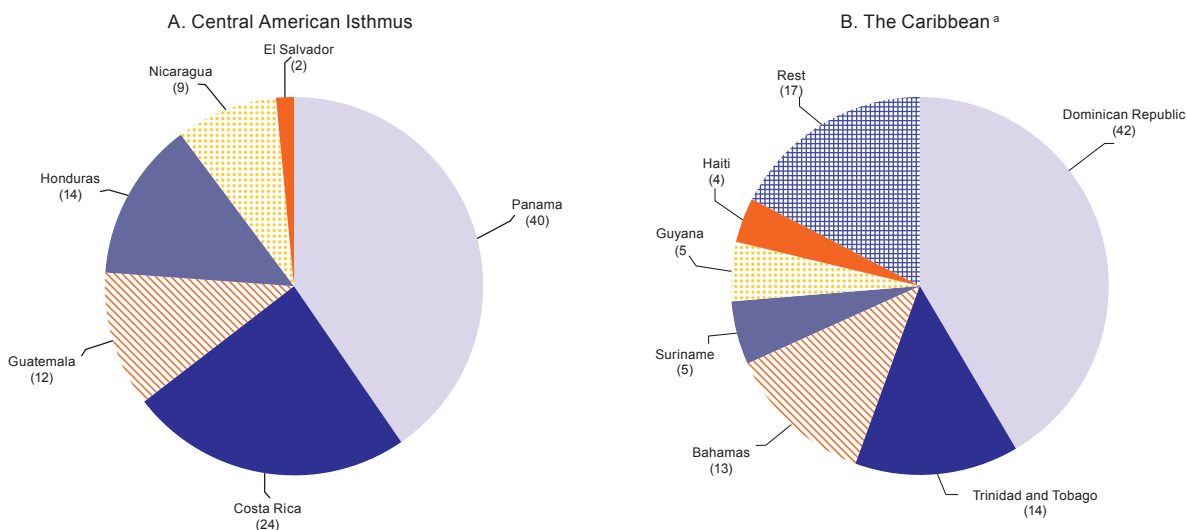
As a result of the special links that Mexico and the countries of the Central American Isthmus have with the United States, FDI in those markets has sought not only to capture domestic markets, but also to establish export platforms to tap wage and location advantages. The United States' slow economic recovery led to resumed FDI growth in the subregion in 2010, although volumes fell short of the records set in 2008. Mexico received FDI totalling US\$ 17.726 billion¹⁰ in 2010, 17% more than in 2009. The Central American Isthmus attracted US\$ 5.847 billion, 16% more than in 2009. Panama and Costa Rica remained the subregion's main recipients, with 40% and 24% respectively (see figure I.8). Honduras, Guatemala and Nicaragua recorded growth of 52%, 18% and 17% respectively, while FDI in El Salvador fell by 79% (see chapter II).¹¹

⁹ There were substantial divestments in some sectors, including transport and telecommunications.

¹⁰ This amount may be revised upwards at a later date since transnational companies tend to delay reporting investments to the Secretariat of Economic Affairs of Mexico.

¹¹ As of the fourth quarter of 2009, El Salvador updated its methodology for measuring FDI; accordingly the data for 2010 include deduction of corporate liabilities to show net FDI.

Figure I.8
CENTRAL AMERICAN ISTHMUS AND THE CARIBBEAN: DISTRIBUTION OF FOREIGN DIRECT INVESTMENT
FLOWS BY COUNTRY, 2010^a
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as at 15 April 2011.
^a Does not include data for Barbados or Jamaica, which were not available for 2010.

Mexico continued to be the region's second largest recipient. However, despite the significant upturn in 2010, FDI volumes still fell short of the past decade's average of US\$ 21 billion per year. FDI in 2010 consisted of new investments (65% of flows in 2010) and inter-company loans (20%). By sector, manufacturing and services received the most FDI. The manufacturing industry received 60% of total FDI, in particular food, beverage and tobacco products, which received 67% of all manufacturing FDI, and the metal products, machinery and equipment industries, which received 24%. The services sector attracted 37% of incoming FDI, in particular trade and financial services, which each absorbed 14%. The extraction sector continued to receive only small amounts of FDI, with just 3% in 2010. There was a marked change¹² in the origin of FDI flows in 2010: the leading source was the Netherlands (49%), followed by the United States (28%) and Spain (7%).

In the Central American Isthmus, Panama was again the main recipient, with US\$ 2.363 billion in 2010, 33% more than in 2009 (see chapter II). Although no official data are available on the sectoral distribution of these investments, based on the data concerning mergers and acquisitions and new investments announced in 2010, most FDI went to the services sector, with significant investments in real estate and construction, as well as in telecommunications and tourism. The investments announced in 2010 include

those of the German group TUI in tourism, Deutsche Post (Germany) in logistics, Crowley Maritime (United States) in storage services and the Japanese company Furukawa, which plans to establish its corporate offices for the subregion in Panama. Notable investments in the financial sector include that of Grupo Aval Acciones y Valores of Colombia, which acquired BAC Credomatic for US\$ 1.92 billion.

Costa Rica remained the second largest FDI destination in Central America, bringing in US\$ 1.412 billion,¹³ or 7% more than in 2009, according to official estimates. Investments in new projects—mainly in services—were the fastest-growing, buoyed by the liberalization of the insurance market and the dynamic business services segment. Notable investments include the entry of insurance companies such as MAPFRE of Spain (in alliance with the Panamanian company Mundial), Seguros Bolívar (Colombian-owned company in Panama), Quálitas (Mexico), Assa (Panama), Pan-American Life Insurance Company (United States), American Life Insurance Company (ALICO), part of Metlife (United States), and Aseguradora del Istmo Adisa (joint investment by Cooperativa Nacional de Educadores—Coopanae— of Costa Rica and QBE of Panama). In business services, companies such as Sykes and Amway continued investing in the country and Costa Rica attracted further investment in high-tech manufacturing, including in medical devices. The main transactions of 2010 in

¹² As explained below, this change reflected a major investment by Heineken to acquire FEMSA Cerveza, a Mexican brewer.

¹³ This amount may be revised upwards at a later date given lagged reporting of investments to the Central Bank of Costa Rica by transnational companies.

this area include the entry of United States companies such as Ninitol Devices & Components (NDC), Moog Medical Devices, Sterigenics Internacional and Volcano Corporation and the expansions of Hospira and MedTech, as well as reinvestments by Hewlett-Packard.

FDI flows into Honduras recovered considerably in 2010 following a significant drop in 2009 owing to the global financial crisis and the unstable political situation in the country that year. Flows climbed to US\$ 798 million in 2010, 52% higher than in 2009. The most dynamic sectors were telecommunications (investments by Digicel, an Irish-owned company based in Jamaica),¹⁴ food (investments announced by Molinos Molsa of El Salvador) and textiles and clothing (investments by the Canadian company Modtex International).

Guatemala received US\$ 678 million in FDI, 18% more than in 2009, making it the third largest recipient of FDI in Central America, with 11% of the subregion's total investment. Major investments in 2010 include those by Empresas Públicas de Medellín in energy distribution, the mining company Tahoe and the energy producer AEI of the United States and the Mexican group Bimbo in the bakery segment.

Nicaragua attracted US\$ 508 million in FDI, 17% up on 2009, with investments directed mainly at energy (investments announced by Ram Power of the United States), mining (B2Gold of Canada), agrifood (Ingemann of Denmark) and textiles and clothing (Denim group of Mexico).

According to preliminary figures, El Salvador received a total of US\$ 89 million in FDI in 2010. This was 79% down on 2009 and represented only 2% of the investments

made in the Central American Isthmus. After the records set in 2007-2008 on the back of substantial investments in banking privatizations, this decline brings the country's FDI figures below even the amounts received in the early 2000s, when the average stood at US\$ 325 million per year. The manufacturing sector saw substantial disinvestment of US\$ 58.8 million in 2010, including in the maquila industry, which contracted. Most investments went to services, mainly commerce and financial services, which received US\$ 55 million and US\$ 39 million, respectively. Sizeable investments were made by the Mexican department store Liverpool in Unicomer, Infra of Mexico in gas production and distribution, Avianca of Colombia in the Salvadoran airline TACA and the Swiss company Holcim in Cemento de El Salvador (CESSA).

FDI flows into the Caribbean subregion fell by 18% to US\$ 3.917 billion, according to preliminary figures, (see table I.2) as a result of the decline in flows into the Dominican Republic, the subregion's main recipient, which fell by 25% to US\$ 1.626 billion. Despite this decline, flows continued to exceed the average posted in the past decade. It is very difficult to assess the FDI received by Cuba and any assessment has to be based on isolated investment announcements (see box I.4). FDI flows also fell in some Caribbean economies that are less dependent on tourism and have stronger links to primary product export sectors, such as Guyana and Trinidad and Tobago. In contrast, FDI rose considerably in Haiti following the earthquake in 2010 and quadrupled with respect to 2009, reflecting investments in telecommunications. However, the absolute amounts remained low at US\$ 150 million in 2010.

Box I.4

RECENT TRENDS IN FOREIGN DIRECT INVESTMENT IN CUBA ^a

Although data from the United Nations Conference on Trade and Development (UNCTAD) and the Organization for Economic Cooperation and Development (OECD) indicate that FDI in Cuba has amounted to about only US\$ 30 million to US\$ 35 million per year, flows have risen rapidly since the middle of the decade, by 54% between 2004 and 2009. However, in 2009, FDI dropped by 15% to US\$ 31 million as a result of the global crisis.

The main investors in Cuba come from Europe and Canada, Latin America and Asia. In Europe, Spain is a major investor in sectors such as tobacco, tourism, hydrocarbons, transport and financial

services, Italy in telecommunications and France in rum production and export, while Canada's investments are in the nickel industry and oil exploration. The Bolivarian Republic of Venezuela, Cuba's main trading partner, and Brazil are the main Latin American investors. Recent information indicates that Venezuelan State companies have been making substantial investments in the oil and telecommunications sectors.

The Governments of Cuba and the Bolivarian Republic of Venezuela are collaborating on a project to lay a fibre-optic cable that will connect the island to the continent. The French-Chinese company Alcatel Shanghai Bell has been hired to lay

the cable, whose technical and commercial operations will then be handled by Empresa Grannacional de Telecomunicaciones del ALBA (ALBATEL). The project involves an investment in excess of US\$ 60 million and is expected to get under way in 2011. Brazil's investments in Cuba have also come from public enterprises and bodies, such as the National Bank for Economic and Social Development of Brazil (BNDES), which extended a loan of US\$ 400 million to expand and modernize the Cuban port of Mariel. To that end, the two countries established a joint venture and appointed the Brazilian engineering and construction company Odebrecht to carry out the works.

¹⁴ In March 2011 América Móvil announced its acquisition of 100% of Digicel's operations in El Salvador and Honduras (see chapter IV).

Box I.4 (concluded)

Asian investments are led by China, Cuba's second largest trading partner, and in 2010, the two countries announced 13 joint projects, 7 of which are located in Cuba in the mechanical industry, communications, agriculture, tourism, biotechnology and health sectors. The China Haier corporation and the Electronics Group of the Ministry of Informatics and Communications of Cuba established a joint venture to manufacture electrical appliances and computer equipment. Also in 2010, the two countries agreed to build a luxury hotel in Havana, with an investment of nearly US\$ 117 million. Lastly, China and Cuba

announced several joint investments in the oil and oil products sector, including the expansion of the Cienfuegos refinery and the construction of a regasification plant and combined-cycle thermoelectric plant, an investment of US\$ 6 billion that is due to start in the first half of 2011 and end in 2013. The Export-Import Bank of China (China Eximbank) is to finance 85% of the investment, which will be secured by China Export & Credit Insurance Corporation and guaranteed in full by the Government of the Bolivarian Republic of Venezuela in the form of oil from *Petróleos de Venezuela* (PDVSA).

In the past year, the Government of Cuba has announced changes in the tourist property sector, such as the extension from 50 to 99 years of the right of foreign companies to use State land and permits for the construction of additional golf courses. If the land is to be used to build holiday homes or apartments, a perpetual lease may be granted. And, based on strategies currently under discussion, areas will be developed for use by foreign companies that promote the substitution of imports or exports. This could lead to fresh foreign investment in Cuba in the medium term, as investors take advantage of these opportunities.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

^a No official information is available on FDI flows and the information available from OECD does not include some of the main investors in Cuba, such as the Bolivarian Republic of Venezuela, Brazil and China.

2. Patterns of origin and destination of foreign direct investment and strategies of transnational companies in Latin America and the Caribbean

In Latin America and the Caribbean foreign investments have targeted a wide variety of production sectors reflecting a range of corporate strategies. In 2010 several factors may be identified which helped to consolidate or expand a given strategy in the region. For example, high commodity prices favoured raw-material-seeking strategies, giving rise to significant investments across the region but particularly in South America. Local- and regional-market-seeking strategies benefited from rising domestic demand in large countries such as Brazil and Mexico and the consolidation of regional markets in Central America and the Caribbean. Lastly, with regard to low-cost-seeking strategies, export platforms in Mexico, the Central American Isthmus and the Caribbean continued to consolidate their position in international markets and their privileged access to the North American markets (see chapter II).

In South America, the natural resources and services sectors attracted the most FDI, receiving 43% and 30% respectively, and the share of the natural resources sector was larger in 2010 than in 2005-2009, showing that the primary sector is gaining greater importance as a destination for FDI. In Mexico, the Central American Isthmus and the Caribbean investment continued to go to manufacturing (54%) and services (41%), while the primary sector attracted only 5% of the total (see figure I.9).

Mergers and acquisitions continued to be the main investment channel in the region, allowing investors to make use of the knowledge and practices of the companies acquired, as well as their market position, and the acquiring company often transfers knowledge, practices and intangible

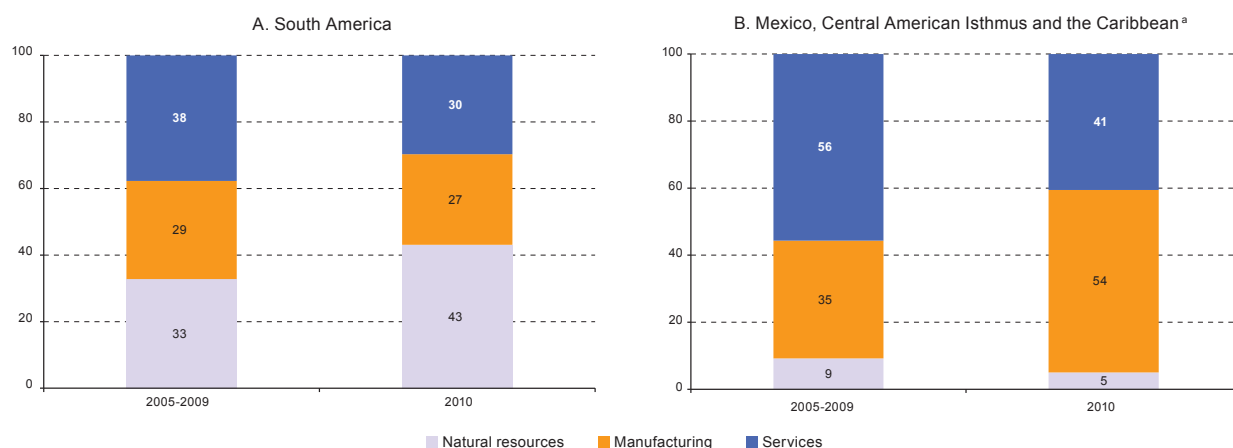
assets too. Mergers and acquisitions accounted for 65% of total FDI in the region in 2010, compared with only 32% in 2009. In absolute terms the amounts of both the mergers and acquisitions and announced greenfield investments increased considerably in 2010 with respect to 2009.¹⁵

Investment in mergers and acquisitions was concentrated in natural resources (42%) and services (41%), while manufacturing accounted for only 17% (see figure I.10). Although greenfield investments were distributed more evenly, most corresponded to the manufacturing sector, which attracted 37% of the total, while services and natural resources each received a 32% share. Given that the number of projects in natural resources accounts for only 7% of total transactions, the individual transactions are larger than those in manufacturing and services.

Mergers and acquisitions in natural resources included several major acquisitions in the oil and gas subsector by Chinese companies, such as the purchase of 40% of the Brazilian subsidiary of Repsol YPF by Sinopec for US\$ 7.111 billion and the acquisition of 50% of Bidas Corporation in Argentina by CNOOC for around US\$ 4.8 billion (see table I.3 and chapter III). Acquisitions valued at more than US\$ 100 million include a large number in the mining sector, such as the purchase of *Mineração Usiminas* of Brazil by Sumitomo Corporation for US\$ 1.93 billion. These operations reflect the interest of transnational companies in strengthening their natural-resource-seeking strategies in the region, especially in South America.

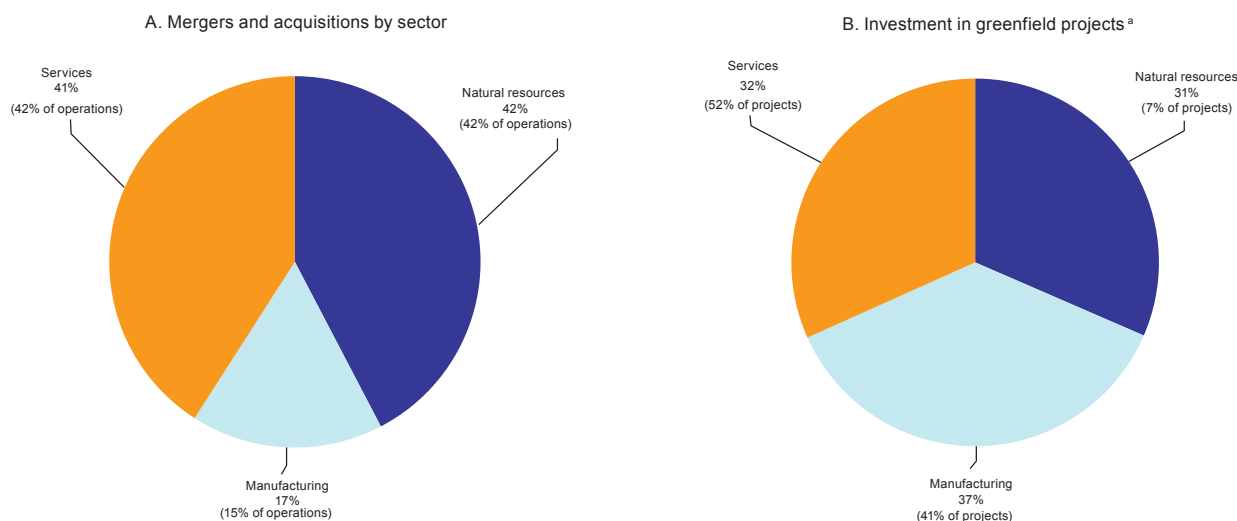
¹⁵ Information from Thomson Reuters and *fDi Markets* (*Financial Times*) databases.

Figure I.9
LATIN AMERICA AND THE CARIBBEAN: SECTORAL DISTRIBUTION OF FOREIGN DIRECT INVESTMENT BY SUBREGION, 2005-2010
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as at 15 April 2011.
^a El Salvador and the Dominican Republic include maquila in the "other" category, while the Dominican Republic includes trade in the "manufacturing" category.

Figure I.10
LATIN AMERICA AND THE CARIBBEAN: SECTORAL DISTRIBUTION OF FDI IN THE FORM OF MERGERS OR ACQUISITIONS AND ANNOUNCED GREENFIELD INVESTMENTS, 2010
 (Percentages and number of transactions)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Thomson Reuters and "fDi Markets", *Financial Times*.
^a The information on greenfield investments corresponds to FDI projects announced and some of these projects may not have actually been implemented. However, the analysis conducted for previous years shows that the sectoral distribution of projects announced is a good indicator of the distribution of projects actually implemented.

Meanwhile, in the services sector major acquisitions were made in telecommunications, especially in Brazil, including the purchase of 50% of Vivo by Telefónica of Spain from Portugal Telecom for US\$ 9.7 billion, the purchase of GVT by the French group Vivendi for US\$ 1.777 billion and the acquisition of SkyBrasil by DirecTV Latin America, a unit of the United States group DirecTV, for US\$ 604 million. The manufacturing sector received a much smaller share

of investments. As shown in table I.3, of the 13 mergers and acquisitions over US\$ 1 billion, only one involved manufacturing: the acquisition of the brewery operations of the Mexican company FEMSA by Heineken for more than US\$ 7.3 billion. These transactions reflect a local-market-seeking strategy in manufacturing or services and were driven by various factors, including the economic growth of large markets such as Brazil and Mexico.

Table I.3
**LATIN AMERICA AND THE CARIBBEAN: CROSS-BORDER ACQUISITIONS OF COMPANIES OR ASSETS
 FOR OVER US\$ 100 MILLION, 2010**
(Millions of dollars)

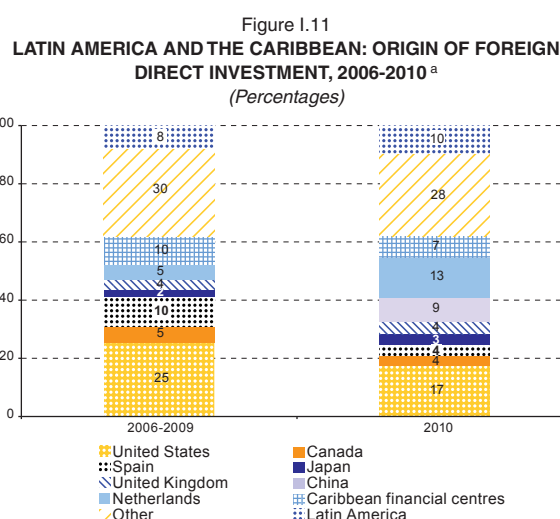
Company or asset acquired	Country of company or asset acquired	Sector	Buyer	Country of buyer	Value
Vivo (Brasilcel NV)	Brazil	Telecommunications	Telefónica SA	Spain	9 742.79
FEMSA (brewery operations)	Mexico	Beverages/liquors	Heineken	Netherlands	7 325.02
Repsol YPF Brasil SA	Brazil	Oil/gas	Sinopec Group	China	7 111.00
State oil company Carabobo	Venezuela (Bolivarian Republic of)	Oil/gas	Indian Oil, Oil India, Petronas and Repsol-YPF	India	4 848.00
Bridas Corp	Argentina	Oil/gas	CNOOC Ltd	China	3 100.00
Moema Group Mills and Usina Moema Açúcar e Alcool Ltda	Brazil	Agroindustry	Bunge Ltd	United States	2 359.74
Mineração Usiminas	Brazil	Mining	Sumitomo Corp	Japan	1 930.00
BAC Credomatic	Panama	Financial services	Grupo Aval Acciones y Valores	Colombia	1 920.00
GVT	Brazil	Telecommunications	Vivendi SA	France	1 777.43
Expansión Transmissão TPU Itumbiara	Brazil	Services	State Grid	China	1 701.55
Gas Natural (combined cycle plant)	Mexico	Oil/gas	MT Falcon Hldg Co SAPI de CV	Mexico	1 465.00
Wal-Mart Centroamérica	Guatemala	Commerce	Wal-Mart de México SAB de CV	United States	1 347.34
Compañía Minera del Pacífico SA	Chile	Mining	Mitsubishi Corp	Japan	924.00
BAHIA Minerals BV	Brazil	Mining	Eurasian Natural Resources	United Kingdom	735.00
Autopista Central SA	Chile	Infrastructure	Alberta Investment Mgmt Corp	Canada	735.00
MMX Mineração e Metálicos	Brazil	Mining	SK Networks Co Ltd	Republic of Korea	698.28
Bayovar phosphate mine project	Peru	Mining	Investor Group	United States	660.00
Autostrade per il Cile-APC	Chile	Infrastructure	Autostrade Sud America Srl	Italy	659.70
Distribución Eléctrica Centroamericana II (DECA II)	Guatemala	Energy	EPM	Colombia	605.00
Sky Brasil	Brazil	Telecommunications	DirecTV Latin America LLC	Mexico	604.80
Farmacias Ahumada	Chile	Commerce	Grupo Casa Saba SAB de CV	Mexico	604.24
Cia Industrial de Vidros	Brazil	Manufacturing	Owens-Illinois Inc	United States	603.00
Dufry South America Ltd	Brazil	Commerce	Dufry AG	Switzerland	527.04
LQ Inversiones Financieras SA	Chile	Financial services	Citigroup Inc	United States	519.70
Goldcorp Inc. (San Dimas)	Mexico	Mining	Mala Noche Resources Corp	Canada	510.00
Goldcorp Inc. (Escobal)	Guatemala	Mining	Tahoe Resources Inc	United States	505.00
YPF SA	Argentina	Oil/gas	Investor Group	United States	499.99
Cintra-Concesiones de Infraestructuras de Transporte	Chile	Infrastructure	Interconexión Eléctrica SA (ISA)	Colombia	499.02
Sistema Educacional Brasileiro	Brazil	Education services	Pearson PLC	United Kingdom	498.74
Tivit Terceirização de Processos, Serviços e Tecnologia S.A.	Brazil	Business services	Apax Partners LP	United States	475.81
Kinross Gold Corp-Cerro Casale	Chile	Mining	Barrick Gold Corp	Canada	474.00
Xstrata Copper (El Morro copper and gold mine)	Chile	Mining	New Gold Inc	Canada	463.00
Tivit Terceirização de Processos, Serviços e Tecnologia S.A.	Brazil	Business services	Apax Partners LP	United States	422.56
Cia Minera Milpo SAA	Peru	Mining	Votorantim Metais Ltda	Brazil	418.90
CVC Brasil Operadora e Agência de Viagens	Brazil	Tourism	Carlyle Group LLC	United States	401.01
MMX Sudeste Mineração	Brazil	Mining	Wuhan	China	400.00
Odebrecht Óleo e Gás	Brazil	Construction/engineering	Temasek Holdings(Pte)Ltd	Singapore	400.00

Table I.3 (concluded)

Company or asset acquired	Country of company or asset acquired	Sector	Buyer	Country of buyer	Value
Sul Americana de Metais SA	Brazil	Mining	Honbridge Holdings Ltd	Hong Kong SAR of China	390.00
Vale SA, Mitsui Co Ltd-Bayovar Ecuador Bottling Co Corp	Peru Ecuador	Mining Beverages	The Mosaic Co Embotelladoras Arca SAB de CV	United States Mexico	385.00 345.00
Equipav SA Açúcar e Álcool	Brazil	Agroindustry	Shree Renuka Sugars Ltd	India	331.40
Mineração Minas Bahia	Brazil	Mining	Eurasian Natural Resources	United Kingdom	304.00
El Paso Corp-Mexican pipeline	Mexico	Energy	Sempra Pipelines & Storage Inc	United States	300.00
CPM Braxis SA	Brazil	Business services	Capgemini SA	France	298.91
Laboratorios Phoenix SACyF	Argentina	Pharmaceuticals	GlaxoSmithKline PLC	United Kingdom	253.00
Yamana Gold Inc São Francisco and São Vicente mines	Brazil	Mining	Aura Minerals Inc	Canada	240.00
Vale do Ivaí SA	Brazil	Agroindustry	Shree Renuka Sugars Ltd	India	239.99
Laboratório Teuto Brasileiro	Brazil	Pharmaceuticals	Pfizer Inc	United States	238.71
Rumo Logística SA	Brazil	Logistics	Investor Group	United States	225.38
Almacenes Éxito SA	Colombia	Commerce	Citigroup Global Markets Ltd	United Kingdom	216.26
HydroChile SA	Chile	Energy	Eton Park Capital Mgmt LP	United States	200.00
Frontino Gold Mines Ltd	Colombia	Mining	Medoro Resources Ltd	Canada	198.36
Viñedos Errázuriz – Atacama	Chile	Mining	Investor Group	Republic of Korea	190.00
Iquique highway access concession	Chile	Infrastructure	Sacyr Concesiones SL	Spain	188.60
IBI México	Mexico	Financial services	Banco Bradesco SA	Brazil	163.74
Scalina	Brazil	Manufacturing	Carlyle Group LLC	United States	162.57
Red de Televisión Chilevisión	Chile	Telecommunications	Turner Intl (Turner Bdcstg)	United States	150.99
International Minerals Corp. (Inmaculada gold mine)	Peru	Mining	Hochschild Mining PLC	United Kingdom	115.00
Compañía Carbones del Cesar S.A.	Colombia	Mining	Goldman Sachs Group Inc	United States	100.20

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of figures from Thomson Reuters.

In terms of the origin of FDI flows into Latin America and the Caribbean, the United States was still the main investor in 2010, injecting 17%, followed by the Netherlands (13%), China (9%) (see chapter III), Canada, Spain and the United Kingdom (with 4% each) (see figure I.11).¹⁶ In addition, a rising proportion of FDI is sourced within the region itself, which reflects the growth of outward FDI and the rise of trans-Latins in recent years, as analysed in section D below. Whereas in 2006-2009 FDI originating in Latin America and the Caribbean accounted for 8% of the total, in 2010 the proportion was 10%.¹⁷



¹⁶ Data on FDI by origin for each country is given in annex table I.A-4.

¹⁷ In 2000-2005, an estimated 4% of Latin American and Caribbean FDI originated in the region itself. In terms of mergers and acquisitions specifically, Latin American and Caribbean investors accounted for 11% of total mergers and acquisitions in the region in 2007, 14% in 2008 and 2009 and 13% in 2010 (Thomson Reuters database).

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as at 15 April 2011.

^a The distribution of FDI by origin shown in this figure accounts for 80% of all FDI in Latin America and the Caribbean.

3. Technology intensity and transnational companies' involvement in research and development activities

Given that FDI is a major channel for transferring knowledge to developing countries and that transnational companies are key agents in national innovation systems, it is particularly important to understand the role played by these companies in national innovation systems and the manner in which they determine the effects that FDI has on a recipient economy. Transnational companies can provide access to technological skills originating outside a national innovation system and enable the recipient economy to be part of global knowledge creation and dissemination processes (Marín and Arza, 2009).¹⁸ The impact of FDI on recipient countries is partly determined by the type of operations carried out by transnational companies and the indirect effects of FDI vary depending on the characteristics of those companies, in particular the technological content of their activities. For example, transnational companies in high-tech sectors carrying out research and development activities have a strong effect on capacity-building, technological spillovers and productivity levels, and a positive impact on the recipient country's absorptive capacity and the strength of its innovation system (Keller and Yeaple, 2009; Griffith, Redding and Van Reenen, 2004).

Further to the analysis begun by ECLAC in the 2009 edition of this report, this section describes the pattern of new foreign investment projects announced in the Latin American and Caribbean industrial sector between 2003 and 2010, first in relation to other regions of the world and then within the region.¹⁹ To that end, FDI projects are classified in different technological categories according to the sectors in which the companies operate (see table I.A-1). Given their key role in the creation, absorption and dissemination of knowledge, the research and development projects carried out are also analysed in detail, regardless of the sector of activity. The analysis covers the periods 2003-2005 and 2008-2010 (annual averages for each period), as well as 2010 specifically, where applicable.

The aim is to give a general overview of trends between 2003 and 2010 together with contextual information on new FDI projects.

(a) Latin America and the Caribbean in the global context

Figure I.12 shows the distribution of the sums involved in new FDI projects announced in Latin America and the Caribbean, the Asian tigers (Singapore, Taiwan Province of China, the Hong Kong Special Administrative Region of China and the Republic of Korea) and China in 2003-2005 and 2008-2010. Latin America and the Caribbean attracted large amounts of FDI in the low- and, particularly, medium-low-tech sectors. In 2003-2005, 79% of the volume of FDI projects announced were in the low- and medium-low-tech sectors, compared with 66% in 2008-2010, while the share of the medium-high-tech sectors climbed from 15% to 26% between the two periods. However, the share of the more high-tech sectors in Latin America and the Caribbean is still quite small, albeit growing, compared with the figures in the Asian tigers and China: the medium-high- and high-tech sectors in the Asian tigers attracted 89% of FDI in 2003-2005 and 81% in 2008-2010 and in China they accounted for around 80% in both periods.

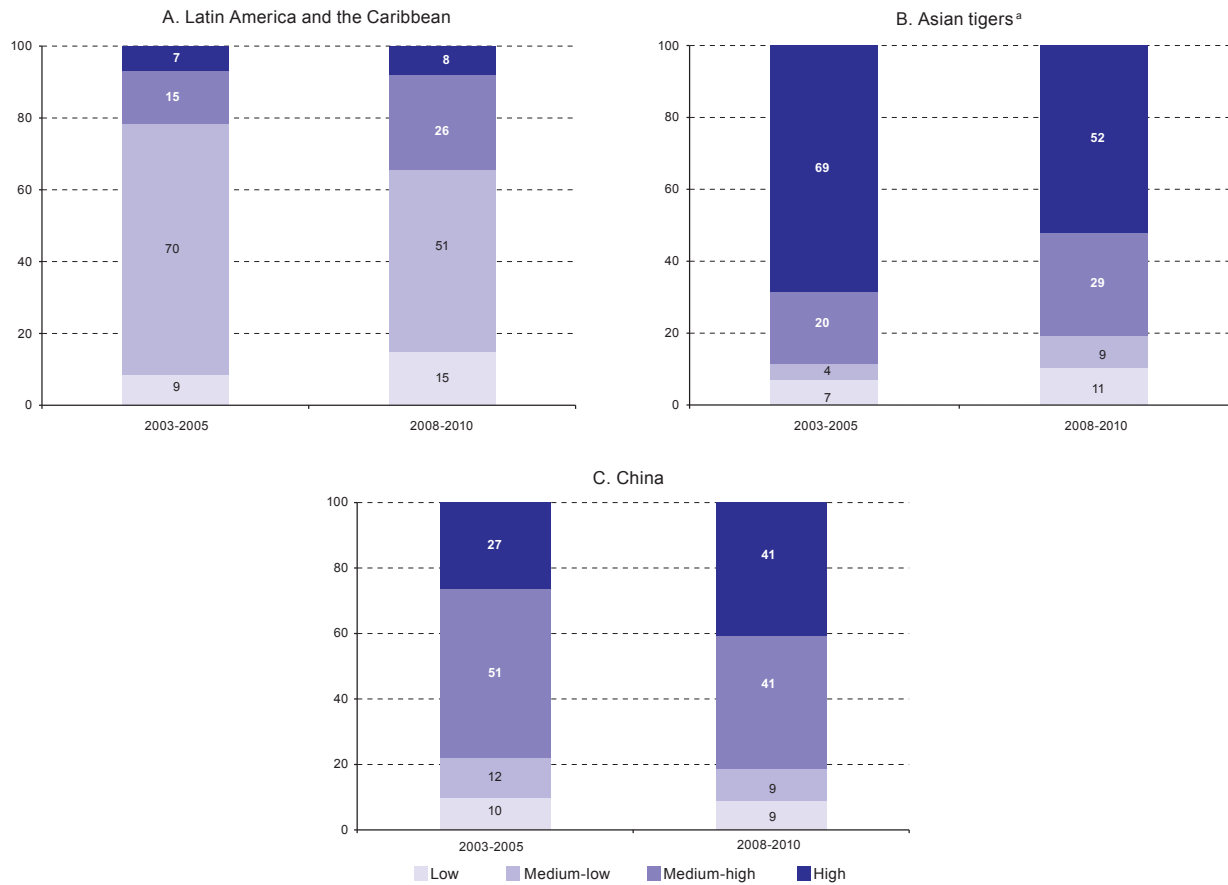
With regard to new FDI projects in research and development by transnational companies, Latin America and the Caribbean has only a small share (see figure I.13). In 2003-2005 the region attracted just 3.6% of global investments in research and development activities, falling to 3.2% in 2008-2010. By contrast, the Asia-Pacific region is a major hub for these activities, netting around 50% of the global total in 2008-2010, ahead of Western Europe (24%) and North America, whose share fell from 30% to 16% between the two periods.

Nonetheless, according to data for 2010, the share of the Latin American and Caribbean region peaked for the decade, rising to 5.5% (see figure I.18). Only time will tell whether this is temporary or reflects an upward trend for the region. With regard to the employment generated by these projects, figure I.14 shows Latin America and the Caribbean with an even smaller share: only 2.7% of the jobs associated with new FDI projects in research and development were generated in the region in 2008-2010, compared with more than 60% in the Asia-Pacific countries.

¹⁸ The patterns of cooperation between transnational companies and local companies in developing countries has increasingly given rise to discussion about how and to what extent local companies are integrated into global innovation systems (Metcalf and Ramlogan, 2008).

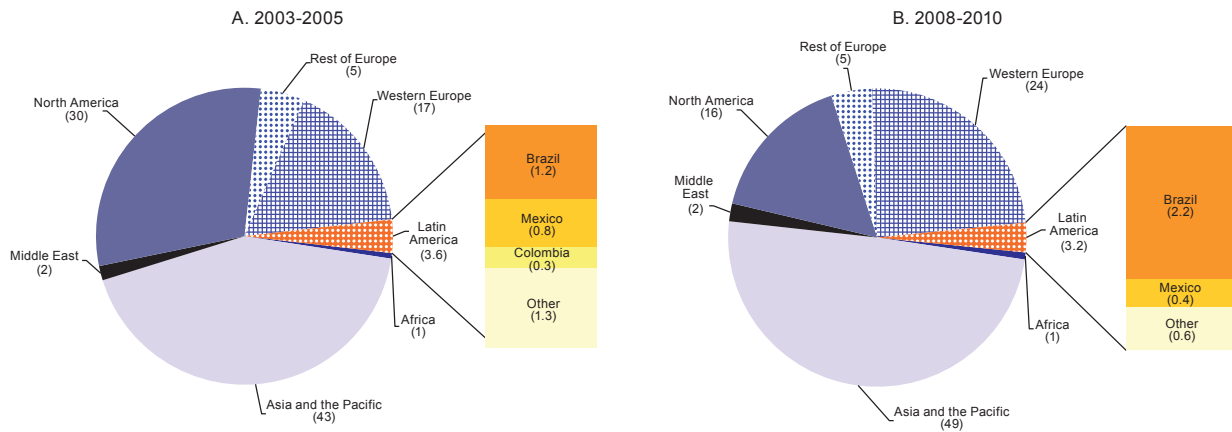
¹⁹ The data used refer to new FDI projects announced and it is possible that some of these projects have not actually been implemented or are being implemented over several years. However, based on the analysis of previous years the information on projects announced is a good indicator of projects actually implemented.

Figure I.12
DISTRIBUTION OF SUMS ASSOCIATED WITH ANNOUNCED NEW FOREIGN DIRECT INVESTMENT PROJECTS BY TECHNOLOGY INTENSITY, 2003-2005 AND 2008-2010
 (Percentages)



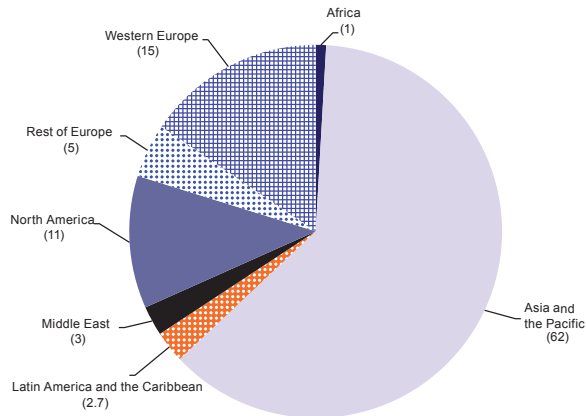
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of investments announced in “FDI Markets”, *Financial Times*.
^a The term “Asian tigers” refers to the Hong Kong Special Administrative Region of China, Taiwan Province of China, the Republic of Korea and Singapore.

Figure I.13
DISTRIBUTION OF SUMS ASSOCIATED WITH ANNOUNCED NEW FOREIGN DIRECT INVESTMENT PROJECTS RELATED TO RESEARCH AND DEVELOPMENT ACTIVITIES, 2003-2005 AND 2008-2010
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of investments announced in “FDI Markets”, *Financial Times*.

Figure I.14
DISTRIBUTION OF JOBS CREATED BY ANNOUNCED NEW FOREIGN DIRECT INVESTMENT PROJECTS RELATED TO RESEARCH AND DEVELOPMENT ACTIVITIES BY REGION, 2008-2010
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of investments announced in "FDI Markets", *Financial Times*.

Thus, despite the relative increase in FDI projects in the medium-high-tech sectors in recent years, Latin America and the Caribbean has a limited share in the more technologically intensive sectors compared with other regions. Furthermore, although the research and development activities of transnational companies have become more internationalized in the past decade (UNCTAD, 2005), Latin America and the Caribbean is not yet a major location for these activities. As discussed in the next section, the first examples of increasing technological activity among transnational companies in the region are emerging principally in Brazil and Mexico.

(b) FDI projects by technology and research and development in Latin America and the Caribbean

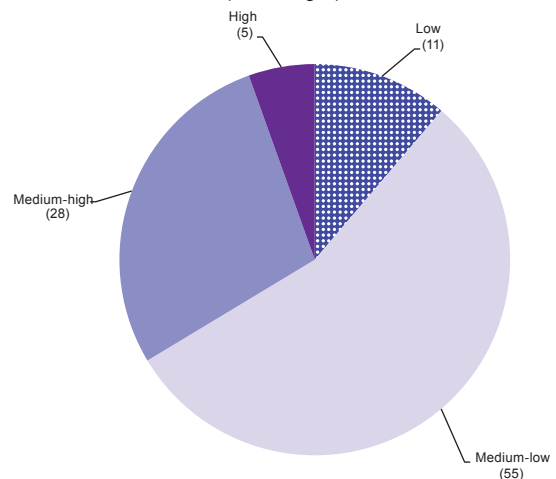
Figure I.15 shows the distribution of FDI associated with new projects across the region in 2010 by technology category. As in 2009, the medium-low-tech sectors attracted the most investment in Latin America and the Caribbean, receiving 55% of the total. The medium-high-tech sectors attracted 28%, or 12 percentage points more than in 2009²⁰, while the low- and high-tech sectors received 11% and 5%, respectively.

With regard to the region's main destinations, Brazil is as the leading absolute recipient in the four technological categories (see figure I.16), with 55% of investments in

the high-tech sectors and 49% in the medium-high-tech sectors. Mexico, which was the main recipient in high-tech sectors in 2009 (ECLAC, 2010), received 31% of investments in both the high- and medium-high-tech sectors. In the high-tech sectors Argentina and Costa Rica secured shares of 5% and 3% respectively, while in the medium-high-tech sectors shares were received by Argentina (7%), Peru (4%), the Bolivarian Republic of Venezuela (3%) and Colombia (3%). In the low- and medium-low-tech sectors, investments were more fragmented among countries. In the medium-low-tech sector, Brazil was the main recipient with 43%, while significant shares were also received by Peru (17%), Paraguay (16%) and Chile (12%). Brazil was again the leading recipient in the low-tech sectors, with 44%, followed by Mexico (19%), Argentina (12%), Peru (9%) and Colombia (3%).

The composition of FDI projects within each country is another important consideration. Figure I.17 shows the distribution of projects in Argentina, Brazil, Chile, Colombia, Mexico and Peru, which together received 90% of total FDI in 2010. Brazil attracted most of its investment in the medium-low-tech sectors (52%), while its medium-high-tech sectors received 30% and its low- and high-tech sectors attracted only 11% and 6% respectively. Interestingly, investments in Brazil's high-tech sectors accounted for only 6% of total flows into the country, but 55% of total investments of this type in the region.

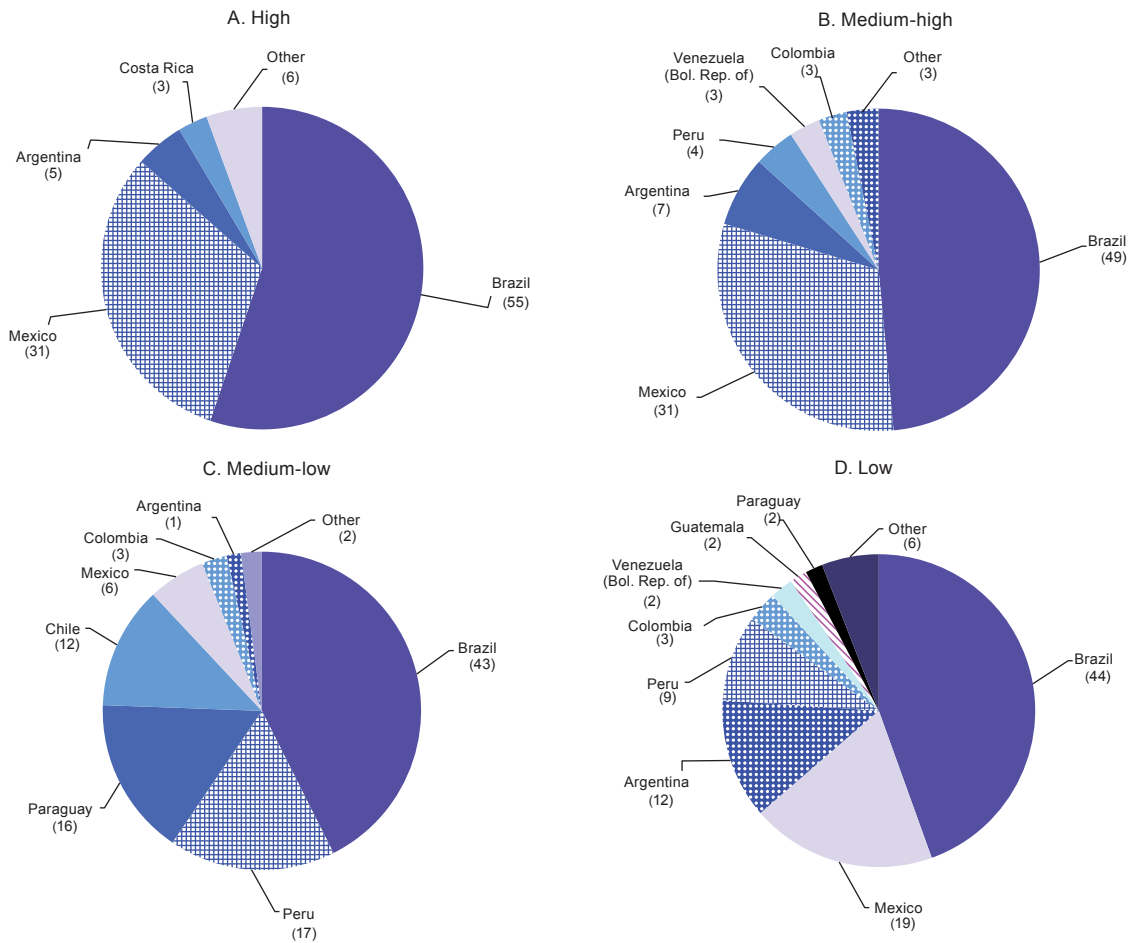
Figure I.15
LATIN AMERICA AND THE CARIBBEAN: DISTRIBUTION OF SUMS ASSOCIATED WITH ANNOUNCED NEW FOREIGN DIRECT INVESTMENT PROJECTS BY TECHNOLOGY INTENSITY, 2010
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of investments announced in "FDI Markets", *Financial Times*.

²⁰ See ECLAC (2010), figure I.20.

Figure I.16
LATIN AMERICA AND THE CARIBBEAN: MAIN RECIPIENTS OF ANNOUNCED NEW FOREIGN DIRECT INVESTMENT PROJECTS BY TECHNOLOGY INTENSITY, 2010
(Percentages of sums)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of investments announced in "fDi Markets", *Financial Times*.

Figure I.17
DISTRIBUTION OF SUMS ASSOCIATED WITH ANNOUNCED NEW FOREIGN DIRECT INVESTMENT PROJECTS BY COUNTRY AND TECHNOLOGY INTENSITY, 2010
(Percentages)

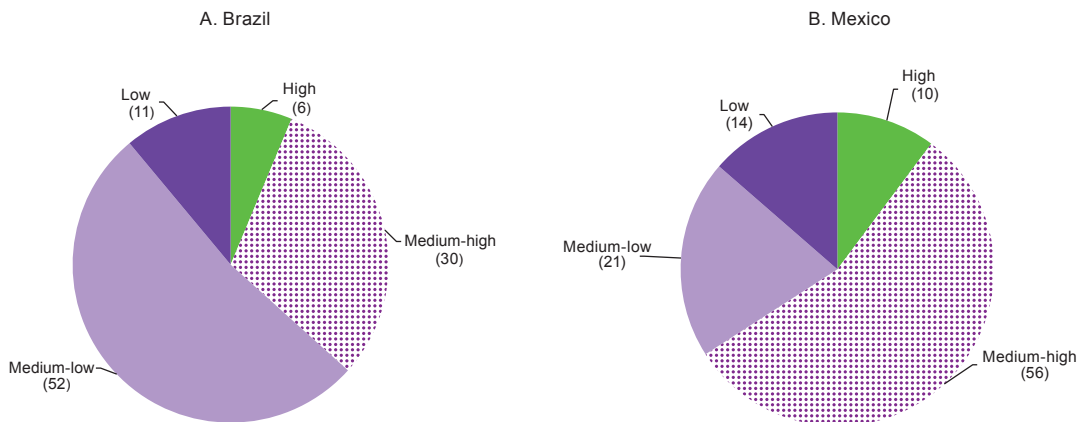
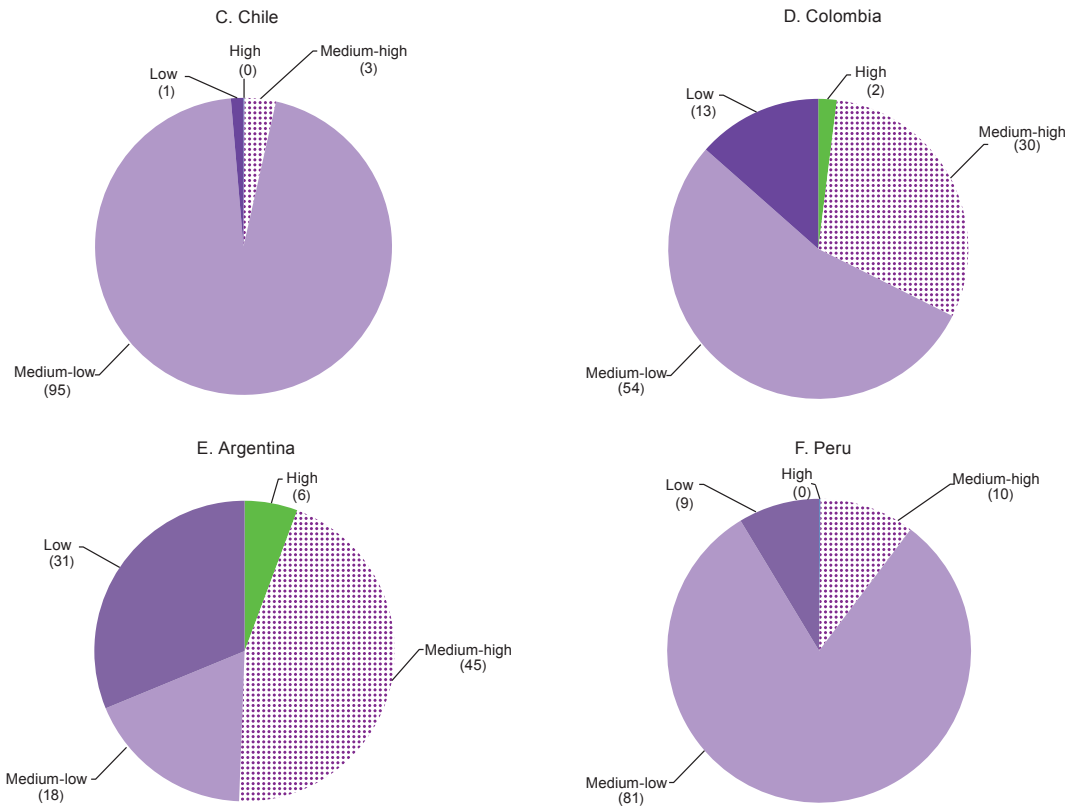


Figure I.17 (concluded)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of investments announced in "FDI Markets", *Financial Times*.

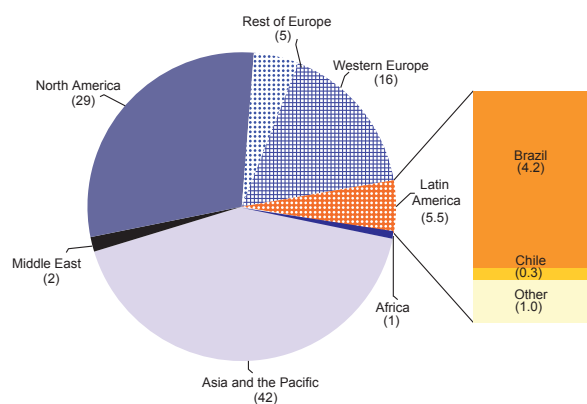
In Mexico FDI projects were heavily concentrated in the medium-high-tech sectors (56%), including in the automobile industry, machinery and chemical products, while the medium-low, low- and high-tech sectors attracted 21%, 14% and 10%, respectively (see figure I.17). Chile was the country with the heaviest concentration of FDI in a single technology category in 2010 with 95% going to the medium-low-tech sectors, mainly metals and non-metallic minerals. In Colombia, new investments followed a pattern of distribution similar to that seen at the regional level, with the medium-low-tech sectors receiving 54%, medium-high and low-tech sectors receiving 30% and 13%, respectively, and high-tech sectors receiving just 2%. In Argentina FDI was concentrated in the medium-high-tech sector (45%), while the low-tech sectors, such as food, textiles, wood and paper, received 31% and the medium-low and high-tech sectors received smaller shares of 18% and 6%, respectively. Lastly, in Peru the medium-low-tech sectors attracted 81% of new FDI projects in the country.

Research and development projects implemented in the region by transnational companies are heavily concentrated in Brazil, and have become more so in recent years. In 2003-2005, the region received 3.6% of global

research and development investment, of which 1.2% went to Brazil (see figure I.13) and in 2008-2010 Brazil's share was larger at 2.2%, or 68% of the region's total. Mexico also attracts research and development investment, receiving 0.8% of the global total in 2003-2005 and 0.4% in 2008-2010. As noted earlier, the region's share of new FDI projects associated with research and development increased in 2010 to 5.5% of the global total, but this was mainly owing to developments in Brazil, which received 4.2% of the 5.5% received by the region, or more than 75% (see figure I.18). In terms of the jobs generated by new FDI projects associated with research and development, Brazil is by far the region's leader, attracting a 64% share in 2008-2010, followed by Mexico and Chile with shares of 13% and 11% respectively (see figure I.19).

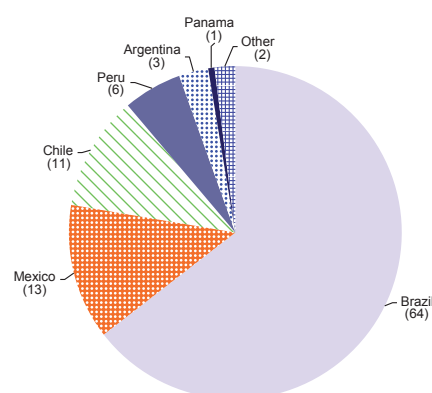
In short, the region receives most of its investment in new FDI projects in the low- and medium-low-tech sectors, though there has been a relative increase in projects in the medium-high-tech sectors and in those associated with research and development. However, the region's share in projects with technological content is still small compared with other regions and projects are concentrated in Brazil and Mexico.

Figure I.18
**DISTRIBUTION OF SUMS ASSOCIATED WITH ANNOUNCED
 NEW FOREIGN DIRECT INVESTMENT PROJECTS RELATED TO
 RESEARCH AND DEVELOPMENT ACTIVITIES, 2010**
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of investments announced in "FDI Markets", *Financial Times*.

Figure I.19
**DISTRIBUTION OF JOBS ASSOCIATED WITH ANNOUNCED
 NEW FOREIGN DIRECT INVESTMENT PROJECTS RELATED TO
 RESEARCH AND DEVELOPMENT ACTIVITIES, 2008-2010**
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of investments announced in "FDI Markets", *Financial Times*.

D. Outward foreign direct investment and the trans-Latins

1. Transnational companies from developing countries

In recent years, the emerging economies, particularly the countries known as the BRICs (Brazil, the Russian Federation, India and China) and South Africa, have been noticeably reshaping the global economy as their solid economic growth combined with the size of their economies creates a new landscape encompassing different dimensions. In terms of FDI, transnational companies from developing countries—especially Asian developing countries—are contributing increasingly to global flows (see figure I.5) and the vigour of their investments is reflected in a range of indicators showing a stronger presence in various global corporate rankings (UNCTAD, 2009).

Transnational companies from developing countries have expanded in an international context of increasing competition and corporate concentration. This process, termed the "global business revolution", is taking place not only in final industries that embrace various technologies (aeronautics, automobiles, telecommunications and beverages) but also in supply industries by means of

a cascade effect throughout the value chain (Nolan, Zhan and Liu, 2007). Global leaders have undergone a process of industrial consolidation through mergers and acquisitions of core businesses and de-mergers of non-core businesses. In the process, the leading companies with powerful capabilities have selected the most capable suppliers to work with in different production locations, expanding the consolidation process. The result is a process of concentration across a range of industries at all levels of the value chain. However, the international situation in recent years has also paved the way for more active participation by companies from developing countries, since the global crisis hit the transnational companies from developed countries hardest, prompting them to curtail their investment plans to meet capitalization needs in the face of bleak financing prospects.

Latin American and Caribbean transnational companies were no exception to this pattern and, although their international presence is still small compared with

companies from Asian developing countries, they have expanded rapidly and positioned themselves as a key source of investment in the past few years (ECLAC, 2006). Companies from Brazil, Chile, Mexico and, more recently, Colombia have been the most active in expanding their international assets, a process that has been particularly widespread in basic industries (hydrocarbons, mining, cement, pulp and paper, iron and steel), mass consumption manufacturing (food and beverages) and services (energy, telecommunications, air transport and retail trade). In many cases the State and industrial development policies in strategic sectors have played a key role in the origin of these firms, especially in Brazil.

Several factors are behind the international expansion of Latin American transnational companies, or trans-Latins, in the past decade. First, Latin American and Caribbean companies, especially those from small economies in Central America and the Caribbean, were driven to expand their operations at the regional or global level as their home economies were opened up to foreign competition and they needed to ensure an efficient plant size that would enable them to take advantage of economies of scale and cut costs. Second, some companies took advantage of deregulation and privatizations to penetrate new markets, especially in services. Third, other companies turned to foreign investment as a means of tackling macroeconomic instability in their countries of origin and diversifying risks. Lastly, regional integration processes opened up markets and facilitated expansion to partner countries. The growth of trans-Latins is also, in many cases, a natural step in the internationalization process of the region's economies and is a mechanism for acquiring knowledge and new production and organizational practices.

Although most of the region's countries have devised strategies and incentives to promote exports and attract FDI, they have no strategies for supporting the internationalization of home-grown companies. Brazil is the exception, as will be discussed later, having included internationalization in its industrial policy and provided

firms with government support and funding to assist them in that direction.

The policy discussion on whether and how to promote the internationalization of Latin American and Caribbean companies is a complex one and several points have to be taken into account in that regard, such as how to distinguish the benefits for the company from the benefits for the economy as a whole. The issue also has various financing and economic policy dimensions. The arguments in favour of a proactive policy on internationalization include improved production and management standards, increased productivity, the acquisition of new knowledge and the strengthening of technological capacities both within the company itself and across the national productive structure through externalities such as capital market stimulation. International competition also encourages companies to invest in research and development activities and become intermediaries between local and global knowledge systems. In that sense, the links between the company and the local innovation system can enhance the positive effects of internationalization.

Conversely, some argue that as leaders in their countries these companies should not be given special support since they are at no disadvantage when competing in global markets, when compared with small and medium-sized companies for example, and do not face the same problems in securing financing. Furthermore, it is difficult to guarantee that the benefits of internationalization will spill over into the rest of the economy.

Accordingly, policymakers considering a public policy of that nature should analyse not only costs and benefits, but also the opportunity cost of the resources involved and the institutional structure required. Furthermore, it should be borne in mind that a public policy promoting internationalization may suffer from information failures and create incentives for rent-seeking and corruption. The complex decisions in this area and the increasing importance of internationalization of the region's companies open up a research agenda with major challenges for the next few years.

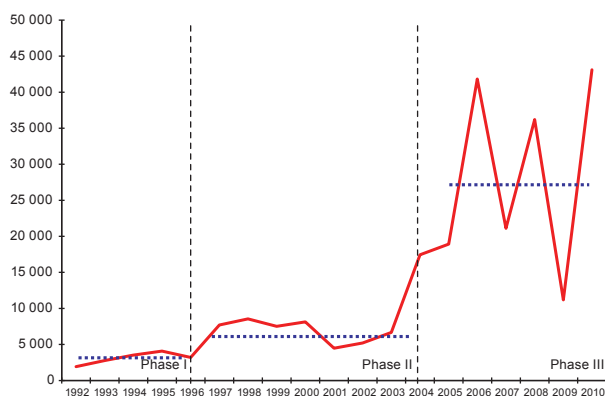
2. Outward foreign direct investment: the Latin American and Caribbean region joins the dynamic developing countries

In recent years, outward FDI flows from the Latin American and Caribbean region have risen significantly as part of a three-phase process. The first phase began in the 1990s with trade liberalization, the privatization of State companies and economic deregulation and lasted

until 1996. During that period, the region's outward FDI flows were limited but increasing, averaging US\$ 3 billion per year (see figure I.20). During the second phase—between 1997 and 2003—outward FDI was higher but not increasing continuously, averaging US\$ 6.8 billion per

year. Then in the third phase flows surged to an average of US\$ 26.5 billion per year between 2004 and 2010. In 2010 in particular, outward FDI nearly quadrupled with respect to 2009 to set a new record of US\$ 43.108 billion and the share of Latin American and Caribbean foreign investments in FDI flows originating in developing countries climbed from 6% in 2000²¹ to 17% in 2010.

Figure I.20
LATIN AMERICA AND THE CARIBBEAN: NET OUTWARD FOREIGN DIRECT INVESTMENT, 1992-2010
(Millions of dollars)



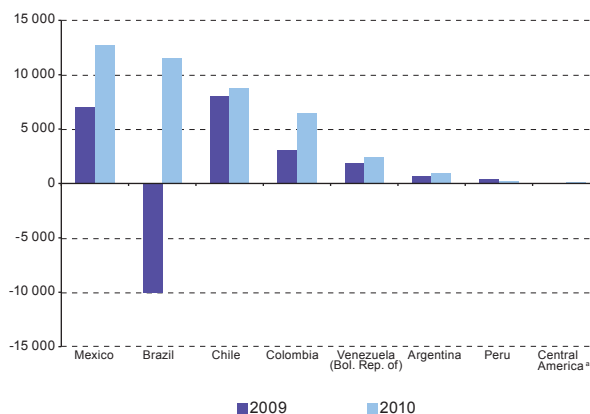
Source: Economic Commission for Latin America and the Caribbean (ECLAC), estimates on the basis of official figures as at 15 April 2011.

The increase in outward FDI in 2010 reflected sizeable investments by Mexico, Brazil, Chile and Colombia (see figure I.21), which together accounted for more than 90% of outward FDI that year, with new records set by Mexico, Chile and Colombia. In GDP terms, Chile has the region's highest FDI-to-GDP ratio (4.6%), reflecting the extent of internationalization in its business sector and the importance of that process in its economy, followed by Colombia (2.3%), Mexico (1.2%), the Bolivarian Republic of Venezuela (0.7%), Brazil (0.6%) and Argentina (0.3%) (see figure I.22).

Foreign investments by the region's countries in 2010 are linked to the international expansion of Latin American and Caribbean companies in various sectors. While some companies had consolidated their position as leaders in their countries of origin and internationalization was a natural step in their growth, others have used aggressive strategies to position themselves in international markets, in order to take advantage of the opportunities created by the financial crisis and to tackle growing competition in increasingly globalized markets. However, there are also obstacles to expansion in the region for trans-Latin Americans, mainly related to the low priority afforded to FDI by some of the region's recipient countries.

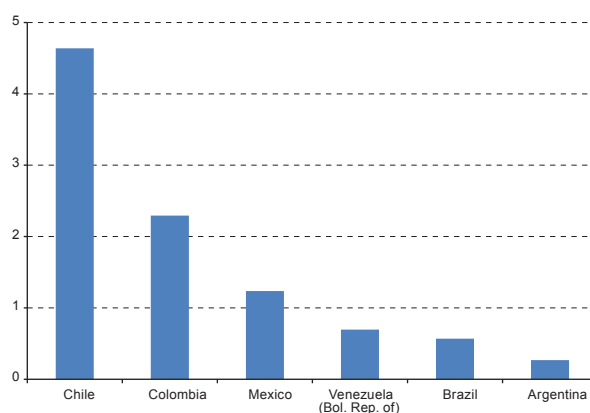
²¹ In 1992-2000, the share of the Latin American and Caribbean region in outward FDI flows stood at 9% on average.

Figure I.21
LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): OUTWARD FOREIGN DIRECT INVESTMENT, 2009 AND 2010
(Millions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as at 15 April 2011.
* Costa Rica, El Salvador, Guatemala and Honduras.

Figure I.22
LATIN AMERICA (SELECTED COUNTRIES): NET OUTWARD FOREIGN DIRECT INVESTMENT IN RELATION TO GDP, 2010
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as at 15 April 2011.

Tables I.5 and I.6 show the major acquisitions and greenfield investments in excess of US\$ 100 million announced by the region's companies in 2010. Table I.7 shows the region's largest Latin American groups and companies with substantially internationalized activities by 2010 sales figures. A significant proportion of Latin American and Caribbean cross-border investments are directed at neighbouring countries. For example, 47% of the mergers and acquisitions concluded by Latin American and Caribbean companies in 2010 took place in a country in the region. Announced trans-Latin greenfield investments also largely stay within the region—59%²² of the total in 2010—which underlines the importance of

²² Estimates from the Thomson Reuters and fDi Markets databases.

trans-Latins as a source of investment in Latin America and the Caribbean, as active agents in regional integration and as a means of improving production-related practices and knowledge.

By country, Mexico made the largest foreign investments in 2010. Its outward investment jumped by 81% that year to a record US\$ 12.694 billion and comprised mainly acquisitions, such as the purchase by the Televisa group of a substantial share in the Univisión group in the United States for US\$ 1.2 billion; the acquisition of Sara Lee Corporation's baked goods business in the United States (North American Fresh Bakery) by Bimbo Group for US\$ 959 million; the purchase of Chilean pharmacy

chain operator FASA by Casa Saba for US\$ 604 million; the acquisition of Bar-S Foods (United States) by Sigma Alimentos (Alfa Group) for US\$ 575 million; and the investment by Grupo R (Constructora y Arrendadora México, S. A. de C. V. (CAMSA)) in PetroRig III (Norway) for US\$ 540 million (see table I.5). A number of new investment projects were also initiated, including projects by América Móvil in telecommunications in Brazil (purchase of a share in Net), Colombia and, recently, Central America (see box I.5 and table I.6). Besides these recent acquisitions, Mexican companies already have quite a strong track record as regards the internationalization of their activities (see box I.5).

Table I.4
LATIN AMERICA AND THE CARIBBEAN: NET OUTWARD FOREIGN DIRECT INVESTMENT, 2000-2010
(Millions of dollars)

Country	2000-2005 ^a	2006	2007	2008	2009	2010	Absolute difference 2010-2009	Relative difference 2010-2009 (percentages)
South America	6 934	35 440	12 254	34 153	4 004	30 292	26 288	87
Brazil	2 513	28 202	7 067	20 457	-10 084	11 500	21 584	188
Chile	1 882	2 171	2 573	8 040	8 061	8 744	683	8
Colombia	1 156	1 098	913	2 254	3 088	6 504	3 416	111
Venezuela (Bolivarian Republic of)	809	1 524	30	1 273	1 834	2 390	556	30
Argentina	532	2 439	1 504	1 391	710	946	236	33
Peru	22	0	66	736	398	215	-183	-46
Uruguay	15	-1	89	-11	2	-6	-8	-627
Paraguay	5	4	8	8	...	...	...	...
Bolivia (Plurinational State of)	1	3	4	5	-4	...	...	...
Mexico ^b	3 491	5 758	8 256	1 157	7 019	12 694	5 675	81
Central America	67	113	389	37	54	119	65	119
El Salvador ^c	15	-26	100	16	23	80	57	247
Guatemala	31	40	25	16	23	29	6	27
Costa Rica	17	98	263	6	7	9	2	23
Honduras	4	1	1	-1	1	1	0	40
The Caribbean	233	507	204	849	106	3	...	...
Jamaica	84	85	115	76	61	...	...	...
Trinidad and Tobago	146	370	0	700	0	...	...	...
Barbados	3	44	82	63	41	...	...	...
Belize	0	8	7	10	4	3	-2	-41
Total	10 725	41 819	21 103	36 196	11 184	43 108	31 924	285

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as at 15 April 2011.

^a Simple average.

^b The average shown for the first half of the decade corresponds to 2001-2005.

^c The 2010 data cover up to the third quarter.

Brazil invested a total of US\$ 11.5 billion abroad in 2010, which represented a noticeable rise compared with the contraction of its investment flows in 2009 (see figure I.21). In 2010, new capital contributions were concentrated in several sectors. In the natural resources sector investments went mainly to metal mining (6%), while the largest investments in manufacturing went to food (15%) and metallurgy (7%) and in services investments were made mainly in financial services (47%) (see figure I.23). Mergers and acquisitions include the mining investments of Companhia Vale do Rio Doce (Vale) in

Guinea (through the purchase of shares in BSG Resources in Guernsey), Metalúrgica Gerdau in Canada, the share of Camargo Corrêa in Cimpor Cimentos of Portugal and the acquisition of Keystone Foods (United States) by Marfrig Alimentos, all in excess of US\$ 1 billion. Argentina, Chile, Colombia and Peru also attracted substantial Brazilian investment. For example, Vale recently launched copper mining activities in Chile, phosphate mining in Peru and coal mining in Colombia, while the cosmetics company Natura has operations in Argentina, Chile and Peru and plans to launch operations in Colombia and Mexico in 2011.

Table I.5
MAIN CROSS-BORDER ACQUISITIONS BY LATIN AMERICAN COMPANIES, 2010
(Millions of dollars)

Company or asset acquired	Country of company or asset acquired	Sector	Buyer	Country of buyer	Value
BSG Resources Guinea Ltd	United Kingdom	Mining	Vale SA	Brazil	2 500
BAC Credomatic GECF Inc	Panama	Financial services	Grupo Aval Acciones y Valores	Colombia	1 920
Gerdau Ameristeel Corp	Canada	Manufacturing	Gerdau	Brazil	1 607
Cimpor Cimentos de Portugal	Portugal	Manufacturing	Camargo Corrêa Portugal SGPS	Brazil	1 894
Keystone Foods LLC	United States	Agroindustry	Marfrig Alimentos SA	Brazil	1 260
Univision Communications Inc	United States	Audivisual services	Televisa	Mexico	1 200
Cimpor Cimentos de Portugal	Portugal	Manufacturing	Votorantim	Brazil	1 192
DECA II	Guatemala	Services/energy	Empresa Pública de Medellín	Colombia	605
Farmacias Ahumada SA	Chile	Commerce	Grupo Casa Saba SAB	Mexico	604
Bar-S Foods Co	United States	Agroindustry	Sigma Alimentos SA	Mexico	575
PetroRig III Pte Ltd-PetroRig	Norway	Services	Grupo R SA de CV	Mexico	540
Cintra Concesiones de Infraestructuras de Transporte	Chile	Services	Interconexión Eléctrica SA (ISA)	Colombia	499
Cía Minera Milpo SAA	Peru	Mining	Votorantim Metais Ltda.	Brazil	419
Sunoco Chemicals Inc	United States	Manufacturing	Braskem SA	Brazil	350
Pasadena Refining System Inc	United States	Manufacturing	Petrobras	Brazil	350
Ecuador Bottling Co Corp	Ecuador	Beverages	Embotelladoras Arca SAB	Mexico	345
Devon Energy Corp-Cascade	United States	Oil/gas	Petrobras	Brazil	180
IBI México	Mexico	Financial services	Banco Bradesco SA	Brazil	164
Dana Hldg-Structural Prod Bus	United States	Manufacturing	Metalsa SA	Mexico	150
417 Fifth Avenue, New York, NY	United States	Real estate services	Inmobiliaria Carso SA	Mexico	140

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Thomson Reuters.

Table I.6
ANNOUNCEMENTS OF NEW CROSS-BORDER INVESTMENTS BY TRANS-LATINS FOR AMOUNTS IN EXCESS OF US\$ 100 MILLION, 2010
(Millions of dollars)

Country of origin	Company	Destination country	Sector	Amount
Mexico	América Móvil	Brazil	Telecommunications	1 390
Chile	Cencosud	Brazil	Commerce	496
Brazil	Votorantim	Colombia	Metals	327
Brazil	Gerdau	Peru	Metals	327
Brazil	EBX Group	Colombia	Coal, oil and natural gas	283
Argentina	Pauny	Venezuela (Bolivarian Republic of)	Automobiles	251
Chile	Cencosud	Peru	Commerce	230
Chile	Cencosud	Argentina	Commerce	210
Chile	Cencosud	Colombia	Commerce	200
Brazil	Votorantim	Argentina	Metals	180
Mexico	América Móvil	Colombia	Telecommunications	171
Brazil	Vale (Companhia Vale do Rio Doce)	Chile	Metals	140
El Salvador	Grupo Poma	Costa Rica	Real estate	116
Brazil	Camargo Corrêa	Paraguay	Construction	100
Brazil	EBX Group	Colombia	Storage	100

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from "fDi Markets", *Financial Times*.

Table I.7
LATIN AMERICA AND THE CARIBBEAN: LARGEST COMPANIES AND GROUPS WITH INVESTMENTS AND EMPLOYMENT ABROAD BY SALES, 2010

Company	Country	Sales (millions of dollars)	Sales abroad (percentages)	Investments abroad (percentages)	Workers abroad (percentages)	Sector
Petrobras	Brazil	128 000	34.5	31.0	19.9	Oil/gas
PDVSA	Venezuela (Bolivarian Republic of)	95 530	95.2	5.2	5.6	Oil/gas
Vale	Brazil	49 949	33.6	49.8	27.1	Mining
América Móvil	Mexico	49 221	36.0	33.0	70.0	Telecommunications
Itaú-Unibanco	Brazil	46 317	12.0	3.8	9.8	Banking
Grupo JBS (FRIBOI)	Brazil	28 418	89.2	65.5	64.0	Foods
Gerdau	Brazil	18 841	38.9	59.9	48.0	Iron and steel/ metallurgy
Cemex	Mexico	14 435	75.6	67.7	65.8	Cement
Femsa	Mexico	13 742	44.4	18.0	33.4	Beverages/liquors
Brasil Foods	Brazil	12 742	41.9	16.0	17.0	Foods
Cencosud	Chile	11 822	56.0	48.3	55.6	Retail commerce
Grupo Alfa	Mexico	11 045	54.0	71.0	51.5	Autoparts/ petrochemicals
Andrade Gutierrez	Brazil	10 895	25.2	7.5	9.7	Engineering/ construction
Grupo Camargo Corrêa	Brazil	9 698	18.4	15.0	22.5	Engineering/ construction
Grupo Bimbo	Mexico	9 487	55.0	60.1	52.7	Foods
Cía. Siderúrgica Nacional	Brazil	8 301	26.2	13.4	7.3	Iron and steel/ metallurgy
Telmex	Mexico	8 133	94.9	50.2	92.2	Telecommunications
Falabella	Chile	8 086	39.5	39.6	41.0	Retail commerce
Marfrig Alimentos SA	Brazil	7 788	54.9	31.6	41.7	Foods
Tenaris	Argentina	7 711	80.4	81.0	71.7	Iron and steel/ metallurgy
Grupo Modelo	Mexico	6 884	47.0	15.6	2.9	Beverages/liquors
TAM	Brazil	6 812	31.3	9.0	8.3	Airlines
Const. Norberto Odebrecht	Brazil	5 500	70.5	56.0	48.6	Engineering/ construction
Sudamericana de Vapores	Chile	5 448	93.4	37.4	63.0	Shipping
Votorantim	Brazil	5 316	35.0	49.0	36.0	Cement
Embraer	Brazil	5 216	93.0	26.5	11.0	Aerospace
Grupo Televisa	Mexico	4 685	16.8	22.1	11.0	Media
LAN	Chile	4 387	78.0	76.4	43.0	Airlines
Grupo Casa Saba (FASA)	Mexico	4 100	73.0	53.0	70.0	Retail commerce
CMPC	Chile	3 818	72.5	30.0	33.0	Forestry

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of *América Economía*, No. 60, April 2011.

Brazilian companies have been afforded government support in their internationalization process²³ (Sennes and Camargo Mendes, 2009). Two specific examples are the support from BNDES in the acquisition of the United States company Keystone Foods by Marfrig and the purchase of the United States company Pilgrim's Pride by JBS Friboi. BNDES Participações (BNDESPAR) purchased 100% of the notes issued by Marfrig to acquire Keystone Foods for US\$ 1.26 billion and virtually all the bonds issued by JBS Friboi to acquire Pilgrim's Pride for US\$ 800 million.

BNDESPAR now owns a 14% stake in Marfrig and a 17% stake in JBS Friboi. The country's leading firms have long benefited from strong public policy impetus and this gained further strength from the productive development policy launched in 2008, which defines five strategies for the different degrees of development of the country's companies and productive systems. The first relates to global leadership and is designed to maintain or position Brazilian companies or productive systems among the five largest global companies in their field, be it in terms of assets, technology or production. This strategy covers several sectors: aviation, oil, gas and petrochemicals, bioethanol, mining, paper and pulp, steelworks and the meat industry (BNDES, 2008).

²³ For a detailed review of the internationalization process within Brazilian companies, see Ramsey and Almeida (2009).

Box I.5

THE INTERNATIONALIZATION OF MEXICAN COMPANIES

One of the ways in which Mexico is integrating into the global economy is by means of the operations of its companies, in particular through exports, financing in international markets and foreign investment. Mexican companies were pioneers in the region in seeking out new markets as a natural step in the country's international integration and development (Peres, 1993; ECLAC, 2006) and their foreign investments have essentially comprised three phases. In the 1970s and 1980s, most foreign investments were made to bypass the trade restrictions of recipient countries, and partnerships were often formed with local companies to invest in the host country's markets. Moreover, the crisis of the 1980s, foreign-exchange instability and restrictions on access to capital prompted some companies to invest in the United States. Consequently, in the early 1980s, Mexico concentrated its foreign investments in developed countries, mainly in the United States and in the non-metallic mineral manufacturing sector, and investments included those by Vitro (glass containers and related industries) and Cementos Mexicanos (CEMEX).

In the second phase, starting in the 1990s with the entry into force of the North American Free Trade Agreement (NAFTA), Mexican companies invested mainly in the United States and Central America, though in some cases in South America and, to a lesser extent, in Europe and Asia (ECLAC, 2006) and the range of destination sectors widened. Besides CEMEX and Vitro, other business groups in the beverages and food sector (GRUMA, Bimbo Group and FEMSA), services (ICA, Televisa and Sidek) and diversified business groups (DESC, SAVIA) made sizeable investments outside Mexico.

The third phase began in 2000 and marked the start of strong growth in Mexican foreign investments, which averaged US\$ 6.3

billion per year in 2001-2010, setting a new record of US\$ 12.694 billion in 2010. During this period, most Mexican transnationals launched operations in Latin America and North America. A number of companies also invested in Europe, while CEMEX invested in Africa and in Asia and Oceania and GRUMA invested in Asia and Oceania. In 2008, of the nine Latin American companies that were among the 100 largest non-financial transnational companies from developing countries, four were Mexican (CEMEX, América Móvil, Teléfonos de México and FEMSA) (UNCTAD, 2010).

During this phase investments were distributed across a wider range of sectors, although the services sector received the largest proportion with major investments by Telmex/América Móvil, Televisa, Grupo Casa Saba, Grupo ICA, Grupo Posadas, Grupo Elektra and CIE. However, manufacturing continued to attract a large share of Mexican investments with CEMEX remaining a major foreign investor, together with Bimbo and Sigma in the food sector, Embotelladora Arca, Grupo Femsas and Grupo Modelo in beverages, Grupo IMSA in metallurgy, Grupo Alfa in the food and chemical and petrochemical products sectors (as well as in information technology services), Grupo Mabe in white goods and Grupo Sanluis Rassini and Metalsa in metalworking. Grupo México stands out for its operations in the primary sector, making substantial investments in the mining sector, particularly in Peru.

Mexican transnationals have adopted mainly market-seeking strategies in recent years, although other elements have also been visible, including identifying strategic advantages (increased market shares, alliances with transnational companies and customer follow-up) and competitive edges (improved products, enhanced production processes and logistics, as well

as the creation of regional brands). In 2010 Mexican companies were particularly active in further developing their internationalization strategies. The United States was the main destination for their merger-and-acquisition investments, accounting for 56% of total investments in that category, followed by South America (27%) and Europe (15%). Greenfield investments were concentrated in Latin America and the Caribbean, which accounted for 51% of announced new projects in 2003-2010, compared with 86% in 2010 (fDi Markets, 2011). As a result of these developments, some Mexican companies are highly internationalized.

The heavy concentration in the United States of Mexican companies seeking to expand their market and enjoy the benefits of operating in the world's largest economy turned severely against them during the financial crisis, which hit the United States economy especially hard.

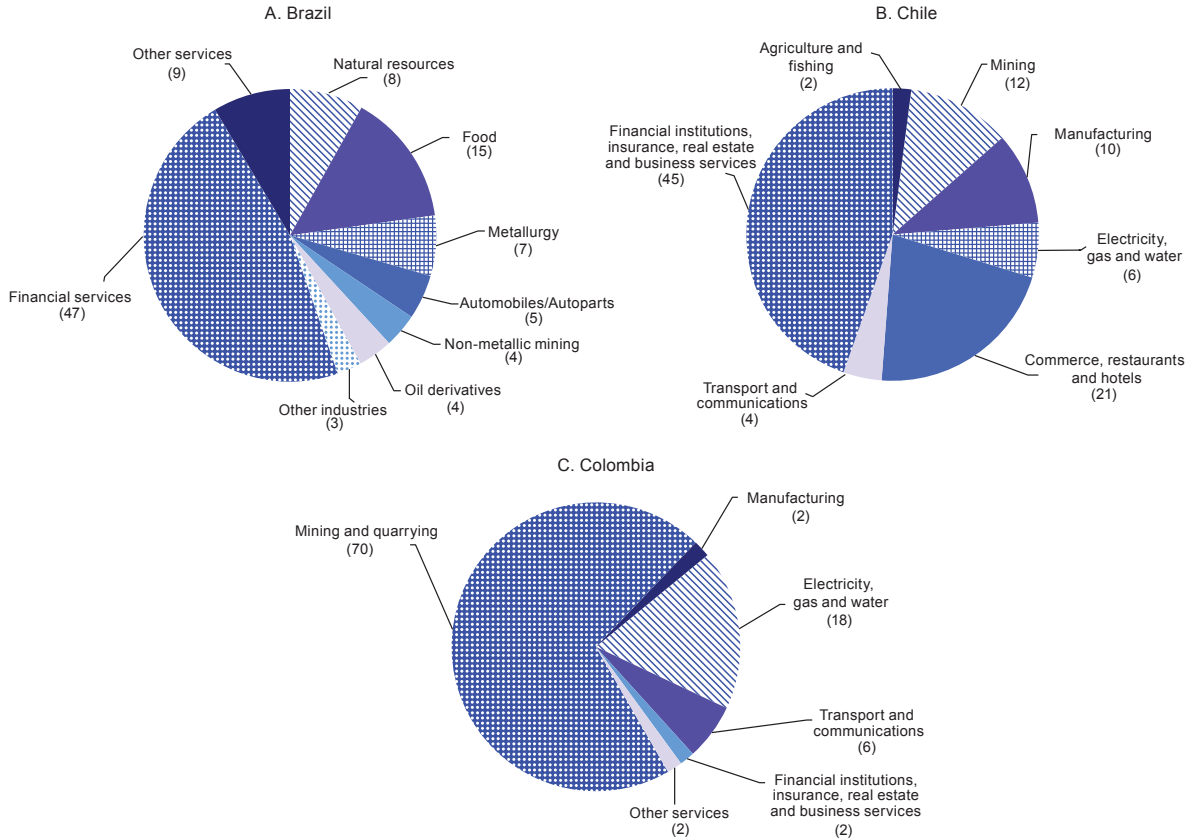
The advantages of an internationalized production sector for the Mexican economy, and indeed for other economies, include the opportunity to exploit other markets (stable growth, foreign-currency financing, favourable interest rates, increased demand, economies of scale); advantages arising from intra-industry and intra-company trade as a tool for penetrating markets; access to new technologies, knowledge and managerial standards; enhanced capacity for research and development activities; production linkages; and capital market stimulation. However, it is also necessary to strengthen institutions and the industrial policy implemented to link these advantages to national productive development, in order to help the corporate benefits of internationalization to spill over to the rest of the economy through national innovation system institutions, development finance institutions and support for local companies.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

Foreign investments by Chilean companies rose by 8% in 2010 to a record of US\$ 8.744 billion. Most of this investment went to other Latin American countries (58% of the total), particularly Brazil (20%), Peru (13%), Argentina (11%) and Uruguay (6%), and was concentrated in financial services (45% of the total), the retail trade (21%) and, to a lesser extent, manufacturing (10%) (see figure I.23). Substantial investments were announced by Cencosud (supermarkets) in Argentina, Brazil, Colombia and Peru and by Falabella (department store)

in Argentina and Peru. Major transactions in 2010 include investments by Cementos Bío Bío in Peru (joint venture with the Brazilian company Votorantim) and others by the software and information technology services company Sonda in Argentina, Brazil and Mexico totalling more than US\$ 90 million, as well as the acquisition of Eitzen Bulk Shipping of Denmark by the shipping company Ultragas for US\$ 93 million. In addition, the merger of LAN Airlines and TAM Airlines is pending approval by the Chilean regulatory bodies (see box I.3).

Figure I.23
BRAZIL, CHILE AND COLOMBIA: DISTRIBUTION OF OUTWARD FOREIGN DIRECT INVESTMENT BY DESTINATION SECTOR, 2010^a
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), estimates on the basis of official figures as at 15 April 2011.
^a The information for Brazil includes only capital contributions.

Colombia's foreign investment totalled US\$ 6.504 billion in 2010, double the amount recorded in 2009, making the country one of the region's largest investors. Investments were concentrated in the mining and quarrying sector, which accounted for US\$ 4.5 billion or 70% of total outward FDI (see figure I.23). Investments in this sector included projects by ECOPEPETROL in, Brazil, Peru and the United States which will continue in 2011. Several services companies were also active investors in 2010, including Grupo Aval Acciones y Valores which purchased BAC Credomatic in Central America for US\$ 1.92 billion, the State energy distributor Empresas Públicas de Medellín, which acquired Distribución Eléctrica Centroamericana II for US\$ 605 million, and the State company Interconexión Eléctrica, which invested US\$ 499 million in Cintra Concesiones of Chile. Other notable investments include several by Cementos Argos in the Dominican Republic, Haiti, Panama and the United States.

The Bolivarian Republic of Venezuela increased its foreign direct investment by 30% in 2010 to US\$ 2.39 billion, a large proportion of which went to the oil sector and formed part of the expansion of the State company

PDVSA. However, investments were also made in the financial sector, including by the National Development Fund Group, which purchased a substantial share in Banco AKB Yevrofinans Mosnarbank of the Russian Federation, as well as in the commercial sector, including investments by Becoblohm Valencia in Costa Rica and by the information technology services company Sidif in Chile, Nicaragua and Peru.

In the countries comprising the Central American Isthmus, foreign investments include those by Costa Rican companies such as Britt, which continued its expansion process into Mexico in 2010, and the information technology services provider ITS InfoCom, which made initial investments in Colombia in 2010. Companies in El Salvador have also made major investments abroad, which in 2010 included those by Molinos de El Salvador in Honduras; the Poma Group, which continued investing in the hotel, property and automobile distribution sector, including in Costa Rica and Panama; and Grupo Agrisal which continued investing in the Costa Rican property sector. In addition, Grupo Taca of El Salvador formed an

alliance with the Colombian airline Avianca (see box I.3). In 2010, several Guatemalan companies also invested abroad, including Grupo Pharma which invested US\$ 25 million in the south of Mexico and in new pharmacies in El Salvador, and Grupo G&T Continental which invested in El Salvador. Several Nicaraguan companies also invested abroad in 2010, including Banco Lafise in Colombia, Costa Rica, Honduras, Mexico and Panama (see chapter II).

Panama is consolidating its strategy to attract international companies, as a result of which more global investments are made from this country than from any other country in the subregion. The dynamic investment activities of Panama-based companies as foreign investors include recent investments by the Copa airline in Aero República (see box I.3), the Bladex banks in Brazil, Mexico and Peru, Banco General in Costa Rica and the insurance company Assa in Costa Rica, as well as companies

such as Silva Tree in the United Kingdom and Overseas Clearing Corporation in New Zealand. In short, foreign direct investment by companies based in the countries of the Central American Isthmus is concentrated within the subregion and in its two extremes: Colombia and Mexico.

In the Caribbean, the Dominican Republic, Jamaica and Trinidad and Tobago have joined the group of countries with major foreign investors in recent years. Investments from these Caribbean countries include those by Digicel Group, an Irish-owned company based in Jamaica, in the mobile telephone provider of Fiji (Digicel Pacific) for US\$ 132 million and Cervecería Nacional Dominicana CxA (Grupo León Jiménez) in the brewery companies St. Vincent Brewery, Antigua Brewery and Dominica Brewery & Beverages Ltd. for US\$ 31 million. In addition, Bermudez Group of Trinidad and Tobago announced investments in the Costa Rican food sector totalling US\$ 2.5 million.

E. Concluding remarks

FDI in Latin America and the Caribbean rose by 40% in 2010 to US\$ 113 billion and increased more than in any other region of the world since the global financial crisis, as the developing countries' share in global FDI flows increased. FDI rose by 10% in developing countries in 2010 but fell for the third year in a row in developed countries, by 7% in 2010, making the developing countries the largest recipients worldwide for the first time. Outward foreign direct investment from Latin America and the Caribbean nearly quadrupled in 2010, exceeding US\$ 43 billion. This growth in inward and outward FDI reflects the increasing internationalization of the region's economies as well as their strengthened economic links. Of total FDI in the Latin American and Caribbean region in 2010, 10% came from within the region itself. As well, 47% of the mergers and acquisitions and 59% of the greenfield investments announced by trans-Latin companies in 2010 targeted the Latin American and Caribbean region itself.

FDI in South America rose by 56% in 2010. Brazil was the largest recipient and attained a new high. A new FDI record was also set in Peru. Chile received US\$ 15.095 billion, while Argentina and Colombia received FDI in excess of US\$ 6 billion. Meanwhile, FDI in Mexico rose by 17% over the 2009 figure, making it the region's second largest recipient. FDI in the Central American Isthmus climbed again in 2010, by 16%, and was led by Panama and Costa Rica which together drew

64% of all flows into the subregion. El Salvador was the only country in the subregion to see a contraction in FDI inflows, continuing a downward trend that had started in 2009. In the Caribbean, inward FDI fell by 18% in 2010; the Dominican Republic was the subregion's largest recipient, accounting for 42%. Although the countries of Central America and the Caribbean received small amounts of FDI in absolute terms, theirs were the largest amounts in relation to GDP.

By sector of investment in Latin America and the Caribbean, FDI trends varied significantly among the subregions. In South America, 43% of FDI in 2010 went to natural-resources-related fields, while services and manufacturing accounted for 30% and 27% respectively. In the subregion comprising Mexico, the Central American Isthmus and the Caribbean, FDI flows were concentrated in manufacturing (54%) and services (41%), while the natural resources sector received only 5%. The data on new FDI projects announced show the low- and medium-low-tech sectors bringing in most FDI in Latin America and the Caribbean. New investments in the medium-high-tech sectors and in projects associated with research and development activities have increased in recent years, but the region's share in high-tech FDI projects remains small compared with other regions worldwide and these projects are almost all located in Brazil and Mexico. Brazil received the largest amount of FDI in high-tech

investments in absolute terms, but Mexico received more as a percentage of all new projects: 10%, compared with only 6% in Brazil. In terms of origin, the United States continues to be the main investor in the region, followed by the Netherlands, China, Canada and Spain.

The investments of Latin American and Caribbean transnationals resumed their growth of the past decade to set a new record of US\$ 43 billion in 2010. The main sources of FDI flows were Mexico and Brazil, followed by Chile and Colombia. These four countries accounted for 92% of total outward FDI from the region in 2010. Outward FDI from the countries of the Central American Isthmus also climbed significantly and their rising outward flows have strengthened the region's position as a global investor. In the past decade the share of Latin America and the Caribbean in FDI from developing countries rose from 5% to 17%. Latin American and Caribbean companies have internationalized in the basic industries in particular, including hydrocarbons, mining, cement, pulp and paper and the iron and steel industry, in mass consumption

manufacturing segments such as food and beverages and in certain services such as energy, telecommunications, air transport and the retail trade.

In view of the importance of FDI flows, greater efforts must be made to better understand the impact of FDI in the region which, as noted earlier, constitutes a long-term research agenda. The growing investment activity of trans-Latin companies also needs to be analysed in order to shed light on the potential impact in investor countries together with possible support measures and policies. As mentioned earlier, it is important to consider not only the potential benefits of the internationalization of Latin American and Caribbean companies but also the arguments against a proactive support policy. In short, the region is undergoing increasing globalization and internationalization and FDI is at the heart of that process. The research agenda should include understanding the repercussions of this process and the manner in which a proactive industrial policy can contribute to enhancing its benefits for the region's economic development.

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Annex

Table I.A-1
CLASSIFICATION OF MANUFACTURING INDUSTRIES BY TECHNOLOGY INTENSITY

Technology intensity	Industry ^a	ISIC Rev.3
High	Pharmaceuticals	2423
	Manufacture of office, accounting and computing machinery	30
	Manufacture of radio, television and communication equipment and apparatus	32
	Manufacture of medical, optical and precision instruments and watches	33
Medium-high	Manufacture of chemicals and chemical products (except pharmaceuticals)	24 except 2423
	Manufacture of machinery and equipment n.e.c.	29
	Manufacture of electrical machinery and apparatus n.e.c.	31
	Manufacture of motor vehicles, trailers and semi-trailers	34
	Manufacture of railway and tramway locomotives and rolling stock, and other transport equipment n.e.c.	352 and 359
Medium-low	Manufacture of coke, refined petroleum products and nuclear fuel	23
	Manufacture of rubber and plastics products	25
	Manufacture of other non-metallic mineral products ²⁶	
	Manufacture of basic metals and fabricated metal products, except machinery and equipment	27 and 28
	Building and repairing of ships and boats	351
Low	Manufacture of food products, beverages and tobacco products	15-16
	Manufacture of textiles, wearing apparel; dressing and dyeing of fur, tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	17-19
	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	20
	Manufacture of paper and paper products, and publishing, printing and reproduction of recorded media	21-22
	Manufacture of furniture; manufacturing n.e.c. and recycling ³⁶⁻	37

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from the Organization for Economic Cooperation and Development, 2009.
^a n.e.c. – not elsewhere classified.

Table I.A-2
**LATIN AMERICA AND THE CARIBBEAN: NET FOREIGN DIRECT INVESTMENT
 INFLOWS BY COUNTRY, 2000-2010**
(Millions of dollars)

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Anguilla ^a	43.0	34.7	38.2	34.4	91.8	117.3	143.2	120.0	101.0	46.3	24.6
Antigua and Barbuda ^a	66.6	111.9	79.7	179.4	95.2	221.0	361.0	340.5	176.2	121.3	107.9
Argentina	10 418.3	2 166.1	2 148.9	1 652.0	4 124.7	5 265.2	5 537.0	6 473.0	9 725.6	4 017.1	6 193.0
Bahamas ^b	469.1	492.6	312.4	641.7	632.4	911.5	1 159.4	746.2	838.9	664.0	499.1
Barbados	19.4	18.6	64.6	121.7	24.0	127.6	244.7	337.8	267.2	159.7	...
Belize	23.3	61.2	25.4	-10.9	111.5	126.9	108.8	143.1	179.9	112.5	100.0
Bolivia (Plurinational State of)	733.9	703.3	674.1	194.9	82.6	-290.8	277.8	362.3	507.6	425.7	650.8
Brazil	32 779.2	22 457.4	16 590.2	10 143.518	145.9	15 066.3	18 822.2	34 584.9	45 058.2	25 948.6	48 461.5
Chile	4 860.0	4 199.8	2 550.0	4 307.4	7 172.7	6 983.9	7 298.4	12 533.6	15 150.0	12 874.0	15 095.0
Colombia	2 436.5	2 541.9	2 133.7	1 720.5	3 015.6	10 252.0	6 656.0	9 048.7	10 596.3	7 137.2	6 759.9
Costa Rica	408.6	460.4	659.4	575.1	617.3	861.0	1 469.0	1 896.0	2 021.0	1 322.6	1 412.0
Dominica ^a	20.3	20.6	20.7	31.9	27.5	19.2	28.9	47.9	56.8	41.9	31.4
Ecuador	720.0	1 329.8	783.3	871.5	836.9	493.4	271.4	194.2	1 000.5	319.0164.1	
El Salvador ^c	173.4	279.0	470.2	141.7	376.3	511.2	241.1	1 508.4	784.2	430.6	89.0
Grenada ^a	39.4	60.8	57.4	90.5	66.3	70.2	95.6	167.4	148.1	104.0	90.4
Guatemala ^a	229.6	498.5	205.3	263.3	296.0	508.2	591.6	745.1	753.8	573.7	678.3
Guyana	67.1	56.0	43.6	26.1	30.0	76.8	102.4	110.3	179.1	221.9	198.0
Haiti	13.3	4.4	5.7	13.8	5.9	26.0	160.0	74.5	34.4	37.4	150.4
Honduras	381.7	304.2	275.2	402.8	546.7	599.8	669.1	927.5	1 006.4	523.2	797.5
Jamaica	468.3	524.9	404.9	604.4	541.6	581.5	882.2	866.5	1 436.6	540.9	...
Mexico	18 097.9	29 759.3	23 631.0	16 590.5	23 815.6	22 344.7	19 779.4	29 714.0	25 864.0	15 206.0	17 725.9
Montserrat ^a	2.3	0.6	0.6	2.1	2.8	0.8	4.0	6.5	12.6	2.6	2.1
Nicaragua	266.5	150.1	203.8	201.2	249.8	241.1	286.8	381.7	626.1	434.2	508.0
Panama	623.9	467.1	98.6	770.8	1 012.3	962.1	2 497.9	1 776.5	2 401.7	1 772.8	2 362.5
Paraguay	104.1	84.2	10.0	25.0	27.7	35.5	95.0	201.8	208.5	98.8	268.1
Peru	809.7	1 144.3	2 155.8	1 335.0	1 599.0	2 578.7	3 466.5	5 491.0	6 923.7	5 575.9	7 328.0
Dominican Republic	952.9	1 079.1	916.8	613.0	909.0	1 122.7	1 084.6	1 667.4	2 870.1	2 165.4	1 625.8
Saint Kitts and Nevis ^a	99.0	90.3	81.1	77.9	53.1	93.0	114.6	140.7	183.8	136.0	128.2
Saint Vincent and the Grenadines ^a	37.8	21.0	34.0	55.2	66.1	40.1	109.8	132.0	159.2	106.8	92.6
Saint Lucia ^a	58.2	63.0	57.1	111.8	81.0	78.2	237.7	277.4	166.2	152.0	104.5
Suriname	-148.0	-26.8	145.5	200.7	286.2	398.5	322.7	178.6	123.7	241.6	212.8
Trinidad and Tobago ^a	679.5	834.9	790.7	808.3	1 001.0	940.0	883.0	830.0	2 800.8	709.1	549.4
Uruguay	273.5	296.8	193.7	416.4	332.4	847.4	1 493.51	329.5	1 809.4	1 258.4	1 626.9
Venezuela (Bolivarian Republic of)	4 701.0	3 683.0	782.0	2 040.0	1 483.0	2 589.0	-508.0	1 008.0	349.0	-3 105.0	-1 404.0

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates as at 15 April 2011.

^a The amount shown for FDI in 2010 is an official estimate.

^b The data shown for 2010 correspond to the cumulative amount at the third quarter.

^c In the fourth quarter of 2009, El Salvador updated its methodology for measuring FDI, as a result of which companies' liabilities are deducted from the data for 2010 and only net FDI data are given.

Table I.A-3
LATIN AMERICA AND THE CARIBBEAN: NET FOREIGN DIRECT INVESTMENT INFLOWS
BY DESTINATION SECTOR, 2005-2010^a
(Millions of dollars)

	2005	2006	2007	2008	2009	2010
Anguilla^b						
Natural resources	0	0		4	3	...
Manufactures		0	0	0	0	...
Services	60	72	78	39	30	...
Other	31	0	0	0	0	...
Antigua and Barbuda^b						
Natural resources		0	0	0	0	...
Manufactures		0	0	0	0	...
Services	75	259	245	78	65	...
Other	100	29	27	29	10	...
Argentina						
Natural resources	1 960	3 123	2 130	1 278	1 264	...
Manufactures	2 606	2 766	3 079	5 544	-527	...
Services	2 239	1 701	2 266	3 565	2 378	...
Belize						
Natural resources	8	12	9	37	7	13
Manufactures	0	0	0	0	0	0
Services	114	83	101	127	97	82
Other	5	14	34	16	9	5
Bolivia (Plurinational State of)						
Natural resources	363	146	441	862	...	...
Manufactures	31	52	89	102	...	...
Services	274	308	343	368	...	...
Brazil						
Natural resources	1 722	1 835	4 806	15 085	7 503	19 879
Manufactures	5 411	7 851	16 074	15 791	12 810	18 708
Services	7 521	8 950	13 163	13 785	6 162	12 212
Chile^c						
Natural resources	595	3 384	6 607	4 625	7 013	6 203
Manufactures	199	1 149	-431	1 616	460	341
Services	1 003	2 766	6 358	8 939	5 229	8 040
Other	...	244	215	256	525	511
Colombia						
Natural resources	3 288	3 786	4 474	5 231	5 742	4 969
Manufactures	5 513	803	1 867	1 748	536	594
Services	1 451	2 067	2 709	3 605	924	1 197
Costa Rica						
Natural resources	37	66	-10	426	68	-9
Manufactures	375	432	722	553	412	828
Services	450	967	1 181	1 001	845	587
Other	-1	4	4	41	22	18
Dominica^d						
Natural resources	0	0	9	8	6	...
Manufactures	0	0	0	0	0	...
Services	4	0	15	20	14	...
Other	12	24	12	17	12	...

Table I.A-3 (continued)

	2005	2006	2007	2008	2009	2010
Ecuador						
Natural resources	222	-69	-77	263	45	168
Manufactures	75	90	99	206	127	123
Services	196	250	173	536	145	-127
El Salvador						
Natural resources	0	29	10	5	1	1
Manufactures	317	17	21	28	56	-58
Services	191	182	1 315	480	165	147
Other (maquila)	4	0	101	26	72	-1
Guatemala						
Natural resources	150	69	70	174	139	...
Manufactures	131	175	210	175	51	...
Services	219	328	437	369	401	...
Other	9	20	28	36	9	...
Grenada^d						
Natural resources	0	0	0	0	0	...
Manufactures	1	0	4	3	2	...
Services	37	48	94	101	56	...
Other	9	19	31	8	22	...
Haiti						
Natural resources	3	1	9	4	6	13
Manufactures	5	7	7	3	4	5
Services	2	151	56	20	26	129
Other	1	2	4	2	2	3
Honduras^{d,e}						
Natural resources	53	44	11	5	9	2
Manufactures	270	227	384	215	143	210
Services	263	359	515	681	348	307
Other	14	38	18	0	0	0
Mexico^d						
Natural resources ²³³	414	1 883		4 373	464	594
Manufactures		11 007	9 923	12 125	6 384	10 585
Services		10 683	8 980	13 270	6 122	6 546
Nicaragua						
Natural resources ⁰	15	11		38	12	184
Manufactures		87	63	121	96	108
Services		155	109	250	460	178
Other		0	101	0	32	38
Panama						
Natural resources ⁰	-108	1	-59	-28		...
Manufactures		-62	105	129	161	48
Services		1 693	2 531	1 765	2 106	1 755
Other		-696	19	2	-11	-3
Paraguay^e						
Natural resources		-2	-36	-2	3	8
Manufactures		-16	61	8	149	-96
Services		53	70	196	57	186

Table I.A-3 (concluded)

		2005	2006	2007	2008	2009	2010
Peru^f							
Natural resources ²			735	3 923	3 783	3 965	...
Manufactures		-78	433	1 361	1 026	570	...
Services		-272	345	4 695	5 527	1 969	...
Dominican Republic							
Natural resources ³	100			76	414	758	311
Industry/Commerce		199	259	188	583	120	308
Services		718	1 039	1 245	1 929	1 216	954
Other		175	131	70	45	64	53
Saint Kitts and Nevis^b							
Natural resources		0	0	0	0	0	...
Manufactures		0	0	0	0	0	...
Services		1	0	37	69	43	...
Other		40	24	7	12	8	...
Saint Lucia^b							
Natural resources		0	0	0	0	0	...
Manufactures		0	0	0	0	0	...
Services		27	174	167	106	73	...
Other		28	1	21	13	9	...
Saint Vincent and the Grenadines^b							
Natural resources ²	0	0	0	0			...
Manufactures		0	0	0	0	0	...
Services		11	48	52	56	39	...
Other		1	4	23	18	23	...
Trinidad and Tobago							
Natural resources ⁸			736	711	534	612	...
Manufactures		15	16	21	14	11	...
Services		47	62	56	58	39	...
Other		65	69	43	2 194	47	...
Uruguay							
Natural resources ²			...	...	...	...	...
Manufactures		26	...	...	...	...	...
Services		248	...	...	...	...	...
Other		310	...	...	...	...	...
Venezuela (Bolivarian Republic of)							
Natural resources ¹	-1 958	-180	-230	0			...
Manufactures		0	0	0	0	0	...
Services		492	369	673	469	-354	...
Other		1 076	999	153	110	-2 751	...

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures and estimates from the central banks of the respective countries as at 15 April 2011.

^a Data may not correspond to those reported in the balance of payments.

^b Does not include the sale of land or reinvested earnings.

^c FDI in 2005 corresponds to investments made under Legislative Decree 600.

^d Manufacturing data include maquila.

^e Data for 2010 correspond to the cumulative total at the third quarter.

^f Data for 2007 correspond to the sectoral breakdown of long-term foreign capital, taking into account direct foreign investment, disbursements of long-term loans and bonds (Central Bank of Peru).

Table I.A-4
LATIN AMERICA AND THE CARIBBEAN: NET FOREIGN DIRECT INVESTMENT INFLOWS BY COUNTRY OF ORIGIN, 2005-2010^a
(Millions of dollars)

	2005	2006	2007	2008	2009	2010
Anguilla						
United States	62	68	68	46	30	...
Antigua and Barbuda						
United States	19	0	0	0	0	...
Italy	27	0	0	0	0	...
The Caribbean	10	0	0	0	0	...
Other	118	290	255	107	75	...
Argentina						
Spain	1 339	2 374	1 774	691	1 037	...
Switzerland	281	39	276	713	507	...
Uruguay	-364	16	115	320	496	...
Bermuda	-185	159	207	99	437	...
Germany	71	253	465	368	314	...
United States	1 263	816	711	2 010	249	...
Chile	605	517	469	787	233	...
Netherlands ¹ 055	110		589	1 152	211	...
Brazil						
Luxembourg	-44	397	5 864	6 292	-483	8 941
Switzerland	368	1 572	819	1 335	34	6 466
United States	4 034	2 784	3 744	5 007	1 963	5 382
Netherlands	979	3 317	7 634	3 916	4 260	2 820
Japan	572	826	81	4 316	1 709	2 439
Mexico	1 242	502	-27	1 197	-681	2 317
Chile	217	97	677	-108	1 611	1 415
Chile						
United States		111	3 726	2 272	2 278	2 802
United Kingdom		756	704	438	671	1 813
Canada		498	2 612	1 667	841	1 611
Bermuda		2 029	1 283	1 010	2 054	1 600
Spain		822	1 088	2 210	1 756	1 243
Colombia						
Panama	208	240	477	760	337	620
Anguilla	0	0	1 020	1 184	46	455
Bermudas	222	8	12	31	287	328
United Kingdom	3 747	17	35	200	386	191
Canada	2	18	8	52	78	163
United States	1 410	1 524	1 389	1 742	1 234	-241
Costa Rica						
United States	532	695	940	1 301	683	772
Spain	14	10	54	76	78	82
Canada	55	336	96	63	33	36
United Kingdom	13	21	20	16	28	32
Netherlands	0	26	266	24	26	29
El Salvador	21	33	41	65	26	26

Table I.A-4 (continued)

	2005	2006	2007	2008	2009	2010
Dominica						
The Caribbean	0	0	0	8	6	...
Taiwan Province of China	0	0	2	2	1	...
United Kingdom	0	0	0	0	0	...
United States	0	0	0	0	0	...
Italy	0	0	0	0	0	...
Canada	0	0	0	0	0	...
Germany	0	0	0	0	0	...
Ecuador						
Panama	76	67	77	73	118	136
Canada	29	-252	49	44	53	79
China	-20	12	85	47	56	44
Uruguay	6	15	2	-32	-12	40
Bahamas	28	-17	-117	-25	-2	38
Netherlands	-43	38	8	-4	5	17
Spain	3	7	85	128	73	16
El Salvador						
Panama	42	68	841	321	80	81
United States	332	13	499	129	74	112
Guatemala	...	...	...	...	...	47
Peru	...	...	...	...	...	20
Costa Rica	...	...	...	...	...	7
Spain	...	...	...	...	...	-43
Guatemala						
United States	192	198	326	229	151	...
Spain	56	56	42	66	64	...
Canada	3	4	25	54	74	...
United Kingdom	9	13	63	66	58	...
Mexico	26	83	76	76	50	...
Republic of Korea	43	45	13	4	23	...
Honduras^b						
United States	303	339	460	339	281	65
Costa Rica	-2	2	8	2	6	48
United Kingdom	48	49	103	71	-37	32
Canada	17	107	139	37	23	29
Ireland	0	0	0	214	19	12
Guatemala	25	17	15	40	19	5
Mexico						
Netherlands	3 983	2 798	5 687	1 751	2 047	8 659
United States	11 886	12 929	12 372	10 593	6 750	4 892
Spain	1 289	1 779	5 380	4 880	2 639	1 305
Canada	471	594	291	3 042	1 600	756
Brazil	46	50	25	88	124	351
Germany	335	629	623	525	22	241

Table I.A-4 (continued)

	2005	2006	2007	2008	2009	2010
Nicaragua						
Canada	43	14	32	69	51	167
United States	51	53	84	52	60	98
Mexico	36	53	128	164	48	89
Venezuela (Bolivarian Republic of)	0	0	47	132	147	29
Spain	17	10	45	59	26	33
Panama						
Spain		172	271	188	371	...
United States		121	230	492	343	...
Mexico	-28	79	68	69	199	...
Colombia	-283	102	407	49	170	...
Nicaragua		101	151	205	137	...
Switzerland		282	190	-122	128	...
Argentina	19	-152	66	58	94	...
United Kingdom		1 594	-13	460	31	...
Paraguay						
United States	20	84	107	190	111	193
Spain	9	7	19	11	16	23
Brazil	10	52	41	42	-26	11
Panama	-7	-12	26	-13	0	6
United Kingdom	-7	-1	1	-2	3	4
Portugal	0	-37	1	3	0	3
Peru						
Chile	-82	62	32	591	181	...
Italy	-504	65	-22	414	0	...
South Africa	268	467	0	405	0	...
Norway	5	15	0	276	0	...
France	0	0	-30	148	4	...
Dominican Republic						
Mexico	-1	84	-124	1 055	273	369
Canada	111	142	113	383	773	329
United States	457	662	536	360	460	307
Spain	215	308	604	181	154	299
Venezuela (Bolivarian Republic of)	6	17	53	11	31	140
Netherlands	41	41	54	-73	96	62
Saint Kitts and Nevis						
United States	15	0	10	16	10	...
United Kingdom	0	0	4	8	5	...
Canada	0	0	0	19	0	...
Germany	0	0	0	0	0	...
France	0	0	0	0	0	...
The Caribbean	2	0	0	0	0	...
Saint Lucia						
United States	0	0	0	20	14	...
United Kingdom	6	51	28	0	0	...
The Caribbean	0	15	22	0	0	...
Italy	0	4	9	0	0	...
Saudi Arabia	0	0	0	0	0	...
France	0	0	0	0	0	...

Table I.A-4 (concluded)

	2005	2006	2007	2008	2009	2010
Saint Vincent and the Grenadines						
United Kingdom	38	50	74	73	61	...
United States	0	0	0	0	0	...
France	0	0	0	0	0	...
Germany	0	0	0	0	0	...
Italy	0	0	0	0	0	...
The Caribbean	0	0	0	0	0	...
Trinidad and Tobago						
United States	694	627	574	403	469	...
United Kingdom	165	150	159	146	152	...
Germany	41	38	43	30	32	...
India	16	27	21	16	17	...
Canada	1	3	3	2 194	4	...
Other	22	39	29	11	35	...
Uruguay						
Argentina	397	...	...	...	...	...
Brazil	203	...	...	...	...	...
Panama	106	...	...	...	...	...
Paraguay	35	...	...	...	...	...
Bahamas	29	...	...	...	...	...
Other	78	...	...	...	...	...
Venezuela (Bolivarian Republic of)						
Spain	40	274	295	237	...	...
Netherlands	53	-74	203	84	...	...
Panama	38	29	53	29	...	...
Colombia	2	9	22	3	...	...
Other	2 474	-832	76	1 363	...	...

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures as at 15 April 2011.

^a The data may not correspond to those reported in the balance of payments. No data are available by country of origin for Grenada, Montserrat and the Plurinational State of Bolivia. The data are arranged by size of FDI source in the last year reported. For data prior to 2005 please see the reports on foreign direct investment prepared by ECLAC for previous years.

^b The data for 2010 correspond to the cumulative amount at the third quarter; includes maquila.

Table I.A-5
LATIN AMERICA AND THE CARIBBEAN: NET FOREIGN DIRECT INVESTMENT OUTFLOWS
BY COUNTRY, OFFICIAL FIGURES, 2000-2010
(Millions of dollars)

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Argentina	901	161	-627	774	676	1 311	2 439	1 504	1 391	710	2 390
Barbados	1	1	0	1	4	9	44	82	63	41	...
Belize	0	0	0	0	0	1	8	7	10	4	3
Bolivia (Plurinational State of)	3	0	0	0	0	0	3	4	5	-4	...
Brazil	2 282	-2 258	2 482	249	9 807	2 517	28 202	7 067	20 457	-10 084	11 500
Chile	3 987	1 610	343	1 606	1 563	2 183	2 171	2 573	8 040	8 061	8 744
Colombia	325	16	857	938	142	4 662	1 098	913	2 254	3 088	6 504
Costa Rica	8	10	34	27	61	-43	98	263	6	7	80
El Salvador	-5	-10	-26	19	-3	113	-26	100	16	23	1
Guatemala	...	10	22	46	41	38	40	25	16	23	29
Honduras	7	3	7	12	-6	1	1	1	-1	1	9
Jamaica	74	89	74	116	52	101	85	115	76	62	...
Mexico	...	4 404	891	1 253	4 432	6 474	5 758	8 256	1 157	7 019	12 694
Paraguay	6	6	-2	6	6	6	4	8	8	8	-6
Peru	0	74	0	60	0	0	0	66	736	398	946
Trinidad and Tobago	25	150	106	225	29	341	370	0	700	0	...
Uruguay	-1	6	14	15	18	36	-1	89	-11	2	215
Venezuela (Bolivarian Republic of)	521	204	1 026	1 318	619	1 167	1 524	30	1 273	1 834	...

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures as at 15 April 2011.

Chapter II

Central America, Panama and the Dominican Republic: export-oriented foreign direct investment

A. Introduction

In recent decades, foreign direct investment (FDI) has played an important role in the development process in Central America, Panama and Dominican Republic (hereinafter referred to as the subregion).¹ Since the 1980s, these countries have implemented a series of economic reforms designed to serve as a new model of international integration and economic development, underpinned by trade liberalization, promotion of the export sector and elimination of barriers to FDI. This chapter examines trends in FDI channelled into the subregion, with special attention to export-platform FDI, and analyses the incentives used to attract investments.²

FDI has been the lynchpin of the industrialization process in many developing countries since the start of the twentieth century and, with the deepening of globalization, has become increasingly important (Narula and Lall, 2006; Moran, 2005 and 2006). The subregion is no exception: following trade liberalization and structural reforms,

FDI inflows intensified significantly in real terms, as will be seen below. The outcome has been a pattern of international integration in which the United States emerges as the leading destination for exports from the subregion, the latter's preferred trading partner and its principal foreign investor.

¹ The Central American countries are Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua. With the addition of Panama, the grouping thus formed is referred to as the Central American Isthmus. The Dominican Republic is included in the analysis of this chapter along with this group of countries, since it is a signatory of the Dominican Republic-Central American-United States Free Trade Agreement (CAFTA-DR).

² A detailed economic analysis of FDI flows in 2010 is given in chapter I of this report. There is a scarcity of data relating to FDI in the subregion, particularly for Guatemala, and this makes it difficult to prepare medium- and long-term analyses and to assess the characteristics and even the amounts of the flows received by each country.

Since the Central American economies have small domestic markets and weak consumption levels due to their low per capita income, they engaged at an early stage in a process of regional integration with the creation of the Central American Common Market (CACM) in 1960. Subsequently, they took advantage of the trade preferences for market access provided by the United States through the Caribbean Basin Initiative, which entered into force in 1984, and offered full exemption from import tariffs for a wide range of imports from the beneficiary countries. The Caribbean Basin Initiative and the creation of special export promotion regimes laid the foundations for the development of export platforms for manufactures in the subregion. These subsequently benefited from the expansion of the list of export products through the Caribbean Basin Trade Partnership Act (CBTPA), which entered into force on 1 October 2000. The advance of the integration process has meant that the main groups of firms now operate regionally (Segovia, 2006). More recently, this has led to the emergence of Central American trans-Latin corporations.

The impact of FDI on the host economies is extremely difficult to assess with any degree of certainty since, while empirical evidence suggests that openness and deregulation have boosted FDI flows into developing countries, their impacts are associated with the specific capabilities and features of the host countries and the type of FDI received (Kokko, 1996; Kokko, Tansini and Zejan, 1996; Aitken and Harrison, 1999; Paus, 2005). For the countries of the subregion, indications are that the expansion of extraregional exports of manufactures has been largely based on a labour-intensive model. The presence of FDI was crucial to the creation of the maquila industry and more recently to the expansion of the production and export of services. This trend has a positive impact on the quality of FDI-generated jobs: indeed, although the services sector is labour intensive, investment in this area is conducive to greater skills training for the workers, who are better paid than maquila employees. Moreover, except in the case of very basic call centres, the expansion of the business services sector or others that require ICT support leads to the modernization of infrastructure (broadband, energy, etc.) and of the country's production base.

B. Developments in FDI in the subregion: characteristics and main trends

Different approaches and analytical frameworks have been adopted in studying FDI in the subregion. Much of the literature has focused on FDI determinants,³ in particular on geographical factors or localization economies (Cubero, 2006). A complementary approach has focused on the effects of FDI on variables such as production, fixed investment, human capital, employment and wages, productivity dynamics (through direct impact or externalities), economic growth, the external sector or the real exchange rate.⁴

This section examines the dynamics of FDI through the use of some components of the Dunning (2000) eclectic paradigm, highlighting the role of the efficiency-seeking strategies of firms investing in the countries of the subregion.⁵

First, the four stages of FDI proposed by Rosenthal (2006) from the end of the nineteenth century to the present are reviewed and this is followed by a look at developments in recent decades and the FDI business dynamic of recent years.

The first stage is that of the banana- and gold-producing enclaves —with the paradigmatic case of the transnational corporation United Fruit Company — which spanned the period 1870-1940. This investment generated a strong demand for infrastructure, mainly railways. FDI for the seven countries of the subregion during this period totalled approximately US\$ 200 million and after 1870, a substantial part of this was earmarked to the expansion of the rail network, the most important factor in the increase in exports (Bulmer-Thomas, 2003).⁶

³ The studies referred to are the Dunning (2000) eclectic paradigm, the analytical framework of the United Nations Conference on Trade and Development (UNCTAD) (1998) or that of Caves (1996) or some combination of the above.

⁴ See chapter I; Rodríguez and Robles (2003) and Cubero (2006).

⁵ Some (not all) of the elements of the eclectic paradigm are adopted because one of its dominant strategies in the paradigm is its specific

asset-seeking orientation and because the assets in question are exclusive to foreign companies, are not necessarily observable or quantifiable and would be difficult to capture, since the relevant company microdata are unobtainable.

⁶ The concentration of FDI in just a few sectors prompted many foreign corporations to establish natural monopolies (water) or quasi-monopolies (railways), setting prices and reinforcing the pattern of export specialization rather than diversification.

The second stage, 1950-1970, in tandem with the formation of the Central American Common Market (CACM), placed the emphasis on State-led industrialization (import substitution model)⁷ for the regional market. The economic activity of United States and European firms was driven by the process of economic integration in Central America. These firms, depending on the sector in which they operated and transport costs, defined the production centres needed to achieve sizable market shares in the countries of the subregion. Expansion of the local markets was the first strategic objective of industrial policy, the aim being to sustain operations with minimum efficiency levels. During the early stages of the integration process, foreign investments targeted industries such as food and beverages; chemicals and pharmaceuticals; engineering; and textiles. Their development was underpinned by a tariff structure which allowed for appropriate costs and limited the scope for undercutting by low-cost external competitors (Rosenthal, 1974, 1975).⁸

The third stage, between 1980 and 2005, marked the first break with the State-led industrialization model and the adoption of an export development model, supported by the Washington Consensus, the predominant precept of which was that foreign investment acted as an engine of growth and generated almost automatically positive impacts on the host economies. Under this approach, FDI was another item in the balance of payments and the idea was to maximize these capital flows, which served as a complement to domestic saving.⁹ The most notable feature of this phase was that FDI flows arising from privatizations and acquisitions of State enterprises exceeded FDI flows towards new assets, except in the case of Costa Rica. Moreover, this was the period which saw the launch of the most significant schemes for promoting export manufacturing and maquila industries as well as free zones and inward processing arrangements.¹⁰

⁷ See Cárdenas, Ocampo and Thorp (2000) for a detailed explanation as to why the expression “State-led industrialization” captures better the development strategy of countries than the more commonly used term “import substitution industrialization”.

⁸ As indicated by Aitkenhead (2004), the two policies resulted in the design and implementation of two strategies which characterized, in turn, two types of industrial entrepreneurs: those that took advantage, from the outset, of the regional scope arising from the integration process and who were preparing for a greater level of competition; and those that sought to use the tariff system to strengthen their control of national markets.

⁹ See chapter I, section B.

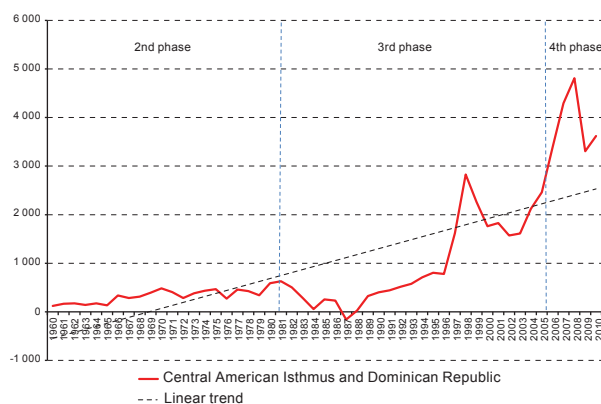
¹⁰ These constitute a customs regime which allows goods to be imported into the national territory free of any type of duty on condition that they are processed or assembled and re-exported within the specified period.

The regional entrepreneurial groups created during the import substitution stage developed into Central American trans-Latins, which expanded strongly thanks to trade openness.

The final phase began in 2006 with the entry into force of CAFTA-DR. The main advantage of this free trade agreement (FTA) lay in the scope for generating new investment flows from the United States and Canada towards the countries of the subregion, which would deepen their specialization as an export platform. The FTA was also expected to bring static and dynamic efficiency gains, together with technological and monetary externalities with differential impacts, both direct and indirect, depending on the branch of activity, sector or enterprise. Such efficiency gains were also expected to impact different transmission mechanisms, economic activity and the welfare of the society as a whole (Rosenthal, 2006).

Figure II.1 illustrates trends in FDI from 1960 to 2010, measured in constant 1982-1984 values. During the second phase, the scale of FDI inflows was not substantial and was not a decisive variable in the development process, since the industrialization model was based on a domestic-market-oriented, import-substitution strategy. In the third stage, on the other hand, during the 1980s and 1990s, following trade liberalization and the wave of privatizations, FDI shot up, reaching US\$ 2.8 million in 1998. At this time, the dominant strategy of the companies, consisting in the export of manufactured goods, sought to take advantage of low labour costs. In the fourth phase, FDI rose to US\$ 4.8 million in 2008, falling back to US\$ 3.3 million in 2009, as a result of the international economic crisis.

Figure II.1
CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC:
FOREIGN DIRECT INVESTMENT INFLOWS, 1960-2010
(Millions of constant 1982-1984 dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.

1. Growth in FDI since the 1980s

Since the 1980s, the countries of the subregion have undergone a process of trade liberalization reinforced first by the Caribbean Basin Initiative, next by the process of Central American integration, and consolidated, more recently, by the entry into force of CAFTA-DR. The pattern of global integration was dominated in the 1980s and 1990s by the important role played by exports (mainly textiles and garments) from the free zones to North America and, in the last decade, by the growing diversification of exports and investments in new remote business services, such as call centres, business process outsourcing (BPO), knowledge process outsourcing (KPO), back office services and new tourism market niches as well as inroads into new technology-intensive value chains such as medical devices, electronics and aircraft maintenance. The closeness to the United States and Canadian markets has prompted major foreign investments in public services such as telecommunications, broadband Internet, logistics and land and maritime transport.

While the reform process was not uniform and took place more or less selectively and gradually depending on the country, trade liberalization has been the most important structural reform implemented in the past 30 years. The subregion now depends, among other things, on export growth and diversification so that the commitments made under the World Trade Organization are a turning point that is leading the countries to move away from the traditional export promotion schemes to new FDI attraction schemes based on different, “new generation” incentives.

FDI flows were notoriously low throughout the subregion in the 1980s, owing in large part to the civil and political conflicts which spanned in El Salvador, Guatemala and Nicaragua.¹¹ Panama, Dominican Republic and Costa Rica were the three countries that attracted the most FDI thanks to their sound business and investment climate (see table II.A-1). Manufacturing for the local market declined during this period and investment flows from the United States and Asia started to arrive. This period also saw the start-up of a process of diversification of exports as part of an effort to strengthen linkages with the United States market (Rosenthal, 2006; Rodríguez and Robles, 2003; CEPAL, 2004a, López and Umaña, 2006).

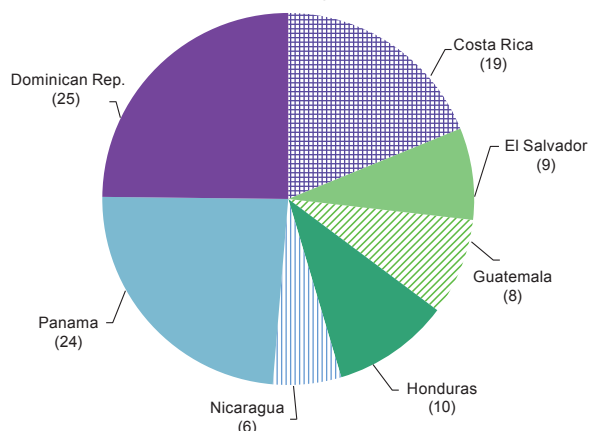
FDI inflows started to pick up in the 1990s from the low levels of the 1980s in the wake of the peace processes launched in the subregion and, above all, as a result of the new business opportunities arising from the privatization of public enterprises—in particular in El Salvador, Guatemala and Nicaragua—the improvement in the business environment and the first active policies introduced to attract FDI. For example, with the establishment of free zones and other special regimes, new fiscal and financial incentive schemes were set up and FDI promotion policies designed. At the same time, a new public institutional framework of investment promotion agencies and consortiums was created to boost exports and bring in investments, against a background of growing international competition, which led to the relocation of production centres across the globe in the quest for lower production costs.

The above developments could explain the dynamic of FDI flows in the 1990s and the differences observed between countries and sectors in terms of the significance of FDI as a percentage of GDP. In absolute terms, the two most successful countries in attracting FDI were Costa Rica (in sectors such as electronics, high technology and tourism) and Panama (logistics, transport, infrastructure, banking, insurance and other services).

As a result of this dynamic, the relative significance of FDI increased in all countries. In the 1990s, inflows trended upwards, registering a boom in 1999-2010, a fall in 2003-2004, followed by a rally, which lasted until 2009 when the outbreak of the international economic crisis put a damper on investment activity. During the period as a whole, Panama, Dominican Republic and Costa Rica received 68% of the FDI channelled into the subregion, followed by Honduras (10%), El Salvador (9%), Guatemala (8%) and Nicaragua (6%) (see figure II.2 and, for a breakdown by country, see table II.A-1). From the mid-1990s, the percentage share of FDI in GDP increased strongly (see figure II.3), the highest values were recorded by Panama and Nicaragua—in the case of the former because FDI inflows were very significant and in the case of the latter because its GDP is relatively low—, while in El Salvador, Guatemala and the Dominican Republic, FDI accounts for a lower percentage of GDP.

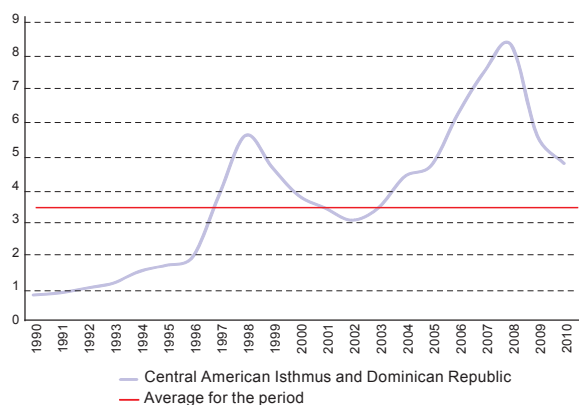
¹¹ Robles (2000) uses econometric evidence to show the existence of structural change and to explain how productivity and investment were boosted following the peace processes in Guatemala, El Salvador and Nicaragua.

Figure II.2
**CENTRAL AMERICAN ISTHMIAN AND THE DOMINICAN REPUBLIC:
 NET FOREIGN DIRECT INVESTMENT INFLOWS
 BY COUNTRY, 1999-2010**
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.

Figure II.3
**CENTRAL AMERICAN ISTHMIAN AND THE DOMINICAN REPUBLIC:
 FOREIGN DIRECT INVESTMENT AS A PERCENTAGE
 OF GDP, 1990-2010**
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.

From a longer term perspective, an outstanding feature is the structural change that has taken place in these countries and the slow transformation of the industrial apparatus due to the decline in textile and clothing exports and the advance of exports of services, especially from call centres and BPO. The purpose of the FDI (to generate export platforms) has not changed, but what have changed are the direction, diversification and type of investment and the products exported. For both sets of companies, export promotion is based on tax incentives complementary to the opening up of the economy, which have helped to redirect resources towards the export sector (Rodríguez and Robles, 2003).

The business dynamic of FDI following the global economic crisis of 2008 was different in the three groups of countries of the subregion.¹² The first group comprises Costa Rica, Dominican Republic and Panama, which accounted for approximately 71% of the FDI flowing into the subregion in 2008 and 2009 and attracted investments, chiefly in the financial services sector, tourism and real estate, mining, remote business services, shared services, contact centres, administrative support, design, architecture and construction, telecommunications, software, energy and manufacturing of varying technological complexity (assembly of electrical appliances, electronic components and semi-conductors).

The second group is made up of El Salvador and Guatemala, which, in 2008-2009, accounted for 15% of total FDI flowing into the subregion. Both countries achieved a noteworthy success in the initial investment attraction phase for the establishment of call centres and BPO, but have started to reveal limitations in their capacity to expand the local supply of qualified and bilingual personnel for upgrading from basic client-service functions to international technical assistance services. In recent years, FDI into El Salvador has been geared to sectors such as aircraft maintenance, agri-business, medical devices, electronics, infrastructure, logistics, specialized textiles and garments, tourism, BPO and medical services. In Guatemala, FDI has expanded to call centres and BPO (15,000 agents and 50 call centres), electronic components, auto parts, medical devices, software and various manufactures (plastics, chemicals, rubber materials, and iron and steel products). New investments have been announced in 2011 for the energy, mining, telecommunications and petroleum sectors.

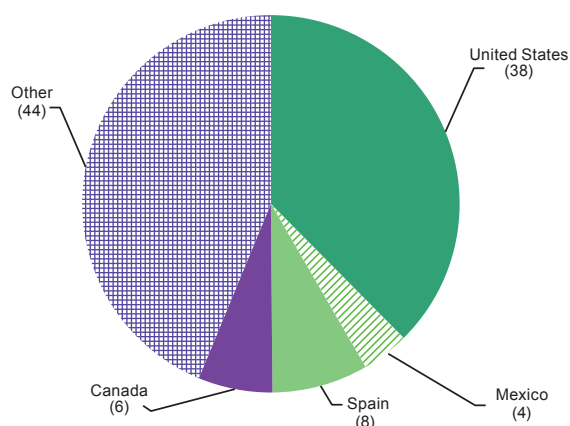
The third group, composed of Nicaragua and Honduras, receives less significant FDI inflows and its free economic zones still have sizable textile and clothing enterprises, although there is a growing effort to attract investments towards call centres and BPO centres, shared corporate services, administrative support offices, agri-business, tourism and renewable energies. This group, like the second, receives about 15% of the subregion's FDI. One noteworthy feature is the transition from textile and clothing manufacturing in the 1990s to business services, call centres and BPO towards the end of the first decade of the millennium. The light manufacturing and assembly industry is one of the highest growth sectors of the Nicaraguan economy and has established itself as an export platform consisting of 138 enterprises operating under the free-zone regime and which includes

¹² See ECLAC (2009b) on the impact of the crisis in the countries of the subregion.

manufacturers of sanitary products and auto parts.¹³ The strategic FDI sectors in Honduras are light manufacturing, the textile and clothing industry, agri-business, forestry, tourism and services.¹⁴

As regards the inward FDI, the United States is the leading investor in the subregion, followed by Spain, Canada and Mexico (see figure II.4). Canada is increasing its investments especially in intermediate- and high-technology manufacturing, business services and tourism.

Figure II.4
**CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC:
NET FOREIGN DIRECT INVESTMENT INFLOWS BY COUNTRY OF
ORIGIN, 1999-2010**
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC) on the basis of official figures.

Outward investments from Central American economies also expanded up to 2008, when the recent financial crisis struck (see table II.1). Of those countries that present official figures, Costa Rica is the principal investor abroad, followed by El Salvador and Guatemala. Panama is a special case: without official data, the United Nations Conference on Trade and Development (UNCTAD) estimates that outflows in the past four years exceeded US\$ 2 billion (UNCTAD, 2010). This amount (which would place Panama in fifth position among Latin American and Caribbean investors) undoubtedly includes many foreign operations established in third countries through subsidiaries in Panama.

Available data reveal that mergers and acquisitions (see table II.2) and investment announcements for 2005-2010 (table II.3) concern almost exclusively the Latin American and Caribbean countries, especially in the subregion itself. These reflect the progress made towards integration in the subregion (ECLAC, 2004a; Martínez and Cordero, 2009a and 2009b).

The Salvadorian group Poma has invested heavily in Costa Rica in the construction of shopping malls and hotels. Banco General and Banco Continental, both of Panama, invested, also in Costa Rica, in the banking and insurance sectors. El Salvador has made significant investments in Honduras in the commercial and hotel sectors and Nicaraguan companies have invested in the Salvadorian financial sector. Panama has received investments from Costa Rica targeting essentially the agri-food sector and from El Salvador, mainly in the commercial sector.

Table II.1
CENTRAL AMERICA: NET FOREIGN DIRECT INVESTMENT OUTFLOWS, 1999-2010
(Millions of dollars)

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 ^a
Costa Rica	5	8	10	34	27	61	-43	98	263	6	7	9
El Salvador	54	-5	-10	-26	19	-3	113	-26	100	16	23	80
Guatemala			10	22	46	41	38	40	25	16	23	29
Honduras	0	7	3	7	12	-6	1	1	1	-1	1	1

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures as at 28 April 2010.

^a Provisional figures.

¹³ The leading companies are ARNECOM (harnesses for motor vehicles); Command Medical (medical devices) and Stainless Ride (stainless steel and other metals). The subsectors with the greatest potential in manufacturing included the medical industry (disposable medical equipment, orthopaedic supports, and medical gowns) and the automobile industry (cable harnesses, parts and accessories).

¹⁴ Some successful cases are worth highlighting: for example, Gildan (textiles), which employs approximately 10,000 persons and Lear Corporation, which, since taking over United Technologies Automotive and its production plants in Honduras, has expanded its operations to three plants and employs 6,700 workers.

Table II.2
CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC: MAIN MERGERS AND ACQUISITIONS, 2005-2010

Country of origin of acquiring company	Acquired by	Company acquired	Destination country	Sector	Millions of dollars
Costa Rica	Florida Ice & Farm Co.	Alimentos Kern de Guatemala SA	Guatemala	Agribusiness	86.0
El Salvador	Grupo Financiero	Securizadora La Construcción	Chile	Financial services	550.0
El Salvador	Poma Automotriz	Mitsubishi Motors Co. Panamá S.A.	Panama	Services	15.0
El Salvador	Investor Group	Ceteco Costa Rica	Costa Rica	Real estate	1.0
Guatemala	Corporación BI	Grupo Financiero del País (Banpaís)	Honduras	Financial services	140.0
Guatemala	Investor Group	Central Azucarera del Tempisque S.A.	Costa Rica	Agribusiness	18.0
Panama	Grupo Banistmo S.A.	Inversiones Financieras Bancosal S.A.	El Salvador	Financial services	172.6
Panama	Thunderbird Resorts Inc.	Hoteles Las Américas S.A.	Peru	Services/leisure	43.5
Panama	Morningstar Investments Inc.	Parmalat Uruguay	Uruguay	Agribusiness	28.6
Panama	V. International Ventures Inc.	Abonos Colombianos S.A.	Colombia	Manufacturing/ agrochemicals	20.1
Panama	Thunderbird Resorts Inc.	Thunderbird Gran Entretenimiento	Costa Rica	Services/leisure	1.7
Dominican Republic	Cervecería Nacional Dominicana	Antigua Brewery Ltd.	Antigua and Barbuda	Beverages and alcohol licores	31.0
Dominican Republic	Cervecería Nacional Dominicana	Dominica Brewery & Beverages	Dominica	Beverages and alcohol	31.0
Dominican Republic	Cervecería Nacional Dominicana	St. Vincent Brewery Ltd.	Saint Vincent and the Grenadines	Beverages and alcohol	31.0
Dominican Republic	Tricom S.A.	Cellcom	Panama	Transport	8.1
Dominican Republic	Consortio Energético Punta Cana-Macao	Roatán Electric Co	Honduras	Energy	0.3

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by Thomson Reuters.

Table II.3
CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC: PRINCIPAL ANNOUNCED INVESTMENTS, 2005-2010

Country of origin	Company	Destination country	Sector	Millions of dollars
Dominican Republic	Caribbean Land Development Group	Peru	Real estate	166.0
El Salvador	Grupo Poma	Costa Rica	Real estate	115.5
El Salvador	Grupo Poma	Panama	Real estate	115.5
El Salvador	Grupo Roble	Colombia	Real estate	100.0
Honduras	Grupo Terra	El Salvador	Coal, oil and natural gas	52.5
Costa Rica	Café Britt	Mexico	Beverages/commerce	45.0
Guatemala	Koramsa	Nicaragua	Textiles	35.6
Costa Rica	Vegetales Fresquitas	Nicaragua	Agribusiness	34.9
Costa Rica	Vegetales Fresquitas	Honduras	Agribusiness	34.9
El Salvador	Molinos de El Salvador (MOLSA)	Honduras	Food and tobacco	34.1
El Salvador	Almacenes Simán	Costa Rica	Commerce	33.7
Guatemala	Banco Industrial	El Salvador	Financial services	31.9
Guatemala	Banco Industrial	Mexico	Financial services	31.9
Panama	Corporación UBC Internacional (UBCI)	Honduras	Financial services	31.9
Guatemala	Corporación G&T Continental	Costa Rica	Financial services	30.8
Guatemala	Corporación G&T Continental	El Salvador	Financial services	30.8
Panama	Banco General SA	Costa Rica	Financial services	30.8
Panama	Grupo Mundial Tenedora S.A.	Costa Rica	Financial services	29.4

Table II.3 (concluded)

Country of origin	Company	Destination country	Sector	Millions of dollars
Honduras	Grupo Karim's	El Salvador	Textiles	27.2
Honduras	Grupo Karim's	Dominican Republic	Textiles	27.2
Guatemala	Grupo Pharma	Mexico	Pharmaceuticals	25.0
Guatemala	Publirollo	Costa Rica	Paper, printing and packaging	14.1
Costa Rica	ITS InfoComunicación	Panama	Software and ICT services	13.7
Costa Rica	ITS InfoComunicación	Peru	Software and ICT services	13.7
Costa Rica	ITS InfoComunicación	United States	Software and ICT services	13.7
Panama	Banco Continental	Costa Rica	Financial services	11.0
Guatemala	Grupo Pharma	El Salvador	Pharmaceuticals	10.0

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by FDI Markets [online] <http://www.fdimarkets.com/>.

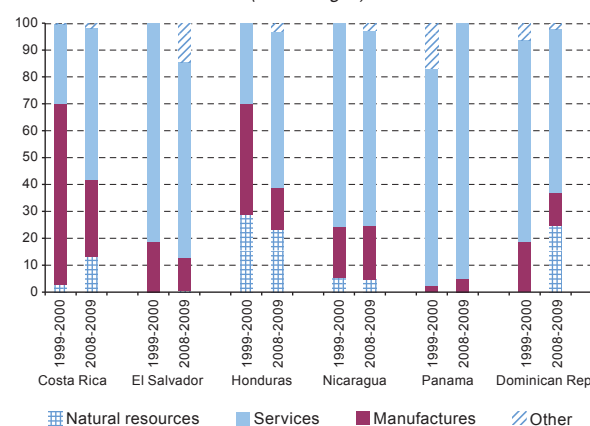
2. Distribution of foreign direct investment by sector, 1999-2010

A study of the distribution of FDI by sector must start with some elements common to all the countries of the subregion. These include the export promotion and investment attraction schemes; competitive advantages based on location factors; relative costs and international trade negotiations; and the change in the production structure.¹⁵

Between 1999 and 2010, FDI sector targets shifted substantially from manufacturing to services, in particular tourism, the real estate industry and remote business services. In 1999, manufacturing was a major target in all countries (except Panama); within a decade, a decline was evident, especially in textiles and garment manufacturing (except in Honduras and Nicaragua), while investments in services expanded in all countries (see figure II.5). The situation in Panama is unsurprising, since it has traditionally received investments in the services sector. In the other countries, FDI has soared, especially in remote business services. In the Dominican Republic, services continue to be significant, but their percentage decline from 80% of total FDI in 1999 to 56% in 2009 and the increase in investment in natural resources are attributable to major investments in mining. Growth in FDI in services in the

other countries was driven by incentives (tax exemptions and financial incentives), which continue to apply to investments in export-oriented activities that operate under special regimes, and by the new export orientation that has been emerging in the past decade. In all of the countries of the subregion —except Guatemala and Panama, for which no detailed information is available, FDI in free zones accounts for a substantial proportion of total FDI.¹⁶

Figure II.5
CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC:
DISTRIBUTION OF FOREIGN DIRECT INVESTMENT
BY SECTOR, 1999-2000 AND 2008-2009
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC) on the basis of official figures.

Note: Guatemala does not appear in the figure owing to the unavailability of data series for selected periods.

¹⁵ FDI distribution by sector is analysed in two ways, bearing in mind the scarcity of data in particular in relation to Guatemala. First, the sectoral economic classification adopted in each country is used to identify the purpose to which the investments are put (for example, industry, commerce, services, construction, communications, electricity, agriculture and fisheries, mining and quarrying, finance) and, for purposes of comparison between countries, these are regrouped in four categories: natural resources, manufacturing, services and others. Second, a distinction is made between investments in activities geared to the export of goods and services) subject to special regimes (free economic zones, inward processing, maquila and temporary admission) and other investments.

¹⁶ In the past five years, FDI in the free economic zones accounted for 24% of total FDI in Costa Rica, 20% in Honduras, 16% in Nicaragua, 10% in El Salvador and 6% in the Dominican Republic.

Specific features of each country are examined below with emphasis on the operations of trans-Latin companies in the subregion:

(a) Panama

This country is the leading FDI recipient in the subregion with a sectoral pattern markedly different from that of the rest, since historically it has been a service economy. The expansion of the Canal, the logistical and multimodal platform, together with the vibrancy of its financial services, remote business services, real estate, construction and tourism sectors, have turned this country into a magnet for investments in the subregion.¹⁷ Apart from investments in national and international licence banking, the Colón Free Zone companies have become a source of growth for the whole economy.

The investment promotion policy focuses on four strategic sectors: logistics, agribusiness, tourism and financial services. Logistics seeks to attract investments in marketing and storage of agroindustrial products. In addition, special economic zones with special incentive legislation are promoted: the Panama-Pacific Special Economic Area, the City of Knowledge, in-bond processing zones and the Colón Free Zone.

Even where no detailed information is available on Panamanian investments abroad, the data on mergers and acquisitions and announcements of new investments indicate that some financial companies in this country have started to penetrate markets in the subregion (for example, Banco General and Assa Compañía de Seguros in Costa Rica) and beyond (Banco Latinoamericano de Comercio Exterior (BLADEX) IN Brazil, Mexico and Peru).¹⁸ The leading manufacturing companies investing abroad are Plastigas, H.B. Fuller and Corrugados de Sula. Investments in commerce, services and foods include those of Alemautos, Arango Software, ASÍ Consultant, Promotional Homes and recent investments of COPA in Aero República, Silva Tree (promoter of socially responsible investments in forestation) in the United Kingdom and Overseas Clearing Corporation in New Zealand.

(b) Dominican Republic

In the medium term, the Dominican Republic attracted strong FDI inflows from export businesses operating in

the free economic zones or companies that produce goods and services for the domestic market. This dynamism was due to the company's very sound macroeconomic performance, the size of its domestic market (in relation to the rest of the subregion) and the proximity to the United States, as well as the reforms introduced in the telecommunications and energy sectors.

In contrast with the pattern, which in the 1990s was concentrated in the textiles and garment sector under free economic zones, in the last decade FDI has diversified to target mining, tourism, the real estate industry, remote business services, medical devices and telecommunications. (Claro-Codetel, Tricom, Viva, Orange Dominicana). The foremost mining project is Barrick Gold Corporation's Pueblo Viejo, which stands at more than US\$ 3 billion (see box II.I). Also investing heavily in this sector were Cementos Atlas, COLAPSEN, Karr Securities Inc./Corporación Minera Dominicana, and Globestar Mining Corporation/Corporación Minera Dominicana.

(c) Costa Rica

Unlike the other countries, Costa Rica realized at an early stage that the textile and clothing industry was losing momentum and launched policies for creation of local skills. More than 200 transnationals responded by investing in intermediate- and high-technology sectors.¹⁹ Currently, the priority sectors identified by the country are services, cutting-edge manufactures, life sciences and clean technologies. More specifically, the priority categories are telecommunications, electrical assembly, electronic components, semiconductors, engineering and software, engineering and repair of printed circuit cards, metalworking and automotive engineering.

Thus, the country is going through a phase of consolidation and expansion of sectors such as electronics, medical devices, aerospace and tourism industries and the free economic zones are consolidating with the presence of companies such as Intel and Hewlett Packard, and business services such as those of Procter & Gamble, Amazon, Oracle, DHL, United Parcel Service (UPS), Western Union y McKinsey. This category—consisting of 113 firms with activities ranging from shared services, call centres and administrative support systems to software design, architecture, construction, interactive and audiovisual advertisement—has grown over the past decade and in 2009 provided employment to 31,747 persons.

¹⁷ The most important national and foreign investments are the expansion of the canal at an estimated cost of US\$ 5.25 billion and the construction of the railway between Balboa and Colón, fibre optic networks, the Pan American central transisthmian highway and three new motorways. In addition, new investments have been made in energy, tourism, construction, banking and finance.

¹⁸ The data on mergers and acquisitions come from Thomson Reuters [online] <http://thomsonreuters.com/> [date of reference: 28 February 2011] and the data on new investment announcements from fDi Markets [online] <http://fdimarkets.com/> [date of reference: 28 February 2011].

¹⁹ Institutions such as the Foreign Trade Corporation of Costa Rica (PROCOMER) and the Costa Rica Investment Promotion Agency (CINDE) played a vital role in the export and investment promotion effort (ECLAC, 2007).

Box II.1

THE PUEBLO VIEJO PROJECT OPERATED BY BARRICK GOLD CORPORATION

Barrick Gold Corporation is the world's largest multinational gold-mining company. The Pueblo Viejo project is being operated in the province of Sánchez Ramírez, located 100 kms. from Santo Domingo, at the site of the former mine which had belonged to Rosario Dominicana S.A., containing one of the most extensive undeveloped deposits of gold.

Rosario Dominicana S.A. exploited the Pueblo Viejo oxide deposits from 1975 to 1999, when the reserves were depleted and operations ceased. The Government of the Dominican Republic subsequently launched an international invitation to tender in which the corporation Placer Dome Dominicana Corporation was successful and in 2001, a Special Contract for Mining Rights was signed by the government and the company Placer Dome Dominicana Corporation. In 2006, Barrick Gold took over Placer Dome's assets worldwide and thereby the rights to the Pueblo Viejo project.

Barrick Gold Corporation sold a 40% share in the project to Goldcorp, retaining 60% in the company, which now bears the name Pueblo Viejo Dominicana Corporation

(PVDC). Barrick is the project administrator and manager. The Special Contract for Mining Rights of Pueblo Viejo was amended and ratified in 2009 by a majority vote in both chambers of the Congress of the Dominican Republic.

The investment required to bring this mine on-stream stands at US\$ 3 billion and will be the biggest foreign investment in the country's history. The mine's useful life is estimated at 25 years with probable reserves evaluated at 20.4 million ounces of gold, 455 million pounds of copper and 131.3 million ounces of silver.

To date, 3,550 work posts have been created and the number will rise to 4,000 during the construction phase. Over 90% are occupied by Dominican workers, the majority recruited from municipalities located close to the project. It is estimated that for each direct job, three indirect jobs in construction will be created, which suggests that approximately 12,000 indirect jobs should have been generated in 2010. This investment has not been free from criticisms, however: various sectors have expressed concern about its environmental and social impacts.

The signatories of the Special Contract for Mining Rights were the State of the Dominican Republic, through the mining commission responsible for invitations to tender, the Central Bank of the Dominican Republic, Rosario Dominicana S.A. and Placer Dome Dominicana Corporation. The State will receive a 3.2% royalty and a 25% income tax. A clause unprecedented in previous agreements between Barrick Gold Corporation and Latin American corporations provides that once the investment is recovered and Pueblo Viejo has obtained a 10% rate of return, Barrick Gold Corporation will pay the State a 28.75% share in the net profit. This will bring the State's share in the project's net income to 50%. It is also agreed that PVDC will provide the State with a fund of US\$ 37.5 million to deal with the environmental problems left by Rosario Dominicana outside of the mining area leased by PVDC. The latter will also contribute to the technical management of the State's rehabilitation plan.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by Barrick Gold Corporation [online] <http://www.barrickdominicana.com/tag/barrick-pueblo-viejo/>.

In the category of life sciences, the production of medical devices was started in the subregion by Baxter Healthcare Corporation, specialists in sterilization and dental laboratories. This industry generates more than 12,000 employees and is made up of 38 companies including Hospira, Boston Scientific, Cytoc-Hologic, ArthroCare, Allergan, St. Jude Medical and Coloplast. This sector ranks fourth among the country's exporters and its external sales have grown three times as fast as the rest of exports from the free economic zones.

Costa Rican investments in the subregion are significant and include the sectors of beverages and commerce (Café Britt and Florida Ice & Farm), software and telecommunications services (ITS InfoComunicación). In addition, Costa Rican investments in Panama have increased considerably thanks to companies such as Constructora Mecó (dry excavation in the expansion of the Canal), the financial group Improsa (investment funds), the Dos Pinos cooperative (agroindustry) and the La Nación group (information services).²⁰

²⁰ Thomson-Reuters and *fDi Markets* (date of reference: 28 February 2011) and Martínez and Cordero (2009a) and (2009b).

(d) Guatemala

FDI inflows into Guatemala have historically been sluggish in comparison with the averages for the subregion and the size of the domestic market. The largest investments were the result of privatizations, particularly of the electricity grid and telecommunications services. Since 2005, higher expectations following the signing of the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR) and the opening up of the services sector, boosted investment flows, thus allowing the insurance companies and other financial services to gain a foot-hold. Guatemala has emerged as a food production and distribution centre for the south of Mexico, Central America, the United States and Canada, thanks to its proximity and rapid access to these markets. The country has a large, competitively-priced labour force and an abundance of raw materials, advantages which trans-Latins such as Bimbo have made good use of.

Textiles and garments have traditionally been the most attractive export manufacturing sector for investors. Since the late 1980s, investment in this sector has benefited

from major incentives and some companies are moving towards vertical integration, to the point of achieving “full-package production” and creating production linkages with local businesses.²¹

More recently, Guatemala has seen a sharp increase in call centres and BPO (24/7, CapGemini, NCO Group, Digitex, Atento, Genpact, Transactel) and has received major investments in banking services, energy (Duke Energy and Ashmore Energy), petroleum, telecommunications (América Móvil, Telefónica, Televisión Azteca and Digicel), agriculture (Monsanto) and mining (Canadian groups GoldCorp, Tahoe Resources, Firestone Ventures and Argonaut Gold). These activities are expected to benefit from significant investments in the next few years; for example, Jaguar Energy announced a US\$ 600 million investment for construction of a power station.²² The leading investor is the United States, followed by Canada, the United Kingdom and Spain. Among the Latin American countries, Mexico is an important investor in food and beverages (Grupo Bimbo, Grupo Lala, among others) and telecommunications. Colombia has invested in electricity through firms, such as Empresas Públicas de Medellín (EPM) and Empresa de Energía de Bogotá following the signing of its free trade agreement with Guatemala.

Guatemala has invested extensively in the subregion: Banco Industrial, G&T Continental, Grupo Pantaleón and Grupo Pharma are the most important, followed by Pollo Campero, Grupo Solid, Ingenio Magdalena, Molinos Modernos, Corporación Multinversiones, Panadería San Martín, PDC, Planesa, Refrigua, Sarita, SPECTRUM, Transactel and Byte (Segovia, 2006).

(e) El Salvador

El Salvador, also, has recorded low levels of FDI in comparison with other countries of the subregion.²³ The highest levels observed in this country were related to privatizations of public enterprises in 1995-1996 and the sale of banks and manufacturing enterprises in 2007 and 2008. Thus, FDI peaked in 2007, when it exceeded US\$ 1.5 billion following the sale of the main private banks, which were acquired by HSBC, Citigroup, GE

Capital, Scotiabank and Bancolombia. Following this period, FDI dried up owing to exogenous factors, such as the international crisis, endogenous factors such as lack of public security, the rising operating costs of foreign firms and the erosion of some incentives associated with special regimes.

In the past decade, in order to achieve wider diversification (as an alternative to concentration in the textile and clothing industry), new sectors have been relatively successful in attracting FDI. These include commercial aircraft maintenance operations (AEROMAN) and manufacturing of parts and fuselage for light sport aircraft; agroindustry (fruit-growing, aquaculture, ornamental plants, food and beverages); electronic components; medical devices; telecommunications, energy and transport; logistics and distribution centres; specialized textiles; tourism; business services (BPO by Sykes and Dell); and health services.

El Salvador, which is one of the leading investors in the subregion, has forged ahead with investments in business groups such as TACA (air transport) and Poma, Agrisal and Roble (real estate sector).

(f) Nicaragua

Although growth in the textile and clothing value chain slumped significantly in most of the countries of the subregion—following the phasing-out of the Agreement on Textiles and Clothing and the expansion of exports mainly from China and India—Nicaragua has maintained and consolidated its position as a major exporter of clothing to the United States, thanks above all to its preferential access to this market through CAFTA-DR and to the relatively low wages paid to its workers. In late 2009, this sector generated over 50,000 jobs and exported in excess of 300 million square metres equivalent (SME) for an approximate value of US\$ 900 million.²⁴ Garments are produced for international companies including Target, JC Penney, Wal-Mart, Kohls and GAP.

More recently, FDI has been channelled into renewable energies (Tumarín hydroelectricity and Polaris geothermals) as well as telecommunications (América Móvil, Telefónica and the Russian company Yota). Camaronera El Faro, Grupo CADECA and Standard Fruit have investments in agriculture and fisheries. Canadian investors have stakes in mining and quarries:

²¹ The term ‘full-package production’ refers to any production arrangement between a client (the buyer) and a contractor (the manufacturer), whereby the contractor receiving the order is responsible for purchasing the raw materials and coordinating all the different phases of the production process. (Bair and Gereffi, 2003).

²² See *Estrategia y negocios*, 26 January 2011.

²³ FDI inflows into El Salvador increased in recent years from 1.7% to 2.4% of GDP, compared with 7.6% of GDP in Costa Rica. FDI investments in the 1990s were concentrated mainly in textile and clothing factories operating in the free economic zones.

²⁴ Nicaragua avails itself of special rules of origin or tariff preference levels (TPL). This benefit enables the industry to export up to 100 million square metre equivalents of synthetic or cotton woven bottoms tax free to the United States irrespective of the origin of the fabric or threads. This benefit became effective in 2006 and will remain valid until 31 December 2014.

American Pacific Corporation, Minerales entre Mares and Minerales de Occidente, among others. Aguas de San Pedro and Electrificaciones del Norte are the most important entities in electricity, gas and water, while Astaldi, Construcciones Nabla and Sococo of Costa Rica are active in construction.

In the services sector, as in the other countries of the subregion, there has been growth in remote business services (call centres, BPO and KPO), technical support, telemarketing and software development. Currently, 138 companies operate under the free economic zone system, including manufacturers of medical devices (Command Medical), automobile harnesses (ARNECOM) and stainless steel products (Stainless Ride), including motorcycle parts.

As regards outward Nicaraguan investments, the LAFISE financial group takes the lead with stakes in almost all of the subregion and even beyond (Bolivarian Republic of Venezuela, Mexico and United States).

(g) Honduras

Honduras has attracted FDI into a number of sectors: light manufacturing (textiles and garments, basic assembly of parts for the automobile and electronic industries), agroindustry and business services. During the period

2004-2009, the sector that received the most FDI was transport, storage and telecommunications (34%) with investments by Digicel, Crowley and BIT Honduras. Investments in services have been significant: these were made by Cinemark, Cinépolis, Hotel Clarion and MetroRed, while Bimbo, Colgate Palmolive, Elektra and Multiplaza have sunk investments into the commercial sector.

During the same period, 23% of the total FDI entering the country was destined for export-oriented businesses in the free economic zones. More than two thirds of this amount targeted the textile and clothing sector; following in order of importance were corporate services, electronic components, commerce, tobacco products and fishery products.

In general, intraregional investments received by Honduras have been substantial, especially those made by Salvadorian and Guatemalan groups. In recent years, Honduran investments in the subregion, have also been sizable, especially the FDI of the groups Karims (textiles and garments), Visión y M (real estate) and Terra (construction of hydroelectricity plants in Guatemala).

The recent strategy for attracting investments by emulating the experience of Hong Kong (Special Administrative Region of China) with the creation of charter cities is an innovative but controversial initiative.²⁵

3. The impact of foreign direct investment on the export pattern

Efforts to attract FDI and promote exports from the countries of the subregion under special regimes and subsequently under CAFTA-DR have contributed to a sharp increase in exports and diversification of the exportable supply; this was achieved thanks to the success in attracting FDI (see figure II.6).

The breakdown of FDI by sector has determined the change in the export mix, particularly of the growth in exports of companies operating in the free zone systems under inward processing or other similar arrangements.

Total exports of goods and services have increased considerably in all countries of the subregion since the start of the export diversification scheme, except in the year 2009, when the countries were in the throes of the global economic crisis (see tables II.4 and II.5). Exports

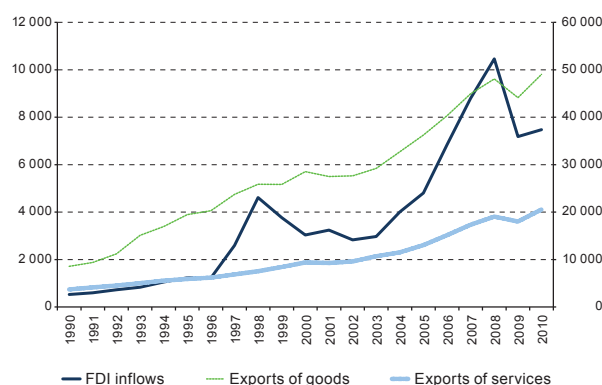
of goods produced under special regimes account for more than 50% of goods exports from Costa Rica, El Salvador, Honduras and Nicaragua. In the case of Panama, exports

²⁵ The Government of Honduras views charter cities as one option for facilitating and increasing national or foreign investments and fostering economic growth. The Congress of this country approved the establishment of special development regions (SDR), which required amendment of articles 304 and 329 of the Constitution. Automobile manufacturers in the Republic of Korea have expressed an interest in investing in these areas, as have companies in India, China and Taiwan Province of China. The project has also been presented to business groups in the United States and Europe. Some Honduran political stakeholders have questioned the initiative on the grounds that it will undermine national sovereignty (see [online] www.chartercities.org).

of goods under special regimes represent a very small proportion of the total because export figures do not include re-exports from the Colón Free Zone (see table II.A-2).²⁶

Except in the case of Guatemala and Panama, exports under the free zone system account for a high proportion of exports subject to special regimes. Free zone exports account for almost 54% of total goods exports from Honduras, 53% from Costa Rica, 44% from Dominican Republic, 41% from Nicaragua and 40% from El Salvador. If exports of services under this system are taken into account (although no specific information is available, except for Costa Rica, where they increased from 10% of total exports of services in 2004 to 22% in 2008), the share of exports from the free economic zones will represent an even higher percentage of total goods and services exports. The proportion of exports under special regimes would be greater if exports of services under these regimes are included since they have also expanded considerably in recent years.

Figure II.6
CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC:
FOREIGN DIRECT INVESTMENT FLOWS AND EXPORTS OF
GOODS AND SERVICES, 1990-2010



Source: Economic Commission for Latin America and the Caribbean (ECLAC) on the basis of official figures.

Table II.4
CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC: EXPORTS OF GOODS f.o.b., 2002-2010
(Millions of dollars)

Country	2002	2003	2004	2005	2006	2007	2008	2009	2010
Costa Rica	5 269.9	6 163.0	6 369.7	7 099.4	8 101.7	9 299.5	9 554.4	8 847.0	9 375.4
El Salvador	3 019.8	3 152.6	3 339.1	3 446.6	3 758.6	4 039.1	4 610.7	3 860.9	4 478.6
Guatemala	4 223.7	4 526.3	5 105.0	5 459.5	6 082.1	6 983.1	7 846.5	7 330.4	8 565.9
Honduras	3 744.9	3 754.0	4 533.9	5 048.0	5 276.6	5 783.6	6 457.5	5 089.6	5 741.9
Nicaragua	914.4	1 056.0	1 369.0	1 654.1	2 034.1	2 335.7	2 537.6	2 386.8	3 031.2
Panama	5 314.7	5 072.4	6 079.9	7 375.2	8 475.3	9 333.7	10 323.2	11 100.7	11 330.4
Dominican Republic	5 165.0	5 470.8	5 935.9	6 144.7	6 610.2	7 160.2	6 747.5	5 519.0	6 512.4

Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Statistical Yearbook for Latin America and the Caribbean, 2010* (LC/G.2483-P/B), Santiago, Chile, 2010. United Nations publication, Sales No.E/S.10.II.G.1.

Table II.5
CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC: EXPORTS OF SERVICES
(Millions of dollars)

Country	2002	2003	2004	2005	2006	2007	2008	2009	2010
Costa Rica	1 868.2	2 021.0	2 241.8	2 621.2	2 971.7	3 552.2	4 145.8	3 812.0	4 418.0
El Salvador	783.2	948.5	951.2	945.7	1 015.0	1 129.6	1 041.0	835.2	968.8
Guatemala	808.1	849.3	1 100.4	1 307.8	1 518.8	1 731.2	1 873.0	1 512.5	2 216.3
Honduras	542	591.1	644.7	699.6	744.9	780.7	876.6	938.3	1 021.6
Nicaragua	225.5	257.6	285.8	308.5	343.7	373.1	399.1	470.1	507.7
Panama	2 277.9	2 539.6	2 793.7	3 231.3	4 000.2	4 958.1	5 787.9	5 519.2	6 092.7
Dominican Republic	3 070.7	3 468.8	3 503.9	3 913.2	4 542.5	4 797.5	4 922.1	4 917.6	5 311.0

Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Statistical Yearbook for Latin America and the Caribbean, 2010* (LC/G.2483-P/B), Santiago, Chile, 2010. United Nations publication, Sales No. E/S.10.II.G.1.

²⁶ In Guatemala, the relative share of exports under special regimes in total exports of goods declined from 44% in 2005 to 36% in 2009. A similar situation occurred in the Dominican Republic, where the share fell from 68% to 44% during the same period. These figures must be viewed with caution since the fall in the share of exports

produced under special regimes may be mainly an accounting phenomenon. Many of these exports that used to fall under special regimes became eligible for the preferences provided for under the CAFTA-DR agreement.

C. Current and new generation incentives for attracting investments and promoting exports

1. Background

Since the mid-1980s, the Central American countries, Panama and the Dominican Republic took steps to promote a better integration of their economies in the global economy. These involved a shift away from the former import substitution strategy and the adoption of an export promotion scheme.

The actions for integrating the economies of the subregion in the world economy have been many and varied, ranging from structural adjustment programmes that impact various spheres of their economies to foreign trade policies, implemented through multilateral, bilateral and subregional trade negotiations aimed at improving the conditions for access to international markets and promoting exports.

Economic openness and international trade negotiations were not sufficient to take advantage of all the opportunities created. It was necessary not only to change relative prices but also to design and implement policies for fostering development of the productive sectors. This was done in order to bring supply in line with demand on international markets and develop a competitive, exportable supply—and improve the overall international competitiveness of the countries. FDI is expected to provide capital and create productive export-oriented capacities. At the same time, it would be necessary to maintain incentives to encourage the productive sectors to reorient their resources towards exports, thereby countering the prevailing anti-export bias.²⁷

In parallel to the process of economic liberalization, all the countries of the subregion enacted legislation creating export promotion regimes with provision for tax incentives (exemption from import duties on machinery and equipment, raw materials and intermediate inputs, and exemption from income and other taxes) and direct subsidies linked to export performance (the tax credit certificate (CAT) in Costa Rica, the Dominican Republic

and Panama, the tax discount in El Salvador and the Export Promotion Certificate (CEFEX) in Honduras).

Free zone regimes were designed to encourage companies to set up export-oriented operations in industrial parks where they would function as offshore entities for customs and tax purposes, with advantages including exemption from import duties on machinery, equipment, intermediate goods and inputs, freedom to handle foreign currency and exemption from income tax. The free zone regime was designed basically to attract FDI for export, although local enterprises have also taken advantage of the system to set up operations geared to the export market in industrial parks.

FDI attraction for export has been and continues to be a fundamental part of export promotion policy for two reasons: first, because of the transnationals' greater propensity to export and import, and second, as a result of the indirect effects on local companies. The prevailing strategy in Central America, Dominican Republic and Panama has been to attract low-cost-seeking FDI and resource-seeking FDI for the establishment of export platforms geared to third markets, mainly the United States. Countries expect this type of investment to generate vertical pecuniary externalities (sale of inputs or inter-industry linkages) or pure externalities such as spillover effects.²⁸ In addition, it will stimulate local exporters²⁹ and promote the development of new technological capacities. This stems from a complementary argument: export promotion efforts based on production structure have prompted countries not only to develop and adapt their products in line with international demand but also to embark on a process of institutional change.

²⁷ See Rodríguez and Robles (2003); Blomström and Kokko (2003); Alonso (2002, 2008); Hernández (2007); Mercado (2010); Martínez (2010); UNCTAD (1995); Willmore (1997).

²⁸ Spillover effects operate through four channels: demonstration (learning and imitation); staff turnover; competition; and production linkages (Cubero, 2006) (see also Görg and Greenway (2001); Romo (2003); Kokko (1996); Aitken and Harrison (1997); Blomström and Kokko (1998); Blomström and Sjöholm (1999)).

²⁹ Indirect effects may be generated not only in the production sphere but also in administrative areas (new management techniques), marketing, and sales (new distribution channels).

Trade liberalization and international integration strategies unleashed competition within the region and a “race to the bottom” to attract FDI. The fiscal cost that export incentives signify has been questioned at the national level in several countries, especially as regards export subsidies that take the form of tax credit certificates and exemption from income tax for exporting companies. The tax credit certificates, which were obtained mainly by local firms that had started to produce for the export market, were gradually eliminated in all countries of the subregion during the 1990s. The exemption from the tax on exports that local companies had enjoyed was also eliminated. Objections were also raised against the incentives offered under the free zone system, which offers companies a waiver on income tax; when applied only to exports, this constitutes an infringement of the WTO Agreement on Subsidies and Countervailing Measures.

Although the WTO agreement on subsidies dates back to 1995 and the export subsidies were eliminated by the export promotion regimes, none of the countries of the subregion adopted measures for eliminating the income tax incentive in the free zone systems. On the contrary, since FDI had been entering the countries under this regime and income tax exemption was considered one of the main attractions, the countries of the subregion, together with other small and developing countries, managed to obtain an initial five-year extension of the deadline for the entry into force of the agreement and a further two-year extension for the dismantling of the subsidies; thus, these subsidies were allowed to remain in place up to 2009. Before the expiry of the new deadline, the countries obtained a second extension to December 2015, but had to accept that the new deadline would be non-extendible.

The challenge now for the countries of the subregion is to change the incentive schemes for attracting FDI and promoting exports in order to bring them in line with the WTO Agreement on Subsidies and Countervailing Measures and with the terms established under the free trade agreement with the United States.³⁰ This change must be implemented by December 2015. However, the

sooner the better, since the established companies and future investors need to know where they stand.

In addition to the obligation to modify the FDI and export promotion incentive scheme, the countries of the subregion need to change their strategy for integration in the global economy and gradually move away from an export promotion scheme to an investment promotion scheme, irrespective of the market for which their production is intended or of whether the investment is of local or foreign origin. Thus, once the incentives granted to investors are no longer conditioned on export performance, they would be compatible with WTO regulations.

While the export promotion and investment attraction scheme has been successful in bringing about a substantial increase and diversification of exports in all countries of the subregion and is a central pillar of their economic growth, it has not helped to the same extent to diversify the industrial structure.³¹ The free economic zones have become the main export regime and while they are significant sources of job creation, the production linkages and integration with the domestic economy of the countries are tenuous and scant, since these zones continue to operate as enclaves and do not contribute in any significant way to the transfer of technology and growth of the local economies and companies. There are few long-term policies that foster production linkages, technological innovation and scientific and technological development in terms of a proactive integration in the global economy. Thus, the challenge for the countries of the subregion to change their incentive schemes for attracting FDI and promoting exports by 2016 is an opportunity to design a policy to boost development of the productive sectors over the long term, based on a strategic vision of inclusive economic and social development, and to institute structural change underpinned by catching-up and technological development. In this way, the countries of the subregion would be able to compete in the global market on the basis of gains in productivity, innovation and differentiation of their exportable supply, rather than on the basis of an abundant, relatively low-cost workforce. This is important in view of the growing competitiveness of China and India.

³⁰ Article 3.4.2. of the Agreement states that “No Party may adopt any new waiver of customs duties, or expand with respect to existing recipients or extend to any new recipient the application of an existing waiver of customs duties, where the waiver is conditioned, explicitly or implicitly, on the fulfillment of a performance requirement”; article 3.4.3 states that “Costa Rica, the Dominican Republic, El Salvador, and Guatemala may each maintain existing measures inconsistent with paragraphs 1 and 2, provided it maintains such measures in accordance with Article 27.4 of the SCM Agreement. Costa Rica, the Dominican Republic, El Salvador, and Guatemala may not maintain any such measures after December 31, 2009.”

³¹ Diversification of the productive structure is threefold: (i) diversifying exports, in terms of goods and markets; (ii) forging stronger linkages by building networks of local suppliers, both of inputs and of logistics and engineering; and (iii) establishing clusters (ECLAC, 2008). See also ECLAC (2004); Imbs and Wacziarg (2003); and Narula (2002).

2. Changes in the incentive regime

On the basis of the process described above, the countries of the subregion arrived at a complex system of incentives for local and foreign companies that export to international markets (see table II.6).³² Although the international agreements have removed the conditionality of incentives on export, they have not eliminated the tax incentives themselves.³³ It is more a matter of dismantling the former incentives and designing new generation incentives. There are various ways of replacing the subsidies prohibited by the WTO by legal, albeit potentially actionable, subsidies. The first general element is the elimination of any export requirement in a free economic zone. The second is to give enterprises located in free economic zones access to the local market on the basis of the payment of tariffs and taxes. Some specific subsidies may be converted into general subsidies, thus extending the tariff and tax benefits to all companies irrespective of sector, geographical location or export performance (Martínez, 2010).

At present, proposals for legislative reform apply to two systems: the free zone system and the export promotion system. Reforms to the former, which have been under discussion, are centred on the continued application of tax incentives, but in a more restrictive manner and without export conditionality. Formerly, tax incentives were granted to any type of company that set itself up under the system; with the reforms, some countries, such as Costa Rica and Panama, would continue to grant tax incentives, but only to sectors deemed strategic.

Costa Rica, El Salvador and Panamá have already adopted legislation whereby export-linked incentives are replaced by incentives that are compatible with WTO regulations. El Salvador amended its Exports Reactivation Act (Legislative decree No. 460). In the case of Costa Rica, the only system that needed to be changed was the free zone system, for which legislation has already been enacted. In Panama, the necessary legislation has already been adopted to replace the law that granted the Tax Credit Certificate by an Industrial Development Certificate (CEFI) Act and an Agricultural Development Certificate (CeFA) Act; discussions are pending on a bill relating to the free economic zones, which was presented to Congress in January 2011.

In Guatemala, amendments to the legislation are being studied by a committee set up with the participation of representatives of the executive branch. In the Dominican Republic, a bill is currently being discussed in the National Congress. Honduras and Nicaragua, whose per capita GDP is less than US\$ 1,000, will not need to change their incentive scheme, unless there is a change in this situation.³⁴

Costa Rica is the only country in the subregion which has adopted legislation on a new free zone system. Thus, in 2010, it created mechanisms that seek to promote productive investment, both foreign and local, to foster production linkages with the beneficiary companies of the free zone system and to boost investment in the relatively less developed areas. A new category, the processing company, has been identified and does not need to export in order to benefit from the free zone system, although the goods introduced into the local market will be subject to the customs duties and procedures in the same way as any other import. The beneficiary companies must comply with special requirements that arise from their linkage with a strategic sector or set up operations in a region outside of the extended metropolitan area. Technological-content industries are defined as strategic sector in an effort to channel FDI flows towards those areas (see chapter I). In the Dominican Republic, the proposal is to continue granting incentives to all types of companies, but including new profiles or beneficiary company categories, such as science or technology parks and service companies; there is no difference, however, in the incentives that apply. In the other countries, there are still no proposals for reform of the free zone system.

A common feature in all the reforms approved or under discussion is the full or partial exemption from income tax. In the Dominican Republic, full exemption from this tax is being proposed, while the reform approved in Costa Rica provides for total exemption from income tax for major investments in strategic sectors and for companies that set up operations in relatively undeveloped regions. Other corporations which opt for the system must pay an income tax, albeit at a lower rate than under the regular system. Panama proposes to grant full exemption from income tax to a small group of companies.

³² The process of modifying incentives is complex and depends on each country; the principal advances are shown in annex 3.

³³ Incentives for attracting FDI have proliferated worldwide. Since the mid-1990s, more than 100 countries have offered incentives for this purpose and very few countries in the world compete in this area without using this approach (Blomström and Kokko, 2003).

³⁴ For a detailed account of the changes in the incentives regime in each country, see table II.A-3.

Table II.6
CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC: EXISTING SYSTEMS AND INCENTIVES FOR EXPORT AND INVESTMENT PROMOTION

	Export promotion regulations	Regulations on free economic zones and special regimes
Costa Rica	<p>Inward Processing Act (No. 7557)</p> <ul style="list-style-type: none"> - Exemption from import duties on raw materials, intermediate goods and capital goods exclusively relating to the production process 	<p>Export Processing Free Zones Act (No. 8794 de 2010)</p> <ul style="list-style-type: none"> - Exemption from import duties for raw materials, intermediate goods and capital goods not exclusively relating to the production process - Exemption from income tax for 8 years and or 12 years in relatively less developed areas or for companies that invest in strategic sectors - Exemption from all types of taxes on wrapping, packaging and bottling materials as well as computer, electronic and other waste arising from the activities of the free zone enterprises provided that they are recycled or reused - A 10% maximum tax credit for ploughing back of profits, expenses incurred in training Costa Rican staff or residents and for training small and medium-sized supply companies - Exemptions for the import of equipment, samples, vehicles, taxes and municipal licences, and freedom to hold and handle foreign exchange as well as exemption from the tax on remittances
Guatemala	<p>Export Activity and Maquila Promotion and Development Act (No. 29-89)</p> <ul style="list-style-type: none"> - Exemption from taxes on imports of raw materials, intermediate goods and capital goods - Exemption from income tax for 10 years 	<p>Free Zones Act (No. 65-89)</p> <ul style="list-style-type: none"> - Exemption from import duty on raw materials, intermediate goods and capital goods - Exemption from income tax for 10 years
El Salvador	<p>Export Reactivation Act (No. 460)</p> <ul style="list-style-type: none"> - Refund of 6% of the f.o.b. value of exports (in the case of maquila, on the added value) 	<p>Industrial Free Zones and Marketing Act (No. 405)</p> <ul style="list-style-type: none"> - Exemption from import duties on raw materials, intermediate goods and capital goods for the duration of the operation - Exemption from income tax for the duration of the operation - Exemption from rates on the corporate assets and property for the duration of the operation - Exemption from property transfer tax to be used for the activity for which the incentive is granted
Honduras	<p>Temporary Admission Regime (RIT) (No. 190-86)</p> <ul style="list-style-type: none"> - Admission free of all types of taxes for raw materials, intermediate goods and capital goods, relating exclusively to the production process 	<p>Industrial Processing Zones Act (ZIP) (37-87)</p> <ul style="list-style-type: none"> - Exemption of import duties for raw materials, intermediate goods and capital goods not exclusively related to the production process - Exemption from income tax for 20 years - Exemption from rates for 10 years - Free Economic Zones Act (ZOLI) (131-98) - Exemption from import duties on raw materials, intermediate goods and capital goods not exclusively related to the production process - Permanent exemption from income tax - Permanent exemption from rates
Nicaragua	<p>Temporary Admission for Inward Processing and Export Facilitation Act (No. 382)</p> <ul style="list-style-type: none"> - Exemption from import duties for raw materials, intermediate goods and capital goods, exclusively relating to the production process 	<p>Industrial Free Zones for Export Act (No. 46-91)</p> <ul style="list-style-type: none"> - Exemption from import duties for raw materials, intermediate goods and capital goods not exclusively related to the production process - Exemption from income tax for the first ten days of the operation - Exemption from rates
Panama	<p>Export Processing Zones Act (No. 25)</p> <ul style="list-style-type: none"> - Exemption from import duties on raw materials, intermediate goods, capital goods and any good or service required for their operations within the zone - Exemption from income tax <p>Stipulation of Measures for Industrial Promotion and Development Act (No. 76)</p> <ul style="list-style-type: none"> - Industrial Development Certificate (CEFI), with 25%-35% refund of expenditure on research and development, generation of employment, training, investment and reinvestment of profits and quality and environmental management systems 	<p>Panama Pacific (No. 41 of 2004, Nos. 41 and 69 of 2009)</p> <ul style="list-style-type: none"> - Exemption from import duties on raw materials, intermediate goods, capital goods and all goods and services required for their operations within the zone - Exemption from income tax for specific activities <p>Creation of the Programme for Boosting the Competitiveness of Agricultural Exports Act (No. 82)</p> <ul style="list-style-type: none"> - Agro-export Development Certificate (CeFA), with subsidies ranging from 10% to 15% of the average estimated costs per unit of production for wrapping, packaging and transport and internal freight charges, corresponding to the export product as stated by the competent authority
Dominican Republic	<p>Export Reactivation and Promotion Act (No. 84-99)</p> <ul style="list-style-type: none"> - Exemption from import duties on raw materials, intermediate goods and capital goods, exclusively relating to the production process 	<p>Free Economic Zone Act (No. 8-90)</p> <ul style="list-style-type: none"> - Admission free of any type of tax on raw materials, intermediate goods and capital goods, not exclusively relating to the production process - Exemption from income tax for 15-20 years, renewable

Source: Economic Commission for Latin America and the Caribbean on the basis of the laws adopted in the respective countries.

Note: The incentives described above refer only to export-oriented enterprises that operate under these regimes; they do not apply to companies that develop or administer the industrial parks.

Another element of the proposed reforms to the free zone legislation is the inclusion, as a beneficiary sector of the incentives, of high-technology activities and activities relating to research and development. In some cases, in particular in Dominican Republic and Costa Rica, provision is made for developing production linkages between companies operating under the free zone system and local companies. El Salvador and Panama also need to reform legislation on the export promotion system, since they granted subsidies conditioned on export performance. None of the other countries of the subregion, with the exception of Guatemala, which has not prepared a proposal, need to reform their incentive scheme.

The need to amend the export promotion system has led El Salvador and Panama into interesting policy areas relating to the development of productive sectors. They have been working to define a development policy with measures and incentives geared to boosting the productivity and competitiveness of these sectors. In El Salvador, the new Production Development Act includes the design of programmes for improving quality and productivity, innovation and technology, financing and co-financing for development of productive activities, production linkages, trade facilitation and the generation of an entrepreneurial culture. In Panama, the new Industrial Promotion and Development Act is expected to grant an Industrial Development Certificate (CEFI) as an incentive for the incorporation of technology with high value added in production and for boosting efficiency in national production, encouraging innovation and research and development in production processes.

These incentive schemes are designed essentially for local companies; in modifying them, the authorities took the opportunity to define some important elements for a productive development policy. Modifications to the free zone systems sought to preserve their attractiveness for investors, rather than to define a policy on productive development.

The impact of these regimes must be evaluated not only in terms of their capacity to attract FDI but also in terms of public finances and must be contrasted with the effects of using alternative policy instruments for fostering productive development. It must be borne in mind that tax incentives are just one of the determining factors.

The question of income tax exemption has been the subject of intense debates in the different countries. It is argued that the waiver of income tax for the strongest growth sectors of the economies of the subregion

(exports under the free zone system) is regressive and discriminatory vis-à-vis local enterprises. Moreover, enterprises operating under the free zone system (for the most part, foreign corporations) request the governments to make investments in infrastructure, without contributing to their financing. As a counter-argument, it has been stated that although foreign companies do not pay income tax, the tax authorities benefit from the increased activity that these companies generate within local enterprises and from the payment of taxes, both direct and indirect, by their employees.

Another argument is that foreign companies would not find it worth their while to set up operations in the countries of the subregion if they were not offered the incentive of income tax exemption. In the competition to attract FDI, many countries in other parts of the world, especially in Asia, offer foreign companies not just income tax exemption, but also other facilities ranging from land concessions for the installation of their enterprises to subsidies for hiring labour, (in the form of partial exemption, or exemption for a given period of time, from social security contributions and direct transfers for training of the workforce); the countries in the subregion could not easily afford such incentives, hence, the importance of the income tax waiver for continuing to bring in FDI.³⁵

Another common argument in the subregion is that income tax exemption is irrelevant, since many foreign companies established in the subregion are subsidiaries and operate as cost centres using transfer prices. As such, they do not generate accounting profits and are not liable to income tax. Even so, foreign companies see exemption of this tax as an important incentive. In any case, the discussion on the issue of tax exemption has justified, at least partially, the granting of this incentive.

The reforms undertaken (especially legislative reform to the free economic zones), albeit significant and a step in the right direction, are still insufficient insofar as they need to be part of a broader development policy designed to maximize the potential of FDI as an instrument for technology and knowledge transfer. Although the empirical evidence shows that tax exemption has only a marginal impact on investment decisions and that progress needs to be made on other fronts in order to strengthen the spillover effects of FDI (human capital, capacities and learning, research and development, innovation) (Rodríguez and Robles, 2003), these incentives have also proven to be useful for the countries of the subregion and for their FDI attraction policies (Willmore, 1995).

³⁵ See Mercado (2010); Blomström and Kokko (2003), Choong (2008); Nolan and Pack (2003).

D. Conclusions

The structural reforms initiated in all the countries of the subregion in the mid-1980s, when they abandoned their State-led industrial development strategy for an export-promotion and investment attraction strategy, were implemented in tandem with a process of trade liberalization geared towards the constitution of open regionalism, the application of WTO standards and disciplines and the negotiation and signature of bilateral and multilateral free trade agreements.

Since the late twentieth century, four FDI phases were discernible. It was not until the third and fourth phases, however, and notably during the 1990s, that a strong surge of FDI into the subregion occurred. This was triggered by demand and supply factors, such as the privatization of State-owned energy and telecommunications companies and by the mechanisms for access to the United States market, such as the Caribbean Basin Initiative, the Generalized System of Preferences and the Caribbean Basin Trade Partnership Act; more recently, inflows have been facilitated by the entry into force of CAFTA-DR. Unlike the pattern in other areas of Latin America and the Caribbean, this boom was driven by the process of integration of the subregion, which favoured major intraregional corporate investments in Caribbean Basin countries and, generally speaking, increased the percentage share of FDI in GDP, as a complement to domestic saving.

The growing significance of FDI in the subregion is due to structural factors (such as geographical location or the availability of natural resources or specific assets) and to factors, traditionally identified as FDI determinants and linked to the host country's overall policies. These factors have an impact on its business climate and specific FDI attraction policies. These include economic and political stability, institution-building and protection of property rights; a regulatory framework conducive to FDI inflows; a flexible labour market and the level of human capital development; the availability of physical and telecommunications infrastructure; trade policies and the existence of trade agreements.

FDI inflows have grown steadily throughout the subregion and in 2010 represented 3.6% of GDP; thus its contribution to domestic saving and the balance of payments of these countries is considerable. FDI has also led to a change in the export mix and has boosted the labour market. Two decades ago, FDI was concentrated in manufactures, especially in the textile and clothing segments, but the services sector, including remote business services

and tourism has now taken up the slack. Still pending, however, are the tasks of forging linkages between these investments and the rest of the economy and upgrading the technological content of the production processes.

Since the 1980s, FDI has been channelled towards export activities, in pursuit of efficiency and lower relative costs (especially labour costs), the objective being to build export platforms designed to serve the United States market. The operations have been conducted essentially under free zone or similar systems. In almost all countries (except Panama), this strategy was based on textile and clothing exports. However, with the termination of the Agreement on Textiles and Clothing (ATC), the prohibitions associated with the Agreement on Subsidies and Countervailing Measures and greater competition from China and India, the Caribbean Basin countries have lost competitiveness in this market and have had to seek greater vertical integration through full package production schemes or greater export diversification. Exports through the free zones are conducted for the most part through foreign corporations and account for an important proportion of total exports.

In the past decade, following the gradual decline of textile and clothing exports (except from Honduras and Nicaragua), exports and FDI diversified towards remote business services sectors (mainly call centres and BPO), tourism and financial services. Panama is the major centre for attracting investments into the subregion, largely through the Canal and Canal-related services, financial services and, more recently, real estate. In manufacturing, inroads have been made in new value chains with greater technological content, such as medical equipment, electronics and aeronautical engineering. Costa Rica has emerged as the leader in this process of transformation and product diversification. The Dominican Republic, whose FDI attraction model continues to be based on location and business climate advantages, receives investments targeting manufacturing of intermediate technology intensity, mining and tourism. El Salvador and Guatemala are engaged in an adjustment process and are moving from export promotion to a strategy designed to attract investments and promote product diversification (especially towards remote business services). Honduras and Nicaragua are not subject to the restrictions of the Agreement on Subsidies and Countervailing Measures, since their per capita income is below US\$ 1,000 per year, and they continue to enjoy preferential access to the United States market; they also

promote active investment policies and country investments to attract more FDI and achieve greater convergence with the rest of the countries of the subregion.

Countries have used fiscal and financial incentives or FDI promotion and attraction policies to encourage foreign companies to set up operations within their borders. For example, in an effort to attract investments, all have passed laws on tax incentives conditioned on export performance. These incentives must be modified, since their export conditionality will be prohibited in 2016 under the terms of the Agreement on Subsidies and Countervailing Measures. Some countries (Costa Rica, Dominican Republic, El Salvador and Panama) have drawn up proposals for reforming their incentive regimes and some have already introduced new legislation. Guatemala is the only country which must modify its incentives, but to date, no reform proposal has been tabled. Honduras and Nicaragua, owing to their low per capita income, will not need to modify their incentive scheme as long as their status remains unchanged. The proposals for reform of the legislation on incentives include the free zone regime and the export promotion scheme. While the former type of legislation was enacted as an instrument for attracting FDI, the latter type has been directed more towards local enterprises.

Formerly, tax incentives were granted to any type of company that set up operations under that system. With the recent reforms, Costa Rica and Panama will continue to grant tax incentives but only to sectors considered strategic and for relatively less developed areas. In the Dominican Republic, the proposal is that incentives should be granted to all kinds of enterprise but this time including new corporate profiles or categories that are beneficiaries of the regime, such as science or technology parks and service businesses, which will be entitled to the same incentives. In the other countries, there are no proposals for reforming the free zone system.

A common feature in all the reforms approved or under discussion concerning the free zone regime is the granting of total or partial exemption from income tax. Another common element in the reform proposals to the free zone laws is that the strategic sectors to which the incentives are awarded now include high-technology and research-and-development-intensive activities. In some cases, such as Costa Rica and Dominican Republic, provisions are also made for forging production linkages between the corporations subject to the free zone system and local companies.

In El Salvador and Panama, the export promotion regime legislation was amended, since both countries used to grant an export-conditioned subsidy. Except for Guatemala, which has not yet prepared a proposal, the other countries will not need to alter this incentive scheme to bring it in line with WTO criteria. The change of this

system in El Salvador and Panama has led these countries into new areas with important elements for a policy for promoting the development of productive sectors within the broad framework of national innovation systems.

The reforms undertaken, however important, are subject to debate, especially the reforms to the free zone legislation. Consideration could be given to the possibility of developing them into a broader development policy, along with measures whereby the FDI potential for technology and knowledge transfer can be maximized. The proposal is that tax incentives that remain in force should be valued in terms of their impact on public finances and should be viewed as one of the possible instruments whereby FDI can be established and linked to the local economy as a means of transferring technology and knowledge and enabling local companies to move up in the value chain.

Countries have taken the opportunity to change the incentives and to design “new generation” incentives, which not only serve to attract FDI and generate employment, as in the past, but also facilitate the transition from an export promotion scheme to an investment promotion scheme, in an attempt to achieve higher productivity and reduce internal and external structural heterogeneity.

Opportunities for an industrial policy, albeit restricted by the Agreement on Subsidies and Countervailing Measures, still exist and should be used actively by the countries in order to improve their production specialization and create new comparative advantages. One way of achieving this is by fostering production linkages as a strategic approach for broadening and deepening knowledge-based assets. To this end, attention must be paid to the type of FDI that is entering the country and new FDI capable of generating technological externalities must be sought. Thus, the effort to attract investments must go in tandem with steps to build the capacity to absorb new knowledge and techno-economic paradigms. This means that new production capacity must be put in place.

The countries in the subregion are moving forward with the reform of their export incentive legislation to bring it in line with WTO regulations. The existing or proposed reforms to the export incentive laws seek to eliminate the controversial export performance requirement, and the trend is to replace the export promotion scheme by an investment promotion scheme. However, the advances towards the establishment of a development promotion scheme are still insufficient to support an integral product diversification policy. FDI could be instrumental in advancing the production structure in the value chain, incorporating more knowledge, achieving greater product differentiation and forging closer linkages with high growth international markets. This will help to boost the role played by foreign direct investment as catalyst and modernizer of the production structure and of services in the region.

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Annex

Table II.A-1
CENTRAL AMERICAN ISTHMUS AND THE DOMINICAN REPUBLIC: FOREIGN DIRECT INVESTMENT INFLOWS, 1980-2010
(Millions of dollars)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Costa Rica	52.6	69.6	28.9	60.7	55.9	69.9	61.0	80.3	122.2	101.3
El Salvador	5.9	-5.7	-1.0	28.1	12.4	12.4	24.1	18.3	17.0	14.4
Guatemala	110.7	127.1	77.1	45.0	38.0	61.8	68.8	150.2	329.9	76.2
Honduras	5.8	-3.6	13.8	21.0	20.5	27.5	30.0	38.7	48.3	51.0
Nicaragua	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Panama	218.5	303.2	366.6	79.4	-135.5	67.3	20.3	-556.5	-595.1	51.5
Dominican Republic	92.7	79.7	-1.4	48.2	68.5	36.2	50.0	89.0	106.1	110.0
Total	486.2	570.3	484.0	282.5	59.7	275.1	254.2	-180.0	28.4	404.4
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	
Costa Rica	162.5	178.4	226.0	246.7	297.6	336.9	427.0	408.2	613.1	619.5
El Salvador	1.9	25.2	15.3	16.4	2.2	38.0	-4.8	59.0	1 103.7	215.9
Guatemala	47.7	90.7	94.1	142.5	65.2	75.2	76.9	84.4	672.8	154.6
Honduras	43.5	52.1	47.6	26.7	34.8	50.0	90.9	121.5	99.0	237.3
Nicaragua	0.0	0.0	15.0	38.8	46.7	88.9	120.0	203.4	218.2	337.3
Panama	135.5	108.5	144.5	169.6	401.5	223.0	415.5	1 299.3	1 203.1	864.4
Dominican Republic	132.8	145.0	179.7	189.3	206.8	414.3	96.5	420.6	699.8	1 337.8
Total	523.9	599.9	722.2	830.0	1 054.8	1 226.3	1 222.0	2 596.4	4 609.7	3 766.8
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Costa Rica	408.6	460.4	659.4	575.1	617.3	861.0	1469.0	1896.0	2021.0	1322.6
El Salvador	173.4	279.0	470.2	141.7	376.3	511.2	241.1	1508.4	784.2	430.6
Guatemala	229.6	498.5	205.3	263.3	296.0	508.2	591.6	745.1	753.8	565.9
Honduras	381.7	304.2	275.2	402.8	546.7	599.8	669.1	927.5	900.2	500.4
Nicaragua	266.5	150.1	203.8	201.2	249.8	241.1	286.8	381.7	626.1	434.2
Panama	623.9	467.1	98.6	770.8	1 012.3	962.1	2 497.9	1 776.5	2 401.7	1 772.8
Dominican Republic	952.9	1079.1	916.8	613.0	909.0	1 122.7	1 084.6	1 667.4	2870.1	2 066.6
Total	3 036.5	3 238.5	2 829.2	2 967.8	4 007.3	4 806.1	6 840.1	8 902.6	1 0357.1	7 093.1

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.

Table II.A-2 (concluded)

	2005		2006		2007		2008		2009	
	Millions of dollars	Percentages	Millions of dollars	Percentages	Millions of dollars	Percentages	Millions of dollars	Percentages	Millions of dollars	Percentages
Costa Rica										
Total exports	7 026.4	100.0	8 199.8	100.0	9 337.0	100.0	9 503.7	100.0	8 785.5	100.0
Exports subject to special regimes	4 072.3	58.0	4 732.1	57.7	5 497.9	58.9	5 227.4	55.0	4 931.0	56.1
Free economic zones	3 683.9	52.4	4 272.7	52.1	5 025.5	53.8	4 866.3	51.2	4 677.4	53.2
Inward processing	388.4	5.5	459.4	5.6	472.4	5.1	361.1	3.8	253.6	2.9
Panamá										
Total exports ^d	...	100.0	8 151.5	100.0	8 967.1	100.0	9 920.8	100.0	10 846.1	100.0
Exports subject to special regimes	...	...	87.2	1.1	103.4	1.2	129.4	1.3	95.5	0.9
Free economic zones	...	...	87.2	1.1	103.4	1.2	129.4	1.3	95.5	0.9
Laws 76 and 82	...	...	...	...	...	...	...	...	...	...
Dominican Republic										
Total exports	7 026.4	100.0	8 199.8	100.0	9 337.0	100.0	9 503.7	100.0	8 785.5	100.0
Exports subject to special regimes	4 749.7	67.6	4 678.6	57.1	4 525.2	48.5	4 354.1	45.8	3 833.4	43.6
Free economic zones	4 749.7	67.6	4 678.6	57.1	4 525.2	48.5	4 354.1	45.8	3 833.4	43.6
Law 84-99	...	...	...	...	...	...	...	...	...	...

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the central banks of the respective countries.

^a Coffee (excluding instant coffee), cotton, sugar, shrimps.

^b Refers to exports subject to the industrial free zone legislation.

^c Refers to exports subject to the Export Reactivation Act.

^d Includes national exports, national re-exports, re-exports from the Colón Free Zone and exports from the export processing zones (adjusted figures).

Table II.A-3
EL SALVADOR, COSTA RICA, PANAMA AND THE DOMINICAN REPUBLIC: TAX INCENTIVES INCLUDED IN REFORMS TO THE LEGISLATION ON EXPORT AND INVESTMENT PROMOTIONS

Incentive	El Salvador ^a	Costa Rica ^b	Panamá	Dominican Republic ^c
Reinstatement of import tariffs	<p>Yes. Import tariffs are being reinstated for inputs that are incorporated or consumed directly in the production of industrial goods or agri-foods exported to countries that are not signatories of the General Treaty on Central American Economic Integration, by applying the weighted average of the tariff rates on the cost of exports. The imported inputs that are subject to reinstatement of tariffs are the following: raw materials, intermediate goods, merchandise incorporated or consumed in the production of a good. Not included among these goods are fuels, machinery, parts and machine components, wrapping and packaging materials, electricity and any other service. The reinstatement does not apply to exports of cement and clinker, bituminous substances, mineral oils and products obtained from their distillation, or metal and non-metal products extracted from the subsoil.</p>	No	No	No
Exemption from income tax	No	<p>100% for the first eight years and 50% for the following four years to companies with new investments in strategic sectors set up under the free zone system, provided they invest at least US\$ 10 million and create 100 permanent jobs.</p> <p>100% for the first eight years and 50% for the following four years to companies with new investments in strategic sectors set up in relatively less developed areas provided they create 100 permanent jobs.</p> <p>100% for the first six years, 95% for the second six-year period and 85% for the following six years to companies with new investments in non-strategic sectors in relatively less developed areas</p> <p>94% for the first eight years and 85% for the following four years to companies in strategic sectors with sales of over 40% of their total sales, set up under the free zone system and whose initial investment is less than US\$ 10 million</p> <p>The companies subject to the free zone system, which reinvest more than 25%, more than 50%, more than 75% and more than 100% of the original investment over the first four years of operation will benefit from a 92.5% exemption from income tax from the expiry of the period in which exemption or lower rates apply to the common income tax regime for two, three or four years, respectively</p>	<p>100% for all companies in strategic sectors (free economic zones).</p> <p>100% for all companies in the eligible sectors (Panama - Pacific).</p> <p>0% for companies covered by the Industrial Development Certificate Act (CEFI)</p> <p>0% for companies subject to the Agricultural Development Act (CafA)</p>	<p>100% for all companies set up under the free zone system, for fifteen years, renewable</p>

Table II.A-3 (continued)

Incentive	El Salvador ^a	Costa Rica ^b	Panamá	Dominican Republic ^c
Exemption from rates	No/10 years (including exemption from the payment of municipal licences)	At the discretion of the Ministry of Foreign Trade, the free zone system and the relevant incentives may once again be applied in the case of a new project or in exceptional cases, all projects		Not available for any of the regimes. 15 years renewable
Exemption from all import duties, including consular fees	No/Permanent, for raw materials, finished products or semi-products, components and parts, packaging materials and bottling and other necessary merchandise, machinery and equipment, accessories and spare parts, vehicles (with restrictions), fuels, oils and lubricants (when those, if any, produced in the country are not of the required quality, quantity or timeliness), as well as for commercial and industrial samples	products or semi-products, components and parts, packaging materials and bottling and other necessary merchandise, machinery and equipment, accessories and spare parts, vehicles (with restrictions), fuels, oils and lubricants (when those, if any, produced in the country are not of the required quality, quantity or timeliness), as well as for commercial and industrial samples	Permanent, for all types of imports of goods (merchandise, products, equipment, services and other goods, including, but without being restricted to machinery, materials, bottling, construction, prefabricated materials or merchandise, raw materials, fuels and lubricants, inputs, end products, cranes, vehicles, automobiles, appliances, supplies and spare parts) (Panama Pacific and free economic zones). 3% on imports of raw materials, semi-finished or intermediate products, machinery, equipment and spares, containers, packaging and other inputs which enter into the composition or the production of their products, the only tax payable being import duty equivalent to 3% of the cif value of foreign inputs. Not included on the list are construction materials, vehicles, furniture, office supplies and any other input not used in the production process of the company, and raw materials, semi- or intermediate products and other inputs that are considered to be sensitive products for the local economy (Industrial Development Certificate Act CEFI).	15 years renewable
Exemption from export or re-export duties	No	Permanent	Permanent (Panama Pacific and Free Economic Zones)	15 years renewable
Exemption from goods and services transfer tax	No	...	Permanent (exemption from tax on transfer of tangible movable assets and services) and includes the tax on leasing (Panama Pacific and free economic zones).	15 years renewable
Exemption from land tax	No/10 years	Not available for any of the systems.	...	...
Exemption from goods transfer tax	No/10 years	Permanent (Panama-Pacific). Does	not apply to the free zone system or to other systems (CEFI and CeFA)	...
Exemption from sales and consumption tax on local purchases of goods and services	No	Permanent	Permanent (Panama-Pacific and free economic zones)	...

Table II.A-3 (concluded)

Incentive	El Salvador ^a	Costa Rica ^b	Panamá	Dominican Republic ^c
Freedom to hold and handle foreign currency	Dollarized economy	Permanent	Dollarized economy	... ^d
Restrictions on sales in the local market	No	No	No	... ^d
Exemption from tax on remittances abroad	No	Permanent	Permanent (Panama - Pacific)	... ^d
Other exemptions and benefits	No	Exemption from tax on capital and net assets for 10 years Tax credit of up to 10% of the taxable income in each year for reinvestment of profits in new fixed assets and for expenditure on teaching and training of staff and capacity-building of micro, small and medium-sized supply companies Deferred payment of income tax for 10 years or until the parent company receives dividends, whichever is first	Tax on international telephone calls (Panama-Pacific) Stamp tax (Panama-Pacific) Commercial or industrial licence or registration fee (Panama-Pacific) Taxes on the movement or storage of fuels, hydrocarbons and their derivatives (Panama-Pacific) Deduction of losses carried forward from one tax period over five tax periods, at the rate of 20% per year (Industrial Development Certificate Act (CEFI)). Possibility of opting for the customs reinstatement systems (Industrial Development Certificate Act, CEFI). Reduction of the supplemental tax to 2%.	... ^d

Source: Economic Commission for Latin America and the Caribbean on the basis of official information.

^a Refers to incentives provided for in the new Production Development Act. El Salvador has not drafted a bill for reform of the free zones.

^b Refers to the approved legislation on the free economic zones.

^c Refers to the bill for reform of legislation on the free zones now before Congress, for which no official document has been released as yet.

^d There is no information as to whether these incentives are included in the reform bill on free economic zones. The assumption is that they are included since they are already provided for under the existing legislation and if the new bill passes into law, the requirement that the production must be for export in order for these benefits to apply will be eliminated.

Chapter III

Direct investment by China in Latin America and the Caribbean

A. Introduction

Since 2008, China has become one of the world's largest sources of direct investment. These flows first reached significant levels in Latin America in 2010, when it is estimated they surpassed US\$ 15 billion. Chinese companies have in fact burst on the scene in the region so recently that several of the biggest projects were still being finalized in early 2011, or had only just been put into operation. Most investments have been made in natural resource extraction, but over the medium term this is expected to diversify into other sectors such as manufacturing and infrastructure construction.

Paradoxically, there is a lack of data on this extremely important phenomenon, which poses a constant problem for policymakers and analysts studying Chinese foreign direct investment (FDI). Appraisals of the possible opportunities and challenges presented by this increased investment flow therefore tend to lack supporting empirical evidence.

The aim of this chapter is to make some progress on this issue, at least as far as investment in the region is concerned. A variety of sources have been consulted, including investment announcements in the media and interviews with Chinese company managers and Latin American and Caribbean government authorities. Despite the evident limitations of this kind of material in terms of data quality and reliability, this course of action does provide some data to work with.

From a substantive viewpoint, the main contention is that China's FDI is governed by the level of development of the Chinese economy, its production structure, internal market conditions (which explain the development of large companies) and public policy incentives and restrictions, all of which form part of a clear long-term development strategy. Furthermore, China's trade relationship with the rest of the world in general, and with Latin American and Caribbean countries in particular, dictates the kind of investment strategies pursued by Chinese companies.

This chapter is divided into five sections. Section A examines the developments in production and trade that have given rise to the recent growth in Chinese FDI. Sections B, C and D analyse the investment flows to Latin America and the Caribbean and the main recipient

sectors. In reviewing the drivers of these investments and their functioning, particular attention has been paid to the differences between the policies that have driven Chinese growth and the prevailing situations in Latin America and the Caribbean, thus providing insights into development

strategy and policies for the region. Finally, section E presents conclusions and the medium-term outlook, outlines some of the reactions of countries receiving Chinese investment and makes suggestions for long-term policy.

B. China's growth, industrialization and international integration

1. Growth and export development

China's economic performance over the last 30 years has made it the world's second-largest economy, second-largest manufacturer and the largest exporter of goods. This boom in production and exports has been accompanied by a rapid shift in the production structure towards activities requiring greater technological sophistication and by major advances in scientific, technological and innovation capacity.

Although economic growth has brought greater income inequality, it has also significantly reduced poverty and improved the well-being of the population. During an initial phase, nutrition, life expectancy and absolute poverty indicators improved, while over the past decade an ever-increasing proportion of the population gained access to new consumer goods and services (Goh et al., 2009; ADB, 2010).

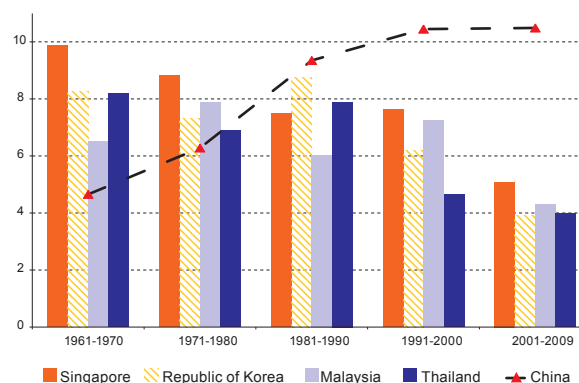
The Chinese economy has taken the same path forged some decades earlier by other Asian economies which also experienced high levels of economic growth, export expansion, poverty reduction and technological development. The Asian tigers (Republic of Korea, Singapore, Hong Kong Special Administrative Region of China and Taiwan Province of China) began to experience strong growth in the 1960s, and living standards in these countries are now equal to or better than those of industrialized countries. In Malaysia and Thailand, rapid growth began later but China is already catching up on some development indicators there as well (see figures III.1 and III.2).

The development of the Chinese economy differs from that of the Asian tigers in two important respects. The first is the size of China's population: the rest of the world lags far behind, with the exception of India.¹ Second,

State-owned companies have much more influence in the Chinese economy than in any other Asian economy.

The country's size means in the first instance that China has a far greater impact on global markets for goods and factors of production than the Asian tigers had in their day. In addition, the huge domestic market has attracted foreign investors and has given national companies the chance to grow to a large size before embarking on international expansion, especially in industries protected from international competition, such as banking, hydrocarbons and telecommunications (see chapter IV).

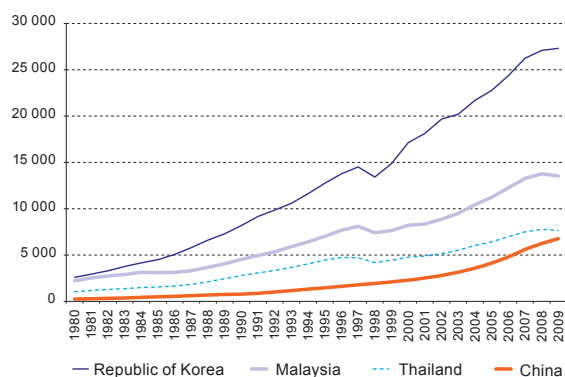
Figure III.1
CHINA AND OTHER SELECTED ASIAN ECONOMIES: AVERAGE GDP GROWTH BY DECADE, 1961-2009
(Percentages)



¹ In 2007, China had 1.325 billion inhabitants, versus 1.15 billion in India (United Nations, 2008). However, faster population growth in India will shortly make it the world's most populous nation.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Bank and Organization for Economic Cooperation and Development (OECD), World Development Indicators.

Figure III.2
**CHINA AND OTHER SELECTED ASIAN ECONOMIES:
 PER CAPITA INCOME, 1980-2009**
(Dollars, purchasing power parity)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Bank, International Comparison Program database.

In short, China's development strategy has consisted of developing its large domestic market, coupled with an aggressive and successful export strategy. Attracting FDI clearly formed part of the initial export promotion strategy. Special Economic Zones (SEZs) were created for this purpose in 1980, to test out the country's economic reforms. They were primarily intended to boost exports, but the aim was also to link China to global manufacturing markets and modernize domestic industry, principally through the operation of the transnational corporations that had been set up there (WTO, 2001).

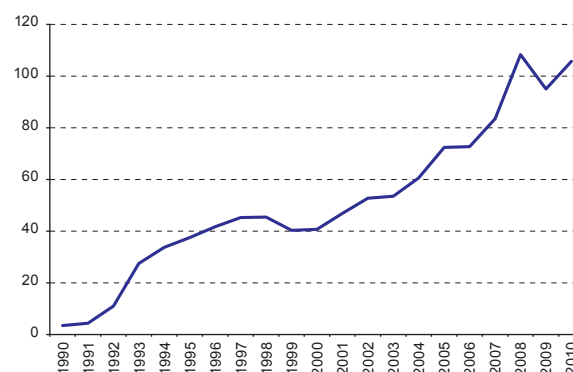
In the first years following these reforms, FDI inflows were relatively modest, but they increased dramatically from 1990 onwards (see figure III.3). Since 1993, China has been the primary recipient among developing countries, but the relative importance of transnational companies in its economy has gradually declined as the economy has developed and Chinese companies have grown and acquired new capacities. Therefore, although FDI formed a very significant part of gross fixed capital formation in the mid-1990s, its importance has been in decline, hitting 4% in 2009. The average among developing countries is 10% (see figure III.4).

In addition, China has placed restrictions on FDI in many key activities and, in manufacturing, has compelled foreign companies to form joint ventures with local companies and transfer technology. In fact, an integral part of China's long-term development strategy has been the strong interventionism of its FDI attraction policy.²

² Following the establishment of the SEZs, FDI was permitted in the rest of the country in the first half of the 1990s to promote exports, transfer technology and boost productivity. Until it joined the World Trade Organization (WTO), China employed a multitude of devices to attract FDI, including substantial tax breaks compared with the treatment of national capital. These incentives are still applicable

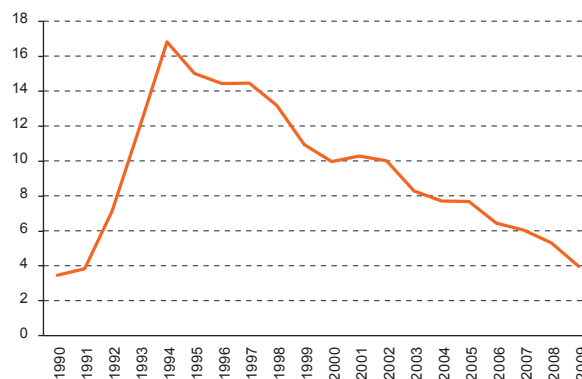
This contrasts sharply with other parts of the world, in particular Latin America and the Caribbean, where, in the context of the reforms of the 1980s and 1990s, the expectation is still that key decisions should be based on market forces alone (Davies, 2010; OECD, 2002).

Figure III.3
CHINA: INWARD FOREIGN DIRECT INVESTMENT, 1990-2010
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), foreign direct investment database.

Figure III.4
CHINA: INWARD FOREIGN DIRECT INVESTMENT, 1990-2009
(As a percentage of gross fixed capital formation)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), foreign direct investment database.

This FDI attraction strategy has borne fruit in two ways. First, transnational corporations have made a substantial contribution to Chinese exports. In 1989, exports by subsidiaries of these companies represented 9% of the total; by 2001 their share had increased to 49% and to 80% in the case of exports of high-tech products (Kennedy, 2010).

and are used, for example, to increase FDI in western China. They are contained in the Catalogue of Priority Industries for Foreign Investment in Central and Western China, implemented in 2008, and the Catalogue Guiding Foreign Investment in Industry.

Second, the Chinese authorities' insistence on forcing transnational corporations to invest through strategic partnerships with domestic companies has opened up an important channel for transferring technology and has helped develop domestic capacity in many industries. This has occurred for example in the automotive industry, beginning with strategic partnerships between Chinese auto parts suppliers and transnational corporations in the 1970s and 1980s, and moving on to the mass production of cars for the domestic market. Today, the Chinese auto industry is made up of dozens of own-brand companies producing increasingly sophisticated cars (ECLAC, 2010a, chapter II).

Export growth began at the start of the reform period and the initial focus was on basic products, with the aim of

gradually moving towards more sophisticated goods, in a process that is still ongoing today. In 1985, raw materials and natural-resource-based products represented 49% of exports, a percentage that had fallen to 12% by 2000 and is now at almost insignificant levels. Low-tech non-natural-resource-based products increased in relative importance to 54% of total exports in 1990, then began declining as other, more sophisticated products took over. In 1996, 45% of goods exports were labour-intensive products while only 8% were research and development (R&D) intensive products. By 2008, the former had dropped to 27% while the latter had doubled their presence to 16%, in a clear example of technological upgrading (see table III.1).

Table III.1
CHINA: EXPORTS BY TECHNOLOGY INTENSITY, 1996 AND 2008
(Percentages)

	1996	2008
Raw materials and derived products	19.1	11.0
Labour-intensive products	44.9	26.9
Products intensive in economies of scale	17.1	22.7
Original equipment manufacturer (OEM) products	10.5	22.9
R&D-intensive products	7.7	16.3
Unclassified	0.7	0.1

Source: Presentation by André Moreira Cunha, based on data provided by Global Trade Information Services, Santiago, Chile, 25 October 2010.

When assessing improvements in the quantity and quality of Chinese exports, their domestic value added must be taken into account, as this varies considerably depending on the company type (less with transnational corporations, more with Chinese companies). Exports of high-tech products tend to have less domestic value added, ranging from 4% for computers to 15% for telecommunications equipment (OECD, 2010). This

may be changing as private Chinese companies increase their share of exports, which rose from 5% of the total in 2001 to 30% in 2009. Although Chinese companies are clearly on the road to accumulating technological capacities, their R&D efforts are still far below the Organization for Economic Cooperation and Development (OECD) average, particularly in the high-tech industries (see table III.2).

Table III.2
CHINA AND OECD COUNTRIES: TECHNOLOGY INTENSITY LEVEL OF COMPANIES, BY TECHNOLOGY LEVEL, 2005 AND 2007
(As a percentage of R&D spending)

	OECD		China	
	2005		2005	2007
High-tech companies	30.2		3.9	5.0
Medium-tech companies	10.1		2.7	2.7
Low-tech companies	0.6		0.7	0.8

Source: Organization for Economic Cooperation and Development (OECD), 2010, *OECD Economic Surveys: China 2010*, Paris, 2010.

2. China's trade relationship with Latin America and the Caribbean

As in the rest of the world, China has been gaining ground as a source of imports for Latin America and the Caribbean, while also steadily increasing the technological content of

its exports and importing mainly natural resources. Today, China is the region's third-biggest trading partner, behind the United States and the European Union. China is an

important source of imports for all economies in the region, and for many of them it is also an important export market: 23% of Chilean, 15% of Peruvian and 13% of Brazilian exports go to China. It is predicted that this trend will continue to grow in the immediate future and that China will become the second-largest market for the region's exports by 2014 and the second-largest source of imports by 2015, overtaking the European Union in both instances and remaining second only to the United States (ECLAC, 2010c). Furthermore, the region is a more important trading partner for China than 10 years ago: its share of China's trade increased from 2.3% in 2000 to 4.9% in 2009.³

Growing trade with China is a more recent development than in other regions. In the mid-1990s, China's share of trade with the region was 1%, increasing to 1.6% in 2000 and to 8% in 2009. World trade grew at an annual rate of 9.9% between 2000 and 2009, but trade between China and Latin America and the Caribbean grew by 31.2%.

However, aggregate numbers conceal vast differences between what China buys and sells in its trade with Latin America and the Caribbean. China primarily exports manufactured goods to the region (53% of which are medium- or high-tech, compared with 19% in 1995). The region exports raw materials to China and its trade pattern is made up of just a few products. Although trade with Latin America and the Caribbean is of secondary importance to China, in the two main categories (minerals, slag and ash; and oleaginous seeds and fruits) the region's exports to China have already achieved a market share of 29.5% and 44.7% respectively. Likewise, the region's presence as an oil supplier has grown significantly.

China's impact on the trade of Latin America and the Caribbean (which is greater than vice versa) covers three areas: as an exporter of manufactured goods to almost every country in the region; as a buyer of raw materials, principally from South American countries; and as a strong competitor in the export markets, in particular for Mexico and Central America. This is consistent with the patterns for international insertion in the region based on the different competitive advantages of the subregions. South American countries specialize in the extraction of natural resources and a certain amount of primary processing, while in Central America and Mexico, as in a number of Caribbean economies, the fastest-growing activities have been those associated with the assembly of parts and components for garments, electronic items and cars destined for the United States market (Reinhard and Peres, 2000).

For countries exporting raw materials, located mainly in South America, China's influence has been

very positive. Between 2000 and 2009, the country was responsible for 63% of the growth in soybean oil consumption and 46% of the increase in demand for crude oil. By itself, the increased demand for copper from China compensated for the fall in the rest of the world. This upswing in global demand, led by China, has improved the terms of trade for most Latin American countries and the volume of their exports has expanded. A narrow range of products per country are exported to China: soybean seeds constitute 46% of Argentine exports to China, copper 42% of Chilean and 34% of Peruvian exports, and oil 89% of Ecuadorian exports (ECLAC, 2008).

With the exception of Costa Rica, China is not an important trading partner for Central America; however, it threatens the exports of almost every country in the subregion: over 90% of exports from El Salvador and Honduras fall into categories that are either wholly or partially threatened by China.⁴ The Dominican Republic, meanwhile, has seen its percentage of United States imports drop by half, in the same period that China's has doubled (see chapter II).

Like Central America, Mexico also competes with China in many of its exports, 85% of which are under threat. This stems from China's accession to the World Trade Organization (WTO) in 2001 (Gallagher and Porzecanski, 2010). One of the consequences has been a slowdown in Mexican exports to the United States. In the years following the introduction of the North American Free Trade Agreement (NAFTA), Mexican exports rose, peaking at 11.6% of total United States imports in 2002. Since then growth has stagnated, while China's share has increased from 10.8% to 19%. This aggregate figure conceals important differences between the value chains: while there has been a clear setback in the yarn-textile-garment chain, the automotive chain has managed to consolidate its position in the United States market.

The trade relationship with China poses an inescapable problem for Mexico: in 2009 the import/export ratio with China was 15:1, creating a trade deficit of over US\$ 30 billion—and a trade problem of growing political dimensions (see box III.1). Mexican exports to China are becoming

³ China's main trading partners in the region are Brazil, Chile and Mexico. Their shares of Chinese trade in 2009 were 1.7%, 0.7% and 0.65% respectively.

⁴ Changes in market share were analysed based on the market shares of China and of Latin America and the Caribbean in world exports at the two-digit level (Lall and Weiss, 2005). Products are assigned to one of five categories based on the competition between China and the region in world markets: (i) partial threat: both increase their market share, but China's increases more than the region's; (ii) no threat: both increase their market share, but China's increases less than the region's; (iii) direct threat: the region's share decreases and China's increases; (iv) China under threat: China's share decreases and the region's increases; and (v) mutual retreat: market share decreases on both sides, and neither poses a threat.

increasingly similar in nature to those of South American countries as the demand for raw materials from China grows: while in 2000 86.5% of exports to China were related to electronics and the automotive sector, these had fallen to 15.1% by 2009 and minerals (in particular copper) and other raw materials accounted for 52.5% of exports to China.

The trade patterns are therefore well defined: China imports low-value-added and low-tech raw materials, and exports increasingly high-tech manufactured goods. The

only exceptions to this rule are Mexico and Costa Rica, countries with which China trades heavily in high-tech products in both directions: 68% of Chinese exports and 60% of Mexican exports fall into this category. A significant proportion of these trade flows may be associated with trade between subsidiaries of the same company. In fact, China, Costa Rica and Mexico are all major contributors to the international systems of integrated production of many transnational corporations.

Box III.1

TRADE TENSIONS IN MEXICO

China's impact as an exporter of manufactured goods has been felt all over Latin America, as the country has begun to compete with many small domestic producers. This has created social and political problems, the footwear industry in Mexico being a good example.

In December 2007, business operators and tens of thousands of workers involved in the production of leather and footwear marched on the city of León to protest against the huge numbers of Chinese imports, an almost unprecedented event in Mexico's recent history. The protest had been preceded by petitions and pressure from the business community

that year to block the elimination of tariffs on roughly 1,300 tariff headings, some exceeding 1,000%, which Mexico had been levying on the import of various Chinese products. When China joined the World Trade Organization (WTO) in 2001, the WTO member States, including Mexico, promised to eliminate tariffs on products imported from the country within a period of six years.

The Senate weighed into the debate and in late 2007 it asked the government to reject the proposal to remove tariffs on Chinese products. It also asked for clarification on the apparently secret negotiations surrounding countervailing

duties during 2007 and an explanation of their advantages and disadvantages, given that no studies on their impact had been carried out.

In mid-2008 the Commercial Remedy Agreement was signed, and most of the tariff headings on which Mexico was levying these duties were eliminated. Of 953 tariff headings, only 204 deemed sensitive by Mexico will be maintained until 11 December 2011 (covering mainly products in the yarn-textile-garment and leather-footwear chains). Both parties must work together to avoid new tensions when the agreement expires in 2011.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of E. Dussel Peters (coord.), *Monitor de la manufactura mexicana 2009*, year 5, No. 8, Faculty of Economics, National Autonomous University of Mexico, 2009; and Rocío Ruiz Chávez, "Consideraciones sobre el impacto de la medida de transición negociada con China", 2008 [online] <http://www.economia.unam.mx/cechimex/AAC2009iyii/PresentacionRocioRuizChavez130808.pdf>.

C. Growth of China's direct investment in Latin America and the Caribbean

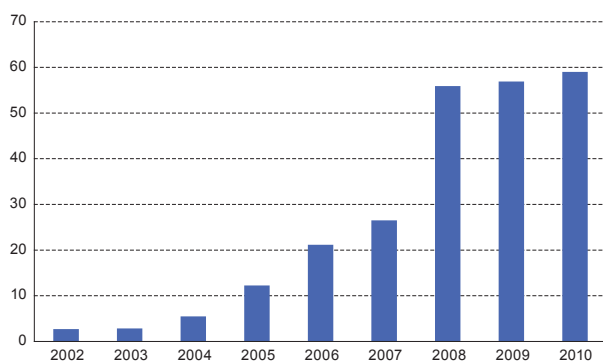
1. China: now the fifth-largest foreign investor in the world

Outward foreign direct investment flows from China began with the opening up of the country's economy in the early 1980s. But as seen in other developing economies, FDI growth was much slower and occurred much later than export growth. Between 1985 and 2007, Chinese FDI remained static at 1% of world FDI; in other words, it increased at the same rate as elsewhere. It took off in 2008, when it jumped to 4% of world FDI (see figure III.5).

It is significant that Chinese FDI grew sharply at a time when world flows dropped because of the financial crisis. As the crisis had less of an impact on China than on developed economies, Chinese companies were able to use their financial capacity to undertake investment projects over the past three years, continuing with the country's development strategy. As a result, China was the fifth-largest investor country in the world in 2009

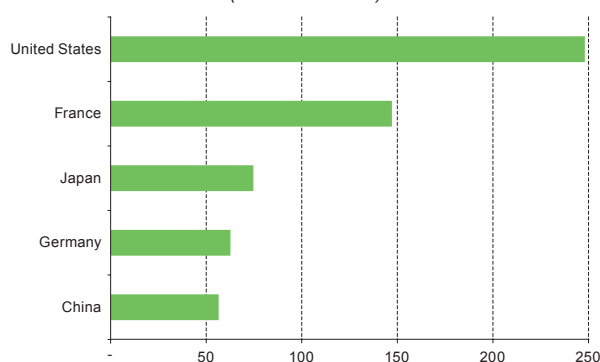
(see figure III.6). Moreover, many of the large-scale operations that have recently been announced are not reflected in the official statistics for 2010. This would point to a considerable increase in Chinese FDI in 2011.

Figure III.5
CHINA: OUTWARD FOREIGN DIRECT INVESTMENT, 2002-2010
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of China, Ministry of Commerce, 2009 Statistical Bulletin of China's Outward Foreign Direct Investment, 2010.

Figure III.6
MAIN INVESTOR COUNTRIES, 2009
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), foreign direct investment database.

Despite this growth, accumulated Chinese FDI, which reflects the contribution of Chinese companies to economic activity in recipient countries, is still lower than that of the Russian Federation and many developed countries with medium-sized economies, such as Australia, Sweden and Switzerland. In addition, its position as a source of FDI remains far lower than its position as a source of portfolio investment. Its huge trade surplus has turned it into the world's biggest saver. Most of these savings are held as government bonds,

mainly from the United States. These reserves present clear risks and opportunity costs for the country; for this reason, diversification of these assets has been intensely debated both in and outside the country in recent years (McKinnon and Schnabl, 2009).

The official statistics on FDI distribution by sector suggest a prevalence of a group of activities that support China's foreign trade, such as finance (19%), trade (15%) and logistics (7%), followed by mining (17%). These data suffer from the problems described in box III.2 and must be supplemented with data on mergers and acquisitions, which highlight the emphasis on natural resource extraction in Chinese FDI: 61% of the biggest Chinese foreign acquisitions involved companies producing raw materials in the energy and mining sectors.⁵

Although the largest amounts have been invested in the search for mining and energy resources, almost invariably by a small group of State-owned firms, Chinese FDI is in fact extremely varied. Over 12,000 Chinese companies have invested abroad, most setting up distribution subsidiaries which generated US\$ 50.5 billion in exports, a 59.8% increase on 2008 (MOFCOM, 2010).

The fact that a significant proportion of Chinese companies' FDI is channelled through subsidiaries in the Hong Kong Special Administrative Region of China, the Cayman Islands and the British Virgin Islands makes identifying it particularly difficult; however, the data available point to a strong presence in the rest of Asia and numerous investments in developed countries, and highlight the relative importance of Africa. Figure III.7 illustrates the distribution of cumulative Chinese FDI in the world in late 2009 according to official data provided by the Ministry of Commerce of China, excluding the Hong Kong Special Administrative Region of China, the Cayman Islands and the British Virgin Islands.

As may be expected, given the geographical and historical distances, only a small proportion of Chinese FDI has ended up in Latin America. Although trade relations between the region and China reached significant levels in just 10 years, FDI flows between the two were still very small in 2009. Only US\$ 255 million⁶ was invested in the region that year, representing 0.6% of Chinese FDI in the world and 0.3% of FDI inflows to Latin America.

⁵ Based on data from Thomson Reuters on the top 33 cross-border acquisitions by Chinese companies.

⁶ This figure excludes the (far larger) amounts which reached the financial centres in the Caribbean.

Box III.2

THE PARADOX OF DATA ON CHINESE FDI

The international expansion of Chinese companies over the past few years is visible all over the world and in

a wide variety of sectors, yet it is almost undetectable in official FDI data, particularly in data disaggregated

by industry and recipient country. This applies to both data from China and the data from recipient countries.

DIRECT INVESTMENT BY CHINA IN SELECTED LATIN AMERICAN ECONOMIES, 1990-2010
(Millions of dollars)

Country	1990-2005	2006-2009	2010
Argentina	22	117	...
Brazil	65	145	480
Colombia	15	0	3
Ecuador	8	200	41
Mexico	58	59	5

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the central banks and ministries of economic affairs of the respective countries.

In China, official data are compiled by the Ministry of Commerce (MOFCOM, 2010). These may underestimate the phenomenon because not all companies register their investments. For example, Chinese FDI registered by OECD countries is on average 40% higher than that reported by the Ministry (OECD, 2008).

FDI data disaggregated by industry and by country as presented by the Ministry and recipient countries are distorted by the habit of many companies of channelling their investments through holdings in third countries, which are often registered as financial or services firms. Four of the top ten Chinese foreign acquisitions were carried out from subsidiaries in third countries and 79% of Chinese FDI was channelled through the British Virgin

Islands, the Cayman Islands or the Hong Kong Special Administrative Region (SAR) of China. In addition, some of the transactions destined for the Hong Kong SAR of China came back to China, in a phenomenon known as round-tripping. In 2003 it was estimated that these kinds of investment accounted for 10-20% of Chinese FDI in the Hong Kong SAR of China (UNCTAD, 2003).

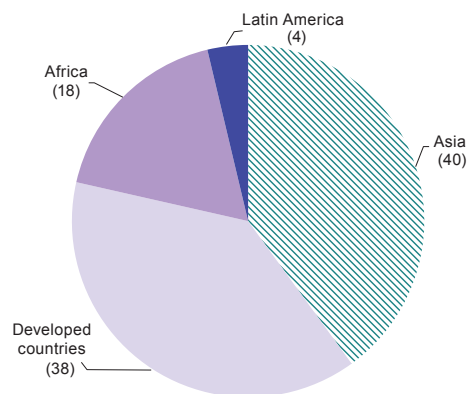
Other limitations of the official statistics on FDI are not exclusive to China, but they do particularly affect investments made by Chinese companies. In the natural resources sector, "finance for assured supply" agreements have been very important (see section D.1 of this chapter). These do not constitute FDI but they often involve a certain

amount of resource control by Chinese companies, at least on a temporary basis. Investment in infrastructure-building has also been considerable, whereby Chinese companies produce and offer various services in the destination countries, but these are recorded as exports, not investments. Finally, given that the biggest Chinese acquisitions in the region were announced in 2010, many of them had not yet been registered in the balance-of-payments statistics for recipient countries in early 2011.

Analysis of Chinese FDI in this chapter is therefore based on data collected from the companies themselves and on data provided in announcements of investments, mergers and acquisitions, more than on official balance-of-payments data.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organization for Economic Cooperation and Development (OECD), *OECD Investment Policy Review of China*, Paris, 2008; and United Nations Conference on Trade and Development (UNCTAD), *World Investment Report, 2003. FDI Policies for Development: National and International Perspectives* (UNCTAD/WIR/2003), Geneva, 2003. United Nations publication, Sales No. E.03.II.D.8.

Figure III.7
CHINA: DISTRIBUTION OF CUMULATIVE FDI, YEAR-END 2009
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of China, Ministry of Commerce, *2009 Statistical Bulletin of China's Outward Foreign Direct Investment*, 2010.

In 2010, however, China became the third-largest investor in the region, behind the United States and the Netherlands. Table III.3 provides an estimate of the acquisitions and greenfield investments in the region up to 2010 and those expected from 2011 on, based on transactions in the financial markets and information from the companies themselves.⁷

⁷ These data do not necessarily coincide with those in the official balance-of-payments statistics. In addition to the methodological problems discussed in box III.2, half of the acquisitions by Chinese companies in Latin America involved subsidiaries of foreign companies which are not reflected in the net FDI of recipient countries. Moreover, some of these acquisitions were agreed in late 2010 and therefore have not been included in the balance-of-payments statistics for that year. For this reason, the estimate of US\$ 15.251 billion for 2010 is not comparable with the total figure of US\$ 113 billion for FDI in the region.

Table III.3
DIRECT INVESTMENT BY CHINA IN SELECTED ECONOMIES OF LATIN AMERICA AND THE CARIBBEAN
(Millions of dollars)

Country	Confirmed investments		Investments announced
	1990-2009	2010	2011 onwards
Argentina	143	5 550	3 530
Brazil	255	9 563	9 870
Colombia	1 677	3	...
Costa Rica	13	5	700
Ecuador	1 619	41	...
Guyana	1 000	...	...
Mexico	127	5	...
Peru	2 262	84	8 640
Venezuela (Bolivarian Republic of)	240	...	...
Total	7 336	15 251	22 740

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Thomson Reuters, fDi Markets [online] <http://www.fdimarkets.com/>, official sources and interviews with representatives of the respective companies.

The main recipient countries are, in descending order, Brazil, Argentina and Peru, all of which have a close trading relationship with China. China is also sometimes an important source of investment for smaller economies, as has recently been seen in Ecuador and Guyana. With the possible exception of Costa Rica, Chinese investment has practically no relevance in Mexico and Central America (see box III.4). Almost all (92%) of the confirmed investments were in the area of natural resource extraction, primarily in the hydrocarbons sector. The remaining 8% were destined for Brazil's domestic market, mainly in infrastructure provision and, to a lesser extent, manufacturing. Investments designed to create platforms for export to other countries were very small

(0.3%). Investments in the metallurgy sector in Brazil and in the mining sector in Peru are among those announced but not yet carried out. These data will be examined more closely in sections D and E of this chapter.

Investment in China by companies from Latin America and the Caribbean is even smaller and is not dealt with in this chapter. The reason for this is China's selective openness to FDI. The principal trans-Latins engage in activities that are practically closed to FDI in China, such as oil, iron and steel production and telecommunications services. Very few manufacture medium-tech and high-tech products, which are the areas favoured by the Government of China in its FDI attraction policy.⁸

2. Factors driving China's foreign direct investment

Recent trends in Chinese FDI have been influenced by a number of internal and external factors. One of the most important of these is the Chinese government's policy of encouraging its companies to expand overseas.

This policy has evolved since the start of the economic reforms, but there has been a consistent trend towards greater openness and support of FDI. In 1979, FDI was permitted for State-owned companies under the supervision of the Ministry of Foreign Trade (now the Ministry of Commerce). In 1985, the right to invest abroad was extended to all companies, both State-owned and private, provided they had sufficient capital and the operational and technological capacity. In the

1990s, the government stance on FDI grew increasingly positive, until, in 2000, the President in his report to the National People's Congress introduced the "going global" strategy, which actively promotes these kinds of capital outflows. This policy has been consistently implemented through ongoing reforms and it is the reference for government activities in this area. Under the same policy, measures have been implemented

⁸ One exception is the Brazilian aircraft manufacturer Empresa Brasileira de Aeronáutica (Embraer), which has opened a factory in China, primarily to serve the local market. Others include the Mexican companies CEMEX and Bimbo and the Brazilian companies Votorantim and Marcopolo.

facilitating the approval of outward FDI and explicitly supporting Chinese transnational companies.

Among other reforms, procedures have been streamlined, capital controls for transnational companies have been relaxed, and the process for issuing permits for smaller investments has been decentralized and handed over to local governments. These reforms were implemented gradually over the course of a decade and aimed to make the process of investing abroad more transparent.

Currently, company investment projects have to be approved by the National Development and Reform Commission (NDRC), which reports to the State Council, or the Ministry of Commerce, and by the State Administration of Foreign Exchange (SAFE).⁹ The complexity of the approval process depends on the amount to be invested.¹⁰ The other factors taken into account are (a) the presence of State-owned companies; (b) whether the aim of the investment is to obtain natural resources; and (c) whether the destination of the investment is an entity with which China does not have diplomatic relations (Taiwan Province of China and countries that recognize it, in the main). The process does not usually take more than 25 working days; in some instances the NDRC has given its approval in two days. The NDRC itself states that it has no interest in taking part in the negotiations or in the price of the operation; rather it is interested in checking the strategic relevance of the project and whether it is at odds with national policies on reducing energy consumption or cutting down pollution (RBS, 2009).

Measures to encourage outward FDI include tax breaks and, more significantly, public financing of FDI projects. In 2004 the government announced a plan to offer subsidized credit to companies investing abroad in certain priority areas: the acquisition of natural resources scarce in China, manufacturing and infrastructure projects that involve the export of Chinese technology, and R&D projects and acquisitions that strengthen the global competitiveness of Chinese companies. China Development Bank and the Export-Import Bank of China (China Eximbank) are the two key instruments of this policy, although other public banks have also collaborated.¹¹ The company in

question only needs to find 30% of the funds required for its project; the rest may be obtained from the banks mentioned above at preferential rates, terms or amounts (RBS, 2009).

Official assistance from the Chinese government is also used to support the international expansion of Chinese companies, in cases where the involvement of Chinese companies is made a condition of financing for infrastructure-building projects. In keeping with its burgeoning foreign direct investment, China has concluded 127 bilateral investment treaties and 112 double taxation agreements (Davies, 2010).

Besides the permits required by the NDRC and by the Ministry, and the substantial incentives offered by State-owned banks for these projects, the Government of China exerts control over foreign direct investment through State ownership of the main transnational companies. Currently, some 122 non-financial companies are owned by the State, and are the responsibility of the State-owned Assets Supervision and Administration Commission (SASAC).

These companies, which are all extremely large, underwent a transformation in the 1990s, cutting back on staff and ending the direct provision of social insurance benefits to their workers. Following these reforms, results improved and in 2005 these companies began showing a profit. Thanks to a virtual monopoly in many major sectors, they have made sizeable profits, which are expected to exceed 1 trillion yuan (US\$ 152.16 billion) for the first time in 2010.¹²

State-owned companies are prominent in sectors protected from international competition, such as hydrocarbons, energy distribution, banking, and iron and steel production. Almost all Chinese companies listed in the *Fortune Global 500* are State-owned (see table III.4). They are also the ones with the biggest investment projects overseas.

All companies not controlled by the SASAC consider themselves to be privately owned, and, although not

⁹ In May 2009 the Ministry of Commerce delegated responsibility for assessing and approving outward FDI to the provincial authorities; for projects that are larger scale and more politically sensitive, the Ministry must issue its assessment within 30 working days and the provincial authorities must take a final decision within 20 working days.

¹⁰ Projects worth over US\$ 200 million also require the approval of the NDRC.

¹¹ There are four large banks in China, and all are controlled by the State despite being listed on the stock exchange: Industrial and Commercial Bank of China, Bank of China, China Construction Bank and Agricultural Bank of China. Their main business consists

of traditional activities: receiving deposits and lending money at the official interest rates (mainly to State-owned companies). Three new banks were set up in 1994 to take over as instruments of economic policy, a role increasingly being abandoned by the aforementioned banks. The new banks are the Agricultural Development Bank of China, China Development Bank and the Export-Import Bank of China. The last two are those most commonly used to support outward FDI.

¹² In 2005 the State began receiving a proportion of these companies' profits. In 2011 the government decided to increase the percentage to be handed over to the State by 5%, to fund public services and reduce the pace of investment. This will also curb or slow the FDI carried out by these companies, compared with the strong growth seen over the past few years. See [online] <http://www.ft.com/cms/s/0/85413b18-1413-11e0-a21b-00144feabdc0.html#axzz19bTkYFA3>.

particularly large individually, as a group they dominate the Chinese economy.¹³ Their shareholders in any case often still include public institutions. Lenovo is a case in point, as over 50% of its shares are owned by the Chinese Academy of Sciences. Often, they were created as municipal companies that later opened up to private shareholders, but retained the link with the local government

as a means of facilitating the company's operations in its home municipality. Taking into account the shares held by local governments and government-controlled organizations—minority holdings in many cases—very few Chinese transnational companies are entirely private, though the government only has direct control over those managed by the SASAC.

Table III.4
TOP 30 CHINESE COMPANIES LISTED IN THE *FORTUNE GLOBAL 500*, BASED ON 2009 SALES
(Millions of dollars)

Company	World ranking	Sales	Sector
1 Sinopec	7	187 518	Hydrocarbons
2 State Grid	8	184 496	Electricity
3 China National Petroleum	10	165 496	Hydrocarbons
4 China Mobile Communications	77	71 749	Telecommunications
5 Industrial & Commercial Bank of China	87	69 295	Finance
6 China Construction Bank	116	58 361	Finance
7 China Life Insurance	118	57 019	Finance
8 China Railway Construction	133	52 044	Infrastructure
9 China Railway Group	137	50 704	Infrastructure
10 Agricultural Bank of China	141	49 742	Finance
11 Bank of China	143	49 682	Finance
12 China Southern Power Grid	156	45 735	Electricity
13 Dongfeng Motor	182	39 402	Manufacturing
14 China State Construction Engineering	187	38 117	Infrastructure
15 Sinochem Group	203	35 577	Hydrocarbons
16 China Telecommunications	204	35 557	Telecommunications
17 Shanghai Automotive	223	33 629	Manufacturing
18 China Communications Construction	224	33 465	Infrastructure
19 China National Offshore Oil	252	30 680	Hydrocarbons
20 CITIC Group	254	30 605	Diversified
21 China FAW Group	258	30 237	Manufacturing
22 China South Industries Group	275	28 757	Manufacturing
23 Baosteel Group	276	28 591	Steel
24 COFCO	312	26 098	Food
25 China Huaneng Group	313	26 019	Electricity
26 Hebei Iron & Steel Group	314	25 924	Steel
27 China Metallurgical Group	315	25 868	Steel
28 Aviation Industry Corporation of China	330	25 189	Manufacturing
29 China Minmetals	332	24 956	Mining
30 China North Industries Group	348	24 150	Manufacturing

Source: *Fortune Global 500*.

Note: Highlighted companies have invested in Latin America.

Nevertheless, even in the case of State-owned companies, Chinese FDI cannot be explained solely as a response to government policy. As in other countries, these outflows of capital are driven by a combination of official policies, indications from world markets and internal economic conditions in the recipient country. Aside from the importance of the State sector, which has already been mentioned, the following characteristics of the Chinese economy have the greatest impact on the investment strategy adopted by transnational companies: fast growth, extremely high saving levels, an export trend

within the manufacturing sector, strong domestic investment in infrastructure and a focus on science, technology and innovation. As a result, many Chinese companies have acquired financial, technological and operational capacities that have turned them into major foreign investors.

Many companies—operating in an economy with high rates of growth, especially in the sectors enjoying the most protection from international competition—have grown, expanded their capacity and accumulated profits over the past few years. Oil companies, for example, have benefited as well from a production structure tailored to energy-intensive sectors, and companies specialized in building infrastructure have also had unique opportunities for expansion thanks to the fast pace of construction in China in recent years.

¹³ These companies (including subsidiaries of transnational companies) were responsible for 55% of GDP in 2001, compared with 35% in the case of State-owned companies.

The export trend within the Chinese manufacturing sector has encouraged companies to invest in certain countries and industries in order to sidestep trade barriers, as will be seen later in the Brazilian case study. It has also generated considerable investment in activities supporting overseas trade, such as selected kinds of financial services, logistics and transport services, and overseas sales offices.

Lastly, recent technological advances in certain industries have created technological capacity in some companies, which is beginning to be exploited in other markets through direct investment. Companies specializing in telecommunications infrastructure (such as Huawei) and railway equipment (such as China South Locomotive & Rolling Stock) exemplify this trend.

Paradoxically, the shortcomings of the business environment in China when compared with the main investor countries in the world may also be an incentive for companies to invest abroad.¹⁴ There have been instances in the past of companies in emerging economies investing overseas to make it more difficult for their governments to expropriate their assets or to gain access to public services of a better quality than those available in their domestic markets (Sauvant and McAllister, 2010). Acquiring key assets has been an important factor behind Chinese FDI (Deng, 2009; Child and Rodrigues, 2005).

Many Chinese firms have acquired foreign companies to obtain technology or brands that would take years to acquire in China, the most well-known examples being Lenovo-IBM and Geely-Volvo (ECLAC, 2010a, chapter II). This is a characteristic shared with other developing economies, such as India (Fortanier and Tulder, 2008; Athreye and Kapur, 2009).

The above-mentioned expansion strategy is reflected in the marked preference within Chinese FDI for mergers and acquisitions, with the corresponding absorption of brands and tacit knowledge, rather than greenfield investments. In 2006, 84% of Chinese FDI was invested through mergers and acquisitions and various surveys indicate that this mode of entry will become even more common in the future (OECD, 2008). All major operations in Latin America have been effected through mergers and acquisitions, with the exception of those governed by State agreements, as in the oil sector (see table III.5).

In some cases, Chinese companies invest abroad because of obstacles to national expansion, such as explicit regulations or business practices that protect some markets from competition. For these reasons, companies such as Sinopec and State Grid that would typically seek to expand into other regions of China have chosen FDI.

Table III.5
CHINA: MAIN OVERSEAS ACQUISITIONS BY VALUE
(Millions of dollars)

Ranking	Year	Target company (percentage acquired)	Acquiring enterprise	Sector	Country	Value
1	2008	Rio Tinto PLC (9%) ^a	Chinalco	Mining	United Kingdom	14 284
2	2009	Addax Petroleum Corporation	Sinopec	Oil	Switzerland	7 157
3	2010	Repsol YPF Brasil SA (40%)	Sinopec	Oil	Brazil	7 111
4	2008	Standard Bank Group Ltd (20%)	ICBC	Finance	South Africa	5 617
5	2010	Syncrude Canada Ltd (9%) ^a	Sinopec	Oil	Canada	4 650
6	2005	PetroKazakhstan Inc	CNPC	Oil	United Kingdom	4 141
7	2008	Awilco Offshore ASA	CNOOC	Oil	Norway	2 501
8	2006	OAQ Udmurtneft	Sinopec	Oil	Russian Federation	3 500
9	2010	Bridas Corporation (50%)	CNOOC	Oil	Argentina	3 100
10	2008	Tuas Power Ltd	Huaneng	Electricity	Singapore	3 072
11	2010	Album Resources Private Ltd	Minmetals	Mining	Australia	2 818
12	2006	NNPC-OML 130 (45%)	CNOOC	Oil	Nigeria	2 692
13	2009	OAQ MangistauMunaiGaz	CNPC	Oil	Kazakhstan	2 604
14	2009	Felix Resources Ltd	Yankuang	Mining	Australia	2 807
15	2006	Nations Energy Company Ltd	CITIC	Oil	Canada	1 956
16	2008	Tanganyika Oil Company Ltd	Sinopec	Oil	Canada	2 028
17	2005	IBM Corporation (Personal Computing)	Lenovo	Manufacturing	United States	1 750
18	2010	Athabasca Oil Sands (assets)	CNPC	Oil	Canada	1 737
19	2010	Expansión Transmissão Itumbiara	State Grid	Electricity	Brazil	1 702
20	2010	Volvo Car Corporation	Geely	Manufacturing	Sweden	1 500
21	2006	EnCana Corporation (Ecuador assets)	Sinopec	Oil	Ecuador	1 420
22	2009	OZ Minerals Ltd (certain assets)	Minmetals	Mining	Australia	1 386

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by Thomson Reuters.

Abbreviations: CNOOC, China National Offshore Oil Corporation; CNPC, China National Petroleum Corporation; ICBC, Industrial and Commercial Bank of China.

^a Does not constitute FDI, being under 10% of the capital.

¹⁴ These shortcomings are apparent in the quality and depth of the financial markets, the rule of law and protection against expropriation, regulations governing competition, physical

infrastructure, protection of intellectual property, human capital and trade transparency (OECD, 2010).

3. Forms of Chinese foreign direct investment

All the above-mentioned factors, sometimes at work within the same company, result in fairly diverse forms of FDI, as described below. Some drivers are more important than others, and not all are present in Latin America and the Caribbean.

(a) Acquisition of natural resources

This has been the reason behind the largest Chinese investments in the world to date, particularly in Latin America. It has primarily been carried out by State-owned companies (see section D).

(b) Acquisition of other key assets

The company Lenovo is perhaps the most famous example of this. When IBM made the strategic decision to stop producing computers and concentrate on services, Lenovo seized the opportunity to acquire this area of the business—both the technology and the brand. In a very short space of time it had become a company with an international presence and a recognized brand, a process that would have taken a decade through organic growth. This kind of investment occurs naturally in developed countries, although it has indirect implications for Latin America too. Companies in this segment tend not to be State-owned.

(c) Market-seeking

This is always an important driver of FDI for many kinds of companies, including:

- (i) Companies contracted to build public works and industrial infrastructure that have developed their capacities in the Chinese market and are looking to expand internationally. Some are already highly developed technologically, such as manufacturers of telecommunications networks, and others specialize in works funded by the Chinese government (see section E.1);

- (ii) Manufacturing companies that choose FDI as a way to serve certain markets, as an alternative to exporting from China. Within this category, original equipment manufacturers that have become independent from their original partners play a prominent role. In Latin America, this kind of investment is mainly found in Brazil (see section E.2);
- (iii) Smaller manufacturers with very idiosyncratic strategies. These kinds of investment do not tend to be made in Latin America. They are generally concentrated in Asia, and rely a great deal on personal contacts. The smallest firms (“briefcase transnationals”) target the nearest and poorest countries such as the Lao People’s Democratic Republic and Cambodia (Yeung and Liu, 2008).

(d) Diversification

Over and above simply seeking markets, some Chinese companies are forced to invest abroad in order to diversify, having found this impossible in China. The oil company Sinopec is an example of this: it invests in extracting oil outside China rather than within the country, as this sector is already occupied by other companies.

(e) Efficiency-seeking

As production costs in China go up, more companies are choosing to move production outside the country to reduce costs. In less sophisticated industries, companies are turning to other Asian countries with lower labour costs, such as Viet Nam. Companies with greater technological content sometimes include Latin American countries in their investment plans, as Lenovo did with Mexico (see section E.2).

The Chinese government openly supports diversification and the acquisition of natural resources and key assets, while market-seeking and efficiency-seeking strategies are supported to a lesser degree or not explicitly.

4. Reactions among recipient economies

To date, Chinese FDI has focused on acquiring natural resources and other key assets, and the potential benefits of this for recipient economies are debatable. Chinese FDI does not contribute as much to national

innovation systems in recipient countries as may be expected because of the emphasis on acquiring natural resources or other key assets such as technology or brands. When it comes to acquisitions seeking key

assets, mainly technology, the relationship between the recipient country and the transnational company is reversed: rather than the investment bringing new technology, technology developed locally is absorbed by the foreign company.

To put the expansion of asset-seeking Chinese companies into perspective, the circumstances and strategy of the companies selling these strategic assets must be taken into account. In the main, they consist of groups that are restructuring their business through an expansion plan or in response to a crisis, and feel that a large part of their assets no longer add value to the group. The sale of Volvo to Geely, for example, meets these criteria, and may be seen as part of a worldwide tendency for car production capacity to decrease in North America

and Europe and increase in China (ECLAC, 2010a, chapter II). However, transferring ownership of these assets does allow these changes in world industry to take place in a less destructive manner than the closure of Volvo's production factories would.

Besides its meagre contribution to local innovation capacity, Chinese FDI has suffered criticism in recent years for being under the control of the State, for being driven by State strategy more than by business considerations and for constituting unfair competition in cases where private companies in other countries have shown interest in the same acquisition. These criticisms have been put forward in a number of noteworthy cases, mainly in developed countries, where some large acquisitions have been blocked (see table III.6).

Table III.6
CHINA: MAIN FAILED ACQUISITION ATTEMPTS OVERSEAS BY VALUE
(Millions of dollars)

Year	Target company	Target percentage	Country	Buyer	Sector	Value
2005	Unocal	100	United States	CNOOC	Oil	19 519
2009	Rio Tinto	18	United Kingdom	Chinalco	Mining	19 500
2007	Barclays	6	United Kingdom	China Development Bank	Finance	5 594
2009	Hammersley Iron	50	Australia	Chinalco	Mining	5 150
2009	Nufarm	100	Australia	Sinochem	Manufacturing	3 484
2008	Fortis Investment Management	50	Belgium	Ping An Insurance	Finance	3 362
2004	Inchon Oil Refinery	100	Republic of Korea	Sinochem	Manufacturing	1 965
2004	MG Rover	70	United Kingdom	Shanghai Automotive Industry and Nanjing Motor	Manufacturing	1 908
2010	CSR-Sucrogen	100	Australia	Bright Food	Manufacturing	1 610
2009	Block 32 Offshore	20	Angola	CNOOC Sinopec	Oil	1 300

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by Thomson Reuters.

Abbreviations: CNOOC, China National Offshore Oil Corporation.

The first and most important case was Unocal, the United States oil company which went on sale in 2005. The Chinese State-owned company China National Offshore Oil Corporation (CNOOC) made a hostile takeover bid of US\$ 19 billion. The United States government opposed it on national security grounds and because it considered that an offer by a State-owned company constituted unfair competition. In the end, CNOOC withdrew its offer and Unocal shareholders accepted a lower offer from Chevron.

Chinalco and Rio Tinto, the Australian-British mining giant, have had a more complex relationship. Having acquired 9% of Rio Tinto in 2008 (see table III.5), the Chinese company made a complex offer in 2009 to increase its share to 18%. This was rejected by the Rio Tinto directors following opposition from a significant number of the shareholders, although the Australian government's approval was also needed and its position was uncertain. Later, the two companies began working together again on joint projects in Guinea and in China itself.

In the case of Huawei, the company's attempted acquisitions in the United States were vetoed outright, for

national security reasons. The company (which is not listed on the stock exchange and does not publish statistics on its shareholders) maintains that the bulk of its shares are held by its employees, but the United States government suspects that the company has ties to the Chinese army. In 2008, the Committee on Foreign Investment in the United States blocked Huawei's acquisition of 3M, because 3M manufactures equipment for the United States army. In 2010, another two offers (for 2Wire and a unit of Motorola) were rejected for the same reason.

Chinese companies are not the only ones to see their acquisitions blocked. There have recently been other significant cases in which recipient governments have blocked cross-border acquisitions using the national security argument,¹⁵ but there is no doubt that Chinese companies experience much higher numbers of failed acquisitions (11% last year) than companies in the United States or the United Kingdom (2% and 1% respectively) (*Financial Times*, 2011a).

¹⁵ Two important examples are the attempts by Dubai World to acquire the assets of P&O in the United States and those of Potash in Canada.

D. Chinese companies and natural resource extraction in Latin America and the Caribbean

1. Strategies for supplying China with raw materials

The growth and development of the Chinese economy has had a huge impact on the consumption and trade of raw materials worldwide. Although China produces considerable and increasing amounts of these materials, the massive surge in domestic demand has rapidly turned the Asian giant from a net exporter of raw materials into the largest net importer in the world. Between 2000 and 2009, China was responsible for 46% of the global increase in consumption of oil, 72% of the increase for steel and 170% of the increase for copper (in fact, China's increased consumption of copper compensated for the drop in the rest of the world). Other developing economies have also fuelled the increase in consumption, but to a much lesser degree: comparable percentages for India, for example, are between 6% and 7% (ECLAC, 2008).

Rising prices of raw materials over the past six years have prompted many governments in importing countries to adopt overt or not-so-overt strategies to ensure they have sufficient supplies. China has taken diplomatic and trade measures with this objective in mind, including long-term purchasing contracts, direct investment and donations to exporting countries.

In Latin America and the Caribbean, "finance for assured supply" agreements, normally channelled through

China Development Bank, have played a prominent role. In 2009, the bank lent US\$ 10 billion to the Brazilian company Petrobras, in exchange for 200,000 barrels a day. It also lent the Government of the Bolivarian Republic of Venezuela US\$ 10 billion in 2010, and made available a similar sum in yuan. This loan will be repaid in the form of oil exports of between 200,000 and 300,000 barrels a day over 10 years, representing approximately 10% of the country's current oil exports. In 2005, the Chinese State-owned company Minmetals signed a US\$ 550 million agreement with the Chilean State-owned company CODELCO to purchase a long-term supply of copper ore (see section D.3).

Although these loans do not constitute FDI, they often include clauses favouring the involvement of Chinese companies. In the agreement with the Bolivarian Republic of Venezuela, there are clauses expressly tying part of the loan to infrastructure development projects that Chinese companies will work on. The Minmetals agreement included an option to purchase shares, which ultimately was not exercised. The Petrobras loan has no terms of this kind, although the Chinese companies Sinopec and Sinochem did make investments shortly after the loan signing.

2. Investment in hydrocarbons

In China, the extraction and distribution of minerals and hydrocarbons is dominated by State-owned companies, and inward FDI is highly restricted. The hydrocarbons sector is completely controlled by four companies: Sinopec, China National Petroleum Corporation (CNPC),

Sinochem and China National Offshore Oil Corporation (CNOOC). These firms have experienced strong growth in the past decade and are now among the largest oil companies in the world (see table III.7).

Table III.7
TOP CHINESE AND GLOBAL OIL COMPANIES, 2009

Company	Fortune Global 500 ranking	Hydrocarbons production (millions of barrels/day)	Profit (billions of dollars)
Royal Dutch Shell	2	3.3	13
ExxonMobil	3	4.2	19
BP	4	3.8	17
Sinopec	7	0.7	4
China National Petroleum Corporation	10	3.7	15
Sinochem	257	0.02	0.6
China National Offshore Oil Corporation	409	0.8	4

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the *Fortune Global 500* and company annual reports.

All are State-owned, although they are also listed on stock exchanges in China and overseas through subsidiaries. They have different characteristics depending on their origin and the business strategy adopted over the past decade. CNPC, for example, is the successor to the former Ministry of Petroleum and has traditionally focused on extraction. Sinopec specializes in processing and distribution while CNOOC, a newer company, specializes in exploiting off-shore wells. Sinochem was responsible for exporting oil from China and hence is the most international of the four.

All these firms have diversified in recent years, becoming large energy groups and sometimes conducting activities in other sectors, such as the chemical industry, agriculture and finance. However, company origins continue to have a bearing on the strategies adopted. Of the four, CNPC is still the company that focuses most on production and is the first to look overseas, where it tends to join forces with governments and State-owned enterprises. CNOOC operates in a segment requiring state-of-the-art technology and therefore has a longer tradition of forming partnerships with foreign companies. Sinopec and Sinochem have both frequently opted for partnerships with private companies.

All four are now truly global companies, although the percentage of their assets outside China continues to be small: 3% for CNPC, 9% for CNOOC and 30% for Sinochem (VCC, 2010). They may or may not act as operator; they may operate alone or buy a stake in a strategic partnership with a State-owned enterprise or a transnational company.¹⁶ Also, like other large corporations in the industry, they participate in the international market for oilfield services, as both suppliers and customers (Shankleman, 2009). For

¹⁶ Oilfields are usually controlled by consortia of companies. One company is the operator and is responsible for deciding the mode of production and managing relations with the authorities and local communities. The other companies in the consortium have a much more passive role. Other oilfields are exploited through joint ventures. The partners nominate individuals to manage the new company in accordance with their proportion of company shares.

example, Sinopec constructed a gas pipeline in Brazil in 2010 under a contract for US\$ 1.25 billion.

Soaring consumption in China (which has doubled in the past decade, compared with an increase of only 11% in the rest of the world) has stimulated growth in the four companies' refining and distribution activities and has exposed their relatively scant reserves. Sinopec, for example, bought 75% of the oil it needed for its refineries from other producers in 2009 (Sinopec, 2009). This business rationale, coupled with pressure from the government to secure sufficient supplies of energy, led to a raft of acquisitions in 2010. According to estimates, a fifth of all acquisitions within the industry in 2010 were made by Chinese companies (*Financial Times*, 2010).

The growth in China's acquisition of oil assets can be explained by the resources at its disposal (both those generated internally and bank loans) and also by unusual levels of supply in the market, following the decision by many large companies to sell off non-essential assets to fund new exploration.¹⁷

In contrast to other Chinese transnational corporations, companies in this sector have been keen to invest in Latin America and the Caribbean and the largest acquisitions thus far have been made in this industry. As elsewhere in the world, Chinese oil investments in the region have gone through two stages: the first mainly involved individual exploration and production concessions tied to agreements between States, while in the second, more recent, stage, Chinese companies have opened up to partnerships with private international companies (see table III.8).

In Latin America and the Caribbean, CNPC was the main player during the first stage, and began by acquiring concessions to exploit oilfields in the Bolivarian Republic of Venezuela, Ecuador and Peru. The company later increased its assets in Ecuador and Peru by purchasing small oil companies with assets in these countries.

¹⁷ Annual transactions usually add up to about US\$ 30-40 billion. The consultancy firm Derrick Petroleum Services estimates that in late 2010 US\$ 90 billion in oil assets was on the market.

CNPC's largest operations have been in the Bolivarian Republic of Venezuela. In line with new government policy, the concessions CNPC was exploiting as sole operator were converted in 2006 into strategic partnerships with the State-owned company, *Petróleos de Venezuela SA* (PDVSA). In total, CNPC controls approximately 3 million tons of production annually in the Bolivarian Republic of Venezuela, around 5% of its total hydrocarbons production. In Ecuador, the company (along with other foreign operators) also had to agree to new government terms in 2010, meaning the State would be the sole beneficiary

of any profits and companies would be compensated for production at a flat rate.

As for investments in processing, CNPC currently has two major projects that have yet to get under way. Working with the government and PDVSA, the company is planning to expand the Cienfuegos refinery in Cuba by building a regasification plant and a combined-cycle thermoelectric plant. China Eximbank will finance 85% of this investment, which will be guaranteed in full by the Government of the Bolivarian Republic of Venezuela in the form of crude oil supplied by PDVSA (see chapter I, box I.4).

Table III.8
CHINA: MAIN INVESTMENTS IN HYDROCARBONS IN LATIN AMERICA AND THE CARIBBEAN, 1994-2010
(Millions of dollars)

Investment projects by company	Country	Year	Estimated investment	Mode of entry	Notes
Extraction					
CNPC	Peru	1994	46	Licence	In production; block 6/7 of Talara oilfield
CNPC	Venezuela (Bolivarian Republic of)	1998	> 240	Licence	In joint production with PDVSA, amounts invested unknown
CNPC	Venezuela (Bolivarian Republic of)	1998	...	Licence	In joint production with PDVSA
CNPC	Ecuador	2003	199	Licence	Withdrew in 2010 owing to the regulatory changes
CNPC	Peru	2004	200	Mergers and acquisitions	In production; 45% of Plus Petrol Norte
CNPC	Peru	2005	80	Licence	In production; blocks 111 and 113 in Madre de Dios
CNPC (55%) and Sinopec (45%)	Ecuador	2006	1 420	Mergers and acquisitions	In production; purchased the assets of Canadian company Encana in Ecuador
Sinopec	Colombia	2006	800	Mergers and acquisitions	In production; acquired 50% of Orimex
Sinochem	Colombia	2009	877	Mergers and acquisitions	In production, acquired 100% of Emerald Energy (United Kingdom)
Sinopec	Brazil	2010	7 111	Mergers and acquisitions	40% of Repsol Brasil
Sinochem	Brazil	2010	3 070	Mergers and acquisitions	40% of Statoil Brasil, pending approval by the Chinese and Brazilian governments
Sinopec	Argentina	2010	2 450	Mergers and acquisitions	100% of Occidental Argentina, which belonged to Oxy, a United States company
CNOOC	Argentina	2010	3 100	Mergers and acquisitions	50% of Bidas, national oil company
CNOOC	Argentina	2010	3 500	Mergers and acquisitions	100% of Pan American Energy, owned by BP, jointly with Bidas, not yet carried out
Refining					
CNPC	Costa Rica	2009	700	Greenfield investment	Announced, not yet carried out
CNPC	Cuba	2010	...	Greenfield investment	Announced, not yet carried out
Total			23 553		

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

Abbreviations: CNOOC, China National Offshore Oil Corporation; CNPC, China National Petroleum Corporation; PDVSA, *Petróleos de Venezuela SA*.

In Costa Rica, CNPC reached an agreement in 2009 with the State-owned company *Refinadora Costarricense de Petróleo* (RECOPE) to build and operate a large refinery on the Atlantic coast. Although investment figures of close to US\$ 700 million have been quoted, a feasibility study to be completed in October 2011 will set out in detail the amounts of oil to be refined and the respective investments. This project forms part of China's cooperation with Costa Rica since diplomatic relations were established in 2007 (see box III.4). The refinery in Cuba and the investments in the Bolivarian Republic of Venezuela and in Ecuador

are all governed by agreements between the Chinese government and these countries.

The second phase of oil investment in Latin America and the Caribbean, in which Sinopec, Sinochem and CNOOC have also participated, has been characterized by the acquisition of private companies already in production and strategic partnerships with Western companies. These investments accelerated spectacularly in 2010 and have centred on relatively new oil-producing countries. The most important of these is Brazil, where millions in investment will be needed to exploit the vast

pre-salt oilfields. Petrobras will be the main operator, but transnationals will also be allowed to participate.

In Brazil, Sinopec and Sinochem have both entered into partnerships with European companies that have been granted concessions in the new pre-salt oilfields (Repsol and Statoil). The capital inflow from the Chinese companies will help these affiliates raise the huge sums required to exploit the oilfields. Sinopec will have access to confirmed reserves of 1.16 billion barrels of oil as a result.¹⁸

In Argentina, the regulatory framework does not look favourably on FDI in this sector. There has been very little investment over the past decade. In fact, the Chinese acquisitions were the biggest foreign investments in the Argentine hydrocarbons industry since Repsol bought Yacimientos Petrolíferos Fiscales (YPF) over 10 years ago. CNOOC, after joining forces with Bidas and buying up BP's assets in the country, increased its oil production by 25% and added the equivalent of 1 billion barrels to its reserves.

3. Recent investments in metal mining

In addition to the large iron and steel producers which are investing in iron ore and coal mining, some 20 Chinese companies have made overseas investments in mining (Shankleman, 2009). Like oil companies, they have experienced strong growth in recent years and now have a major international presence, in particular the State-owned companies Minmetals and Chinalco, which are the first- and second-largest mining companies in China respectively (see table III.9).

Other Chinese companies with large investments in Latin America and the Caribbean are the State-owned iron and steel producers Wuhan and Shougang, fourth- and twelfth-largest in the world respectively; Zijin and partners Tongling and Xiamen (*Wall Street Journal*, 2010), which are controlled by local governments; and the privately owned iron and steel producer Nanjinzhaoh.

Like the oil companies, a relatively small proportion of these companies' assets are held outside China (14% in the case of Minmetals and 10% in the case of Zijin). While mining companies are looking to boost their production

by acquiring assets in other countries, Chinese steel firms are keen to reduce their exposure to the iron ore market. Both Shougang and Wuhan buy 80% of the iron ore they use on the international market, which leaves them very vulnerable to price increases of the kind seen in recent years. In contrast, the world's biggest iron and steel producer, ArcelorMittal, produces 47% in its own mines and the Brazilian firm Companhia Siderúrgica Nacional (CSN) is an iron ore exporter (ECLAC, 2010a, chapter III).

Until 2007, the steel firm Shougang had been the only Chinese company to invest in mining in Latin America and the Caribbean (in Peru). The company very quickly found itself embroiled in a serious employment and environmental dispute with the local community (see box III.3), but continued to increase its iron production to 5 million tons a year and its exports to nearly US\$ 300 million. The Peruvian subsidiary is managed almost exclusively by Chinese executives and its operations are incorporated into the group: it exports the ore via its own port and sends it to subsidiaries in China (Sanborn and Torres, 2009).

Table III.9
TOP CHINESE AND GLOBAL MINING COMPANIES, 2009
(Billions of dollars)

Company	Fortune Global 500 ranking	Sales	Profits	Country
BHP Billiton	139	50	6	Australia
Rio Tinto	173	42	5	United Kingdom
China Metallurgical Group	315	26	0.4	China
China Minmetals	332	25	0.3	China
Vale	363	23	5	Brazil
Chinalco	436	20	-0.6	China

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the *Fortune Global 500*.

¹⁸ Since this involves the purchase of a share in a foreign subsidiary, this acquisition will not increase net inward FDI in Brazil, because the capital inflow from China will be cancelled out by a capital outflow to Norway. However, China's weight as an investor will increase considerably.

Box III.3

SHOUGANG IN MARCONA: TALE OF A DISPUTE

In one of the earliest privatizations in Peru, the State-owned Chinese steel firm Shougang bought Hierro Peru in 1992. It was the only iron ore mine in the country at that time. A price of US\$ 120 million was agreed, plus a further US\$ 40 million to settle debts, although the latter amount was borne by the Government of Peru. In addition, the company agreed to invest US\$ 150 million by 1995, a commitment that was not honoured and which cost the company US\$ 12 million in fines.

Following privatization, 1,200 of the 4,800 workers were fired, triggering a labour dispute that is still unresolved. The company has faced repeated strikes over

pay and conditions and has laid off trade union leaders, refusing to reinstate them even after a court declared the dismissals null and void. A health inspection revealed that a third of the workers were suffering from pneumoconiosis (dust in the lungs) or deafness. While these problems are not exclusive to Shougang, it has been more severely affected than other mining companies in the country. The company, which in China is considered to be one of the worst polluters, has also been reported to the Peruvian authorities on several occasions for environmental damage. In 2007 the company claimed to have fulfilled all its obligations in this

regard, but the municipality of Marcona continued to denounce it for dumping wastewater in 2008.

An investigation by the National Congress found in October 2007 that privatization had not been carried out in the best interests of the Peruvian State (for example, Shougang was using public goods and services that should have been transferred to the State) and that management had been inadequate, leading to the labour and environmental disputes. A government representative went so far as to say that the conflicts were the result of a “cultural problem”.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of C. Sanborn and V. Torres, *La economía china y las industrias extractivas: desafíos para el Perú*, Pacific University, 2009.

Between 2007 and 2009, another four Chinese groups joined the Peruvian mining industry (see table III.10); all, with the exception of Nanjinzhao, came to work in copper extraction. They bought mines from the junior enterprises that had developed them, intending to entrust construction of the mine to a major

international engineering firm.¹⁹ Likewise, all are planning to export iron ore or copper concentrate to subsidiaries in China, with minimal processing in Peru, as may be expected given the country's production structure and its emerging national innovation system.

Table III.10
CHINA: PRINCIPAL MINING INVESTMENTS IN LATIN AMERICA AND THE CARIBBEAN, 1992-2010
(Millions of dollars)

Company	Line of business	Year of entry	Investments completed	Investments announced	Status
Peru					
Shougang	Iron	1992	253	1 000	In operation, expansion announced
Chinalco	Copper	2007	830	2 200	Environmental impact study under way, production to begin in 2013
Zijin (45%), Tongling (35%) and Xiamen (20%)	Copper	2007	190	1 440	Feasibility study under way, no production date
Minmetals (60%) and Jiangxi (40%)	Copper	2008	543	2 500	Environmental impact study under way, production to begin in 2014
Nanjinzhao	Iron	2009	100	1 500	Exploration phase
Brazil					
Wuhan Steel	Iron	2010	400	5 000	Extraction of iron ore under way; iron and steel plant announced, no operational start date
ECE	Iron	2010		1 200	Announced, to be confirmed
Guyana					
Bosai Minerals	Bauxite	2008	1 000		In operation

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

One fundamental characteristic distinguishing these four groups from Shougang is that they are aware of the social and environmental responsibilities their operations entail. Until only a few years ago Chinese companies in this industry rarely considered their social and environmental responsibilities, since they were used to operating in an environment where all external costs were taken care of by the State. As these companies have expanded into

countries where governments and civil society have certain expectations of mining companies, they have learned to incorporate these considerations into their way of operating, following the example of Western companies.

¹⁹ As all the junior enterprises were foreign (many of them Canadian), the US\$ 1.52 billion spent between 2007 and 2009 does not appear in the net FDI flows to Peru, although the assets of Chinese companies in the country have increased by this amount.

Recent experiences in Peru, a country with a highly active civil society where the mining industry is concerned, reflect this new attitude among Chinese companies. Both Chinalco and Minmetals have entrusted their subsidiaries' operations in Peru to an international management team, and plan to strengthen where possible economic ties with the local communities. Before beginning to construct the mine, Chinalco carried out major wastewater treatment works (to resolve a problem originating from earlier mine exploitation) and began to build a new town to resettle approximately 5,000 people living close to the mine. The cost of these works is estimated at US\$ 30-40 million (Sanborn and Torres, 2009).

The project run by Zijin poses particular difficulties, and the price to acquire it was accordingly much lower than normal for a mine of its size.²⁰ The feasibility of the project is still under review, and the company is endeavouring to win the trust of the communities involved. It is estimated that US\$ 30 million has been invested thus far in exploration and in small local projects covering a three-year period.

Chinese mining companies have focused on Peru because the country is open to FDI in this sector, and because the country had significant mining assets to develop at a time when those companies were looking to step up the pace of their overseas expansion. The main Chinese investments in Peru were all made around the same time, meaning that these companies entered the market at a point when prices were at a historic high. The Toromocho project, for example, had twice previously been declared void when copper prices were low, in 2001 and 2002; when Chinalco took it over in 2007, it paid US\$ 800 million. Many of these projects could be very sensitive to an abrupt change in the copper cycle and, if this were to happen in the next few years, some may not go ahead.

The situation in Chile, the world's largest copper producer, is different because the biggest mining assets are already shared among long-established companies. Moreover, Chinese investment prospects in Chile have suffered as a result of Minmetals' failure to acquire the

Gaby mine. This was part of an advance purchase agreement reached in early 2006 with Corporación Nacional de Cobre de Chile (CODELCO), a Chilean State-owned company and the largest copper producer in the world. The agreement was signed at a time when metal prices were low and CODELCO had an ambitious investment plan but lacked the funds to carry it out. Under the terms of the agreement, Minmetals would pay US\$ 500 million and CODELCO would supply 55,750 tons of copper annually over a 15-year period. When the agreement was signed, the prevailing market price of copper was used as a reference, which was approximately one dollar for one pound of copper. This was a particularly good deal for Minmetals because, apart from a brief period in late 2008, the price has since hovered between US\$ 3 and US\$ 4.

The agreement included an option to buy a stake (of up to 49%) in the Gaby mine, then producing 80,000 tons of copper a year (with the capacity to produce up to 150,000 tons). The agreement was strongly criticized within Chilean society, particularly among those working at the facility, who feared that any privatization, even partial, would result in erosion of their labour rights. Coming under political and social pressure, CODELCO and Minmetals gave up on the purchase and the mine remained the sole property of CODELCO. Minmetals received no compensation; it could have insisted on its right to buy, but it preferred to avoid a confrontation with the Chilean government.

Outside Peru, the biggest mining investments to date have been made in Brazil in the iron sector, although the amounts involved have been smaller as the country's resources are already largely controlled by domestic companies.

Wuhan joined forces in 2010 with MMX, a mining subsidiary of the Brazilian company EBX. It has no operational responsibilities but receives some of the production, which it exports to China. MMX plans to increase its capacity from 8.7 million to 33.7 million tons by 2013. Wuhan has expressed its intention to invest up to US\$ 5 billion in an integrated plant to produce semi-finished steel (slabs) in Brazil, through a strategic partnership with EBX.²¹ This project was announced in late 2009 but has not yet been carried out. Although Wuhan still has these plans, the project is on hold because of major bottlenecks affecting infrastructure in the area, particularly the train line for transporting the ore to the factory. The Chinese iron and steel company Baosteel was similarly unable to execute its planned project. In collaboration with the Brazilian company Vale, it was planning to build an integrated plant with a five million

²⁰ The controversy over this project dates from 2003, when the Peruvian government declared it to be a matter of "public necessity", thereby allowing foreign investment despite the fact that the project's location near the border meant this was prohibited by the Constitution. The communities affected claim that the project is illegal and that it could harm the environment and agriculture in the area. The company was accused of being responsible for the death of a leading agricultural worker following a protest march, and a group of nine demonstrators reported having been tortured and held by the police for three days in company facilities. The conflict attracted the attention of several national and international non-governmental organizations, who asked the foreign investors to withdraw from the project (Sanborn and Torres, 2009). The British owner company finally agreed to sell it to the Chinese consortium in 2007.

²¹ Slabs are the first stage in the production of flat-rolled steel. Brazil has specialized in this segment of the iron and steel industry, given the abundance of iron ore in the country (ECLAC, 2010a).

ton capacity. The agreement was signed in 2007 but the Chinese company abandoned the project when the financial crisis brought the industry's expansion plans to a halt (ECLAC, 2010a). In the end, Vale bought out Baosteel's stake in April 2009.

In total, Chinese mining and hydrocarbons companies have invested almost US\$ 27 billion in the region, US\$ 12.661 billion of which relates to oil acquisitions in 2010. China now has considerable influence in certain countries and sectors, such as mining in Peru. While production by Shougang (the only Chinese company in this sector operating in Peru) only represents 2% of the country's mining exports, the portfolio of projects run by the five Chinese companies examined here accounts for 25% of the total planned investment in the country.

In small economies, a single investment can make a big difference: the Bosai bauxite mine in Guyana is a case in point. Around US\$ 1 billion is to be invested, to increase production capacity to 600,000 tons a year.²²

The biggest acquisitions overall have been made in the Brazilian oil sector. The reserves controlled by Sinopec and Sinochem are estimated to amount to 1 billion barrels, compared with around 50 billion controlled by Petrobras. China has brought US\$ 20 billion in capital to the industry, including the loan from China Development Bank. This figure is nevertheless still lower than the US\$ 70 billion Petrobras obtained through increasing its capital in 2010 or the US\$ 240 billion it plans to invest by 2014 from its own resources and through debt-issuing.²³

4. Investment in agriculture, fisheries and forestry resources

Investment in the agricultural, fisheries and forestry sectors is driven by the same factors as in the mining and hydrocarbons industries: soaring consumption of these products in China has prompted companies acting as distributors there to seek backward (vertical) integration through overseas investment. In addition, there has been an upward trend in the prices of many agricultural products, similar to or steeper than that of oil and metals. FDI has therefore become a means for the companies to protect themselves against these rises. Chinese companies able to invest in these sectors are generally much smaller than those in the mining or hydrocarbons sectors, and have less financial capacity and less weight in diplomatic relations.

The agricultural sector has traditionally been characterized by fragmentation in both production and distribution, and is fairly unreceptive to FDI. In many cases there are formal restrictions on inward FDI, in particular regarding the purchase of land. As a result, investment projects in this sector are frequently not publicized and are difficult to trace. Nevertheless, there is evidence of some major operations, and indications are that the strong demand from China and the (relative) abundance of natural resources in Latin America and the Caribbean will together create great potential for FDI in sectors such as crops, livestock and forestry.

The biggest investment projects are found in sectors that are more formalized and regularized. For example, fishing quotas make the Peruvian fishing industry a closed sector. China Fisheries Group, a Chinese distributor, invested

US\$ 103 million in a local fishing company, and has gradually increased its quota to 6% of the country's catch.

Sugar cane is another important sector. Following a privatization in Jamaica, the Chinese trader Complant Sugar bought assets worth US\$ 92 million. The operation includes the lease of 30,000 hectares of land for 50 years to cultivate sugar cane, improvements in sugar cane fields and mills for US\$ 127 million during the first phase, and a possible expansion to include a refinery and an ethanol plant for US\$ 221 million.²⁴ In addition, one of China's top food import companies (COFCO) bought a stake in Viña Bisquertt in Chile for US\$ 18 million in 2010.

There are major plans to invest in agriculture, but none appear to have come to fruition so far: the Chinese province of Heilongjiang has expressed an intention to invest US\$ 100 million in Argentina to produce soybean for export, while the Chinese-owned company Sol hopes to invest US\$ 30 million in Brazil to produce rice and soybean.

Although FDI flows in this sector are small in comparison with the investments in oil exploration, the capital inflow from China for agricultural production may have a major impact on the development of this sector, and as a consequence, on livelihoods in rural areas. A study of

²² fDi Markets estimates. For further information, see [online] <http://www.nanchuanminerals.com/>.

²³ The company estimates that, of the US\$ 240 billion, it has US\$ 28 billion in cash, it will raise US\$ 155 billion internally (taking a price of US\$ 80 a barrel as a reference) and it will issue debt worth US\$ 30-40 billion. See *Financial Times* (2011b).

²⁴ See [online] www.chinabn.org/invest/20070914/10139.aspx.

the timber industry in the Peruvian Amazon suggests that Chinese FDI may affect the domestic industry significantly as it becomes incorporated into the value chain in China and reduces the value added in Peru (Putzel, 2009).²⁵

The thorny subject of foreign land ownership is even more important. The threat of a massive influx of Chinese investors has prompted a review of the current, relatively lenient policies. In Brazil, the government has had to pass a decree to clarify the existing regulation, restricting the purchase of land by foreigners and setting a limit of

50 exploitation units per foreign person or company.²⁶ In addition, only 40% of the land in each municipality may be owned by foreigners, and only a quarter of those foreigners may be of the same nationality. While technically this constitutes a clarification of an existing rule rather than something new, it will undoubtedly have an impact on potential Chinese investment in agriculture, probably persuading Chinese companies that have been investing on an individual basis to seek alliances with Brazilian partners.

E. Diversification of Chinese investment into infrastructure and manufacturing

Although the vast majority of Chinese investment in Latin America and the Caribbean has consisted of natural resource acquisition, there is great potential for diversification into other sectors. As the Chinese economy grows and its lead industries develop, the number and variety of firms with the resources and motivation to invest abroad, including in Latin America and the Caribbean, will gradually increase. In addition, steadily rising domestic production costs, a trend towards geographical diversification of production to sidestep trade barriers and the Government of China's proactive policy will all drive FDI in manufacturing and services (Yeung and Liu, 2008).

The Chinese companies investing in natural resources are quite small in number and almost all are State-owned. However, in other sectors there are many companies investing abroad, of varying sizes and types. Many are majority privately owned and are more representative of the Chinese economy as a whole. Based on a number of surveys of small and medium-sized companies in China, it is clear that FDI is often a way for firms to facilitate the export of their products (or those of Chinese companies they work with).²⁷ In fact, most subsidiaries of Chinese companies in Latin America and the Caribbean

are sales offices or similar. While the amounts invested are very small and add virtually no domestic value, in many instances this provides an opportunity to get to know the local market and invest in productive activities; this has been the case for the Chinese company Gree, a manufacturer of air conditioning units, in Brazil, and could also apply to the automobile manufacturer Chery, also in Brazil.

Given the scale of trade in goods between China and Latin America and the Caribbean, it is not surprising that investments designed to facilitate this trade may become moderately important. These include investments in transport infrastructure (discussed below) and possibly shipping companies. There are two large Chinese subsidiaries in Brazil: COSCO and China Shipping. In addition, the second-largest bank in China, the State-owned Bank of China, recently opened a subsidiary in Brazil to finance bilateral trade. This is the only example to date of investment in finance in Latin America and the Caribbean, although large investments were made in this sector in the United States and other countries, especially in the months following the 2008 financial crisis.²⁸

Besides facilitating trade, Chinese FDI has begun to reach the region in two other sectors, both of which offer strong development potential: infrastructure-building and manufacturing.

²⁵ Chinese companies have a huge presence in the export of wood from the Peruvian Amazon (compared with exports from the Brazilian Amazon, where they have a limited presence). The main reason for this is that companies have been able to establish personal contacts through the Chinese community in Peru. Another important point raised by this study is the trend towards a value chain increasingly led by Chinese transnationals that export wood from Peru and process it in China, reducing the domestic value added.

²⁶ The exploitation unit (*módulo de exploração*) has been established by the Brazilian government as the amount of land needed to support a family; its size varies from region to region (Attorney General's Opinion LA-01 of 19 of August 2010).

²⁷ See Asia Pacific Foundation of Canada and China Council for the Promotion of International Trade (2009) and China Council for the Promotion of International Trade (2010).

²⁸ By late 2009, Chinese banks had established 50 offices and 18 affiliated institutions in 28 countries, with a total of 30,000 employees (MOFCOM, 2010).

1. Infrastructure

Almost every country in the region believes that infrastructure is vital for its development and would like to see more FDI in construction. The level of FDI in this sector varies considerably by line of business and by country, usually depending on the existing regulatory framework. Generally speaking, transnational companies dominate telecommunications infrastructure and have a significant presence in energy production and distribution, less so in transport infrastructure and very little in water and sanitation.

Infrastructure is undoubtedly the sector that has received the most Chinese investment in Latin America and the Caribbean after hydrocarbons and mining (see table III.11). However, many of the investments shown in

this table and analysed in this section cannot be counted as FDI, even though these Chinese companies are contributing to economic activity in the region.²⁹

A variety of Chinese companies operate in this sector: some are large public companies that dominate the local market, such as State Grid or Sinohydro; others are somewhat smaller but have demonstrated remarkable technological development and conquered a major portion of world markets in a short space of time, such as Huawei and ZTE in telecommunications infrastructure, and companies building railway equipment. Finally, there are numerous small and medium-sized companies building civil and industrial infrastructure.

Table III.11
CHINA: MAIN INVESTMENTS IN INFRASTRUCTURE IN LATIN AMERICA AND THE CARIBBEAN, 2009-2010
(Millions of dollars)

Chinese investor by country of investment	Line of business	Year of entry	Estimated investment	Notes
Brazil				
State Grid Corporation	Electricity distribution	2010	1 700	Acquisition of several foreign companies
Zhejiang Insigma	Electricity distribution	2010	100	Competitive bidding
Ecuador				
Sinohydro	Hydroelectric power	2009	2 000	Construction work for the Government of Ecuador financed by a Chinese government loan
Venezuela (Bolivarian Republic of)				
Sinohydro	Thermoelectric gas	2010	1 600	Construction work for the Government of the Bolivarian Republic of Venezuela financed by a Chinese government loan

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

With the possible exception of Huawei, which has grown more overseas than in China, all of these companies have developed their capacities thanks to the huge amounts China has invested in infrastructure in the past 10 years. Investment in railways, for example, has increased sixfold since 2005, reaching US\$ 124 billion in 2010. It is predicted that this trend will end in 2013, and growth will begin to slow, forcing many sector companies to continue their expansion overseas. According to estimates, only 5% of their revenue comes from outside China, even though they are working on major railway projects in the Lao People's Democratic Republic, Myanmar and Thailand and are competing for tenders in Brazil, the United States and other countries (*Financial Times*, 2011c).

In addition to technological and logistical capacities developed at home, China boasts a very competitive cost structure and strong financial support for international expansion. According to a survey carried out by the China Council for the Promotion of International Trade (2010), construction companies are currently the least internationalized but have the most plans to increase their FDI in the near future. There are three access routes to infrastructure investment in Latin America and the Caribbean: acquiring existing assets, infrastructure-building under binational agreements and channelling investment through public tenders.

²⁹ International companies that build infrastructure then hand it over to be operated by others count their activity as exports. All Sinohydro and Huawei operations in Latin America, for example, are counted in this way.

(a) Acquiring existing assets

This is the fastest way to increase size and market share, and it is the most appropriate method for more heavily regulated industries. The biggest investment to date has been carried out in this way. In 2010, State Grid, the second-largest company in China and one of only two distributors in the country, acquired several electricity distribution companies in Brazil for US\$ 1.7 billion. Approval from the regulatory authority is still pending.

(b) Infrastructure-building under binational agreements

This is a fairly widespread practice among Chinese companies worldwide. Usually the Chinese government offers financing in the form of a loan (or a grant) to the partner government, on condition that the work is carried out by a Chinese company.

The leading projects of this nature have been run by the Chinese firm Sinohydro. It is a State-owned company with over 130,000 employees, a sales volume of

US\$ 8.8 billion and a 70% share in hydroelectric power generation in China. It is also the main contractor and operator of the largest dam in the world, the Three Gorges Dam. Its domination of the domestic market has led it to seek out markets in other countries: it now has 43 offices overseas and has built hydroelectric power stations in a number of countries, including Ethiopia, Pakistan, the Sudan and Thailand. It is building two electric power plants in the region (Bolivarian Republic of Venezuela and Ecuador). The company's core strengths lie in its ability to execute large-scale projects and its skill in obtaining financing from the Chinese banking system.

This category also includes numerous small and medium-sized projects to build facilities, such as the National Stadium in Costa Rica, and similar projects in the Caribbean (see box III.4). Many Chinese companies in this sector import labour from China. For construction of the National Stadium in the Bahamas, a medium-sized project, over 170 Chinese workers were employed.³⁰ Although this ensures the work is completed quickly, it has a negative impact on the local economy since it fails to generate new jobs or develop capacity among local providers.

Box III.4

COOPERATION AND INVESTMENT IN CENTRAL AMERICA AND THE CARIBBEAN

To date, Chinese investments in Central America and the Caribbean have been modest but they have had a significant impact on smaller economies. Apart from an oil refinery in Costa Rica, bauxite extraction in Guyana and sugar cane in Jamaica, the principal investments have been made in infrastructure construction, usually through cooperative arrangements.

Central America and the Caribbean are of strategic importance to China because of the diplomatic presence of Taiwan Province of China. Five of the 23 countries maintaining diplomatic relations with the territory (and therefore not with China) are located in Central America (El Salvador, Guatemala, Honduras, Nicaragua and Panama) and six in the Caribbean (Belize, Dominican Republic, Haiti, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines). Taiwan Province of China has made a noteworthy effort to cooperate with these countries, in many instances

through direct investment by Taiwanese companies, which has become important for some products that are exported by El Salvador and Nicaragua.

China has countered this situation through similar cooperation efforts with the countries with which it maintains diplomatic relations. In 2007, China announced soft loans worth US\$ 530 million for companies investing in the Caribbean and offered to provide training to 2,000 Caribbean government employees and promote Chinese tourism in the area. With 5.6% of the capital, the Government of China is one of the main shareholders of the Caribbean Development Bank and is a major contributor to its projects.

A number of loans and grants have been provided for infrastructure-building in recent years. In the Bahamas, funding has been provided to build a motorway (US\$ 59 million) and the National Stadium (US\$ 40 million); a national stadium is

also being built in Costa Rica (US\$ 100 million). In Barbados, several projects are under way (construction of St. John Polyclinic, Sherbourne Conference Centre and Empire Theatre, and renovation of Cheapside Market) and two of the main construction companies on the island are Chinese subsidiaries: China Construction Barbados Co. Ltd. and ChinaDOS Construction Limited. Finally, in January 2011, Antigua and Barbuda received a soft loan from China for US\$ 45 million to build a new airport terminal. All these projects are being carried out by Chinese companies, which normally import both the materials and components and the labour.

Chinese construction companies have also operated in Trinidad and Tobago. To date, no investments have been made in hydrocarbons, but China National Petroleum Corporation and Sinopec have been involved in negotiations.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of "Caribbean Analysis: Jamaica Sugar Divestment Agreements Signed Between Government and Chinese Investors" [online] <http://www.caribbeananalysis.com/jamaica-sugar-divestment-agreements-signed-between-government-and-chinese-investors/>; caribbeanpressreleases.com, "China and the Bahamas Sign Three Agreements" [online] <http://www.caribbeanpressreleases.com/articles/5434/1/China-and-the-Bahamas-Sign-Three-Agreements/Page1.html>; tax-news.com, "Antigua and Barbuda Signs Cooperation Agreements with China" [online] http://www.tax-news.com/news/Antigua_and_Barbuda_Signs_Cooperation_Agreements_With_China_47091.html; Window of China, "China to support business investment in Caribbean region" [online] http://news.xinhuanet.com/english/2007-09/07/content_6685222.htm; and "Steady Development of China-Barbados Economic and Trade Relations" [online] <http://bb2.mofcom.gov.cn/article/bilateralcooperation/inbrief/200608/20060802880980.html>.

³⁰ According to official data (MOFCOM, 2010), 970,000 people were employed by foreign subsidiaries of Chinese companies in late 2009, and most (532,000) were Chinese citizens.

Projects explicitly linked to natural resource extraction constitute one particular kind of infrastructure-building governed by binational agreements. These projects have already been run in Africa, but not yet in Latin America or the Caribbean. Nevertheless, in Peru almost all mining companies, whatever their country of origin, have to invest in infrastructure in order to be able to carry out their activities.

(c) Channelling investment through public tenders

Huawei and ZTE are the most prominent Chinese companies working in telecommunications infrastructure. Both have a presence in the region's largest countries and have been awarded contracts to build telephone networks (see chapter IV). Although the equipment is manufactured in

China, they have built up a strong customer service capacity in several Latin American and Caribbean countries and Huawei has set up a research and development centre in Brazil.

Other companies showing strong international expansion in recent years are those specializing in high-speed rail equipment. They are currently among the main bidders for the only high-speed rail line planned for the region, linking São Paulo and Rio de Janeiro in Brazil.

One Chinese company that has successfully bid in Brazil is Zhejiang Insigma, which specializes in infrastructure construction. In late 2010, heading (40%) a consortium with other companies, it won a concession for five small transmission lines extending for 102 kilometres and four 747-megawatt substations. The company will need to make an investment on the order of US\$ 100 million.³¹

2. Manufacturing

As explained in section B.1, many Chinese manufacturers started out as joint ventures with transnational corporations in China and have since grown, accumulated capacities and developed their own technology. While Asia has been the main focus of their international expansion, some companies have looked to Latin America and the Caribbean. The main investments in this sector have been made in countries of the Common Market of the South (MERCOSUR) in order to exploit the growing domestic market, above all in Brazil, although there has been some investment in Mexico with a view to establishing an export platform

there (see table III.12). No significant investments in export platforms in Central America or the Caribbean have been recorded thus far.

(a) Manufacturing for the domestic market

Brazil has been the main destination for Chinese investment in manufacturing in Latin America and the Caribbean, and in almost every case products are made exclusively for the domestic market, not export to other countries in the region. Gree was one of the first companies to adopt this strategy (see box III.5).

Table III.12
CHINA: MAIN INVESTMENTS IN MANUFACTURING IN LATIN AMERICA AND THE CARIBBEAN, 1998-2011
(Millions of dollars)

Chinese investor by country of investment	Line of business	Year of entry	Estimated investment	Direct jobs	Notes
Brazil					
CR Zongshen	Motorcycles	2009	19	278	100 000 units
Gree	Electrical appliances	1998	43	500	Sales of over 200 million reais
Chery	Automotive	2011	400	0	Investment announced but not yet carried out
China South Industries Group (CSIG)	Motorcycles	2007	190	181	100 000 units
Sany	Machinery	2011	200	0	Investment announced but not yet carried out
Uruguay					
Chery	Automotive	2009	100	300	Capacity for 250 units a month
Mexico					
Lenovo	Information and communications technology	2007	40	1 000	3 000 indirect jobs and 5 million computers a year
Golden Dragon	Metallurgy (tubes)	2009	50	960	60 000 tons of production

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

³¹ The total amount invested by the companies granted concessions is estimated to be US\$ 468 million. See [online] http://www.larepublica.net/app/cms/www/index.php?pk_articulo=41855.

Box III.5

GREE: ORGANIC GROWTH IN BRAZIL

Gree, an air conditioner manufacturer, was perhaps the first big Chinese manufacturer to begin producing in Latin America and the Caribbean. Having imported its machines from China for several years, the company went into production in the free trade zone of Manaus (Brazil) in 1998. This was in fact the company's first investment abroad, making it an exception among Chinese manufacturers, which usually start their expansion in Asia. It is now one of the largest producers in the country, with a turnover of over 200 million

reais and more than 500 employees in the factory. The company produces locally the bare minimum required in order to benefit from the tax breaks in the free trade zone, and imports the rest from its factories in China.

Gree is under municipal control and a large number of its shares are traded on the stock market. In contrast to most Chinese transnationals, Gree has a conservative growth strategy: it specializes in air conditioning units and has no plans to enter other sectors. Although it started

out assembling units, it now produces 80% of the components internally and finances almost all its investments from its own funds, without needing to resort to bank loans. Its investments in Brazil have been financed by reinvesting the profits of its own subsidiary.

As part of its expansion strategy, Gree hopes to increase production in Brazil in 2011. Latin America and the Caribbean is a very important market for the company, although the factory in Brazil serves only the domestic market.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of interviews with company management.

One of the few local industries Chinese manufacturers have managed to penetrate to a significant degree is motorcycle production. Several Chinese companies operate in the free trade zone of Manaus: the main ones are Zongshen, which has acquired the Brazilian firm Kasinski, and China South Industries Group. Both produce around 100,000 units a year.

However, for Chinese companies, the sector showing the most promise in Latin America and the Caribbean is the automotive industry. Chinese companies are naturally attracted to the one of the biggest and most dynamic markets in the world (ECLAC, 2010, chapter II). Many have expressed an interest in investing, but the only one to make a start is Chery, which has opened a small factory in Uruguay in partnership with the Argentine company Socma, to produce for the Argentine and Brazilian markets. This initial investment has allowed the company to begin to explore the Brazilian market, and it has announced that it will invest US\$ 400 million in 2011 in a factory in Brazil.

While Chery pursues a cautious strategy in Brazil, the entry of Chinese automobile manufacturers in Mexico has ground to a halt following the failed investment by First Automobile Works (FAW). The FAW Group, China's second-largest producer, established a strategic partnership in 2007 with Grupo Salinas to manufacture 50,000 units a year with an investment of US\$ 150 million. However, the investment was ultimately not concluded for various reasons, the most important ones being that FAW was poorly prepared to interpret the Mexican market and meet the requirements for local content and that sales in this market had dropped because of the economic crisis.³² The stalled investment then became embroiled in accusations of fraud. Companies manufacturing in Mexico are allowed to

import up to 5,000 cars a year into the country, and FAW took advantage of this allowance between 2007 and 2009. However, when its plans were withdrawn, the legal status of FAW cars circulating in the country became uncertain and no maintenance services whatsoever were available. This will undoubtedly affect the image of Chinese cars on the Mexican market (ECLAC, 2010a, chapter II).

(b) Manufacturing for export

Export-driven investments are even rarer, but they represent an opportunity for many Latin American economies, in particular Mexico, which is home to the two highest-profile cases: Lenovo and Golden Dragon.

Lenovo is the fourth-largest computer manufacturer in the world, behind Hewlett-Packard, Acer and Toshiba. Among Chinese companies, it has made the most progress towards internationalization. The biggest milestone was the purchase of the desktop and portable computer segments from IBM for US\$ 1.25 billion in 2004, a prime example of a key assets purchase.

Apart from this acquisition, its largest investment outside China involved building a factory in Monterrey, Mexico, in 2008. Currently, around 75% of production is destined for the United States market and the rest for other countries on the American continent, such as Argentina, the Bolivarian Republic of Venezuela, Chile, Colombia and Peru. The company also has centres in the Chinese cities of Beijing, Shanghai, Huiyang and Shenzhen, and other factories in India and Poland.

Golden Dragon is a major copper tubing producer. It has over 5,000 employees and a production capacity of 220,000 tons a year. It opened a factory in Mexico in Monclova (state of Coahuila), with the aim of supplying companies in the United States such as Mabe and Whirlpool. However, the company was affected by a fall in sales in 2008 and 2009 owing to the financial crisis and

³² Separately from this failed transaction, FAW Trucks bought the former DINA truck factory in Ciudad Sahagún (state of Hidalgo) and manufactures between 20 and 25 buses a month for the domestic market; Grupo Carso is a 50% partner in this investment.

by anti-dumping measures imposed by the United States Department of Commerce in May 2010, corresponding to a tariff of 10.3%. Moreover, equipment was stolen during two large-scale robberies in February and April 2010. It is therefore considering whether or not to implement the second phase of the investment.

An alternative route into the Mexican automotive industry is to buy subsidiaries of European or United States companies. Here, Chinese company strategy (acquire

technology and brands) and Western company strategy (dispose of peripheral assets) complement one another. The only example of this to date has been Nexteer, an auto parts supplier sold by General Motors in 2010 to Pacific Century Motors (owned by the Municipality of Beijing) for US\$ 450 million. Nexteer has factories in Querétaro, Sabinas Hidalgo and Ciudad Juárez, making Pacific Century Motors probably the biggest Chinese company in the Mexican automotive industry.

F. Conclusions

1. Chinese direct investment in Latin America and the Caribbean today

Having previously been a marginal investor, in 2010 China became a country with a significant presence in several countries and industries in the region. Moreover, in the medium term Chinese companies are expected to continue to invest in the region and diversify into infrastructure development and manufacturing.

The fact that these investments come from a country where the State plays a major role in the economy and per capita income is still half that of Latin America and the Caribbean³³ endows them with some unusual characteristics. This chapter's review of the main investment projects shows that the activity of Chinese companies in Latin America and the Caribbean (and in the rest of the world) is normalizing. In other words, Chinese transnational companies no longer rely solely on State agreements for their investments, and their FDI often includes joint ventures with other companies.

As in the rest of the world, the surge in Chinese FDI in Latin America and the Caribbean has been driven by a number of factors. One of these is the Government of China's policy of encouraging its companies to expand overseas, mainly through financial incentives. Chinese companies have also been persuaded to invest abroad

by their own growth, diversification strategies and technological development. Two business considerations in particular have driven investment in Latin America and the Caribbean: a need to reduce exposure to raw material price rises and a desire to continue expanding into new markets.

China's rapid integration into world trade has had a major influence on economic and trade patterns in the region. On the one hand, as China and other emerging economies have begun to import increasing amounts of raw materials, this has had a very positive impact on the terms of trade for countries in the region that are net exporters of these products, thus contributing to the region's exceptionally good economic performance in recent years (ECLAC, 2010b). On the other hand, the region exports a very limited number of products, all of them raw materials, which has reopened the old debate on industrialization processes, the advantages and disadvantages of primary specialization, and the long-term sustainability of these production and trade processes in Latin America and the Caribbean (Katz and Dussel Peters, 2002).

Chinese FDI has highlighted this specialization because Chinese companies have mainly invested in the countries and sectors with the most exports. Not only is China now a major buyer of Latin American copper, iron and oil; it also contributes to production through its direct investment in the region.

The entry of Chinese mining and hydrocarbons firms, which are some of the largest and most capital-rich companies in the world, undeniably increases the

³³ China's per capita GDP (measured in 2000 constant dollars) increased 11 times more than that of Latin America and the Caribbean between 1980 and 2009. However, while per capita income in China has overtaken that of some Central American countries such as Guatemala, Honduras and Nicaragua, it is still less than half that of Latin America (World Bank, World Development Indicators database).

sector's production capacity in many Latin American and Caribbean countries and helps develop new areas of exploitation, such as copper mining in Peru, the pre-salt oilfields in Brazil and the hydrocarbons sector

in Argentina. The potential for development, however, may be limited if measures are not taken to counter the negative effects of specialization in low-tech activities in the region (ECLAC, 2010d).

2. Outlook

China has a sizeable trade surplus, making it a major exporter of capital. Despite government plans to gradually raise domestic consumption, this situation is unlikely to change in the medium term (Ma and Haiwen, 2009). To date, this surplus has mainly been reflected in swelling foreign exchange reserves, a small proportion of which have been channelled into FDI. This proportion is likely to increase as the country's companies continue to grow and develop technological capacities. Moreover, the government's consistent support of FDI over the last 10 years is expected to continue, since it forms part of the strategy to reduce the trade surplus and diversify the use of foreign exchange reserves.³⁴

This general trend will also be observed in FDI in Latin America and the Caribbean. Chinese FDI in the region will probably continue to be dominated by companies specializing in natural resources, given the ambitious expansion plans they have announced. In any event, the pace of investment in this industry will always be dependent on raw material prices. Having invested large amounts in the region in 2010, a year of exceptionally high prices, Chinese companies could see the profitability of their projects plummet should there be an abrupt change in the cycle. If this were to happen as a result of a cooling of the Chinese economy, it would harm these companies through a drop in domestic demand and the declining profitability of their portfolio of projects in Latin America and the Caribbean and elsewhere.

Chinese FDI in the region will diversify beyond natural resources into other activities, such as building infrastructure. The rapid pace of investment in all kinds of infrastructure in China, which has gained momentum in recent years because of the countercyclical policy, will be difficult to sustain in the future, particularly if the government wishes to fulfil its objective of increasing consumption. A slowdown in domestic consumption

will reduce the potential for growth in the domestic market for Chinese construction companies, and they will undoubtedly begin seeking markets abroad. They will also maintain their current competitive advantages, such as low costs, technological development and the financing they are able to offer to their customers. The regulatory framework in each country in the region will determine the scale of this kind of investment over the next few years. Most investments in manufacturing are designed to access markets protected to some degree by trade barriers. As in other kinds of Chinese FDI, this is driven by both business strategy and government policy. Companies aspiring to be world leaders in their industry are keen to diversify their production base to sidestep real or potential trade barriers, while the Government of China looks favourably on measures that help to reduce its foreign exchange surplus.

Cost-cutting has never been the main goal of investments in manufacturing. Nonetheless, in the future it will be impossible to ignore the narrowing of the salary gap that existed until recently between China and Latin America and the Caribbean (Mexico in particular). Between 2002 and 2008, Mexican salaries in dollars increased by 7.5% and Chinese salaries by 260%; according to calculations by the Government of Mexico, Chinese manufacturing salaries in 2010 were only 14% lower than Mexican salaries. This long-term trend also ties in with the Government of China's policies, whose priority is to boost domestic consumption and tackle rising inequality. The minimum salary in China increased by 20% in 2010 and is expected to continue to climb from its current level of 30% of the average salary to 40% by 2015.

Despite the salary hikes, China will undoubtedly retain its competitive advantage in most products thanks to economies of scale, infrastructure and cluster externalities. However, the Asian giant's advantage in terms of production costs for labour-intensive work has dwindled to the point that it has practically disappeared, at least in the most developed areas of the country. For Mexico and the countries of the Caribbean Basin that have specialized in export platforms, and whose products have

³⁴ In 2010 the Chinese government agency responsible for administering foreign exchange reserves (SAFE) signed an agreement with China Development Bank, authorizing it to lend money to Chinese companies wishing to invest abroad in its name. The total amount this may involve has not been disclosed.

suffered from competition from Chinese factories, this dynamic offers an opportunity to capitalize on competitive advantages such as proximity to and trade agreements with the United States and attract segments of production chains that have until now been concentrated in China. This may include investments by Chinese companies wishing to diversify their cost structure and find sites with easy access to the United States market, as they conquer markets and develop their capacities. Examples of this have so far been anecdotal, and have mainly concerned the most globalized Chinese companies such as Lenovo and Pacific Century that invested in Mexico after acquiring key assets in the United States.

When Japan and the Republic of Korea began to invest overseas, they did so mainly to obtain natural resources (ECLAC, 2001 and 2007). As their domestic production base grew less competitive, they began diversifying into other sectors. There are huge differences between these countries and China, mainly in the size of the country, meaning that Chinese companies have greater possibilities for expansion nationally. But they also serve to remind us that a country's FDI patterns change as its economy develops. Japan, despite its importance in the world economy, never became a big investor in Latin America and the Caribbean, and in particular, its companies have had very little presence in the services sector.

3. Local reactions to Chinese investment

Chinese direct investment has arrived at a time when some Latin American and Caribbean countries are beginning to take a more critical and selective look at the activities of transnational companies. The fact that large sums of money have been invested by Chinese companies in a short span of time has been criticized by some governments, business communities and civil society representatives in the region (*El País*, 2011). The following concerns have been raised: (a) investment in natural resource extraction holds back industrial development and technological upgrading in the countries in the region; (b) the extent of the Government of China's control over these investments; and (c) Chinese companies' activities and their attitudes towards social and environmental issues.

Many authors (Dussel Peters, 2010; Gallagher and Porzecanski, 2010) maintain that China's economic influence is putting pressure on Latin America and the Caribbean to specialize in exporting natural resources, resulting in deindustrialization. It is debatable, however, whether the main mechanism in this relationship is trade or investment. Whatever the case, the region's new economic relations with China make it more urgent for countries specializing in the export of natural resources to adopt policies enabling them to receive all the expected benefits from extraction and to balance this with development of other sectors of the economy.

The second criticism is that Chinese transnational companies are often State-owned, meaning that assets acquired in separate business transactions are ultimately centrally controlled. In contrast to the barriers erected by the United States to investments by Chinese State-owned companies, no country in Latin America or the

Caribbean has put forward national security arguments to block transactions of this kind. Chinese companies are not monopolizing the supply of resources in any sector studied in this chapter, but countries in the region could start to look at placing restrictions on these investments, to prevent excessive market concentration. This has recently happened in the agricultural sector in Brazil.

In some cases, such as CNPC's investments in Costa Rica, the secret nature of the negotiations between the partner government and the Chinese State-owned company has been criticized. It is true that it is difficult for civil society to evaluate the terms under which natural resources are being sold in some of the agreements. However, fewer Chinese investment projects based on agreements between States are being identified as Chinese companies normalize their modes of investment and increasingly operate in the same way as other transnational companies. Nor does experience seem to indicate that they are being treated differently to other companies because they are publicly owned. In the Bolivarian Republic of Venezuela and in Ecuador, Chinese companies have been just as affected by important regulatory changes as companies from other countries.

Thirdly, civil society in particular has opposed Chinese FDI because Chinese transnational companies are perceived to be less sensitive to environmental and social issues. Here also, Chinese companies have become more similar to transnational companies from other countries in their mode of operation. Having started with a very low level of awareness, based on their experience in China, where any negative externalities of their activities were managed by the government and reactions from civil society were

rare, Chinese companies have quickly learned to respect social and environmental considerations as a condition of operating overseas (Shankleman, 2009).

Some members of the business community have also commented on the lack of reciprocity where foreign investment is concerned. Chinese transnationals can invest in almost any sector in Latin America and the Caribbean,

while FDI in China is formally or informally restricted in many industries in which the trans-Latins operate.³⁵ This reflects the huge differences between FDI regulatory frameworks in China and the region and, in particular, it highlights the Chinese authorities' vision of FDI as part of a long-term development strategy that helps domestic companies accumulate capacity.

4. Policy considerations

Among other factors, China's size and rate of growth have enabled the country to maintain its restrictive and interventionist policy while continuing to attract significant flows of FDI, which have been key to its development. Although conditions in Latin American and Caribbean countries are very different, China's advent as a major investor country broadens the possibilities for attracting capital to industries considered appropriate by the countries in the region. The governments of Latin America and the Caribbean may be able to take advantage of this investment impetus to create new paths to development, by, for instance, tying the exploitation of raw materials to the construction of public infrastructure or by offering incentives to establish processing industries.

To capitalize on these opportunities, policies need to be formulated and implemented that reshape the industrialization pattern of the Latin American and Caribbean countries, promoting structural change in favour of sectors that are more knowledge- and technology-intensive. However, the first step must be to recognize that there are huge differences between the strategic vision that has guided China and the prevailing view in the region regarding the way forward in the process of economic development.

China has implemented highly proactive policies in four key areas, in contrast to the market-oriented approach that has prevailed in Latin America and the Caribbean since the reforms characterized by the Washington Consensus. In the first place, China has followed well-defined long-term strategies since its own economic reform, while countries in the region have followed no strategy or have adopted whatever the market proposes. A second difference is immediately apparent: in China the State has played a fundamental role in formulating and implementing national strategy, especially during the early stages of development, while in Latin America and the Caribbean, although this role has been revived somewhat in the last 10 years after over two decades of

opposition to any economic intervention from the State, it is far from being accepted in every country.

These different roles of the State automatically translate into very different approaches to financing the expansion of national companies. Whereas in China public banks are directly furthering the growth and overseas expansion of national companies that wish to become more international, in almost every Latin American and Caribbean country, development banks have disappeared or have become noticeably weaker, and discussions are in fact under way as to whether there is any need for a development banking system with a remit that extends beyond short-term profitability.

Finally, China has continuously sought to accumulate technological and human resource capacities, to the point of resorting to trade protection and placing restrictions on certain investments by transnational companies, similar to those imposed by the Republic of Korea in its time. In contrast, in many Latin American and Caribbean countries there is no consensus on protection of emerging industries, and accumulating capacity simply by expanding education is of little use in a production structure that does not need highly skilled or highly educated human resources.

Despite its dynamism and technological progress, China's development process still suffers from unresolved issues that may affect its own growth and that of its investments overseas. The reform process in the country is following its course and it is still too early to say how

³⁵ Paolo Rocca, managing director of Techint, an Argentine engineering and construction group, observed that Latin America had become the main destination for Chinese companies investing in the primary sector. In his view, China was not a democracy, it was not a market economy; it was an authoritarian, highly centralized and tightly controlled system, and CNOOC/Sinopec was a State-owned company; and this State prevented Techint from going to China to purchase a Chinese company. 15 December 2010. See [online] <http://www.lapoliticaonline.com/noticias/val/70046/rocca-advirtio-sobre-la-inflacion.html>.

economic agents will react to a possible slowdown in growth in a context where income distribution inequality is rising. Moreover, there are doubts about the stability of its corporate governance systems and the functioning of the financial system in the medium term.

The path to development taken by Latin America and the Caribbean will not be the same as the one that

enabled China to grow so rapidly, or the Asian tigers in their time, but there are lessons to be learned from the Asian experience: clear and sustained strategies for structural change are needed, driven by proactive States able to support national companies in the two spheres of their financing needs and the creation and accumulation of technological and human resource capacities.

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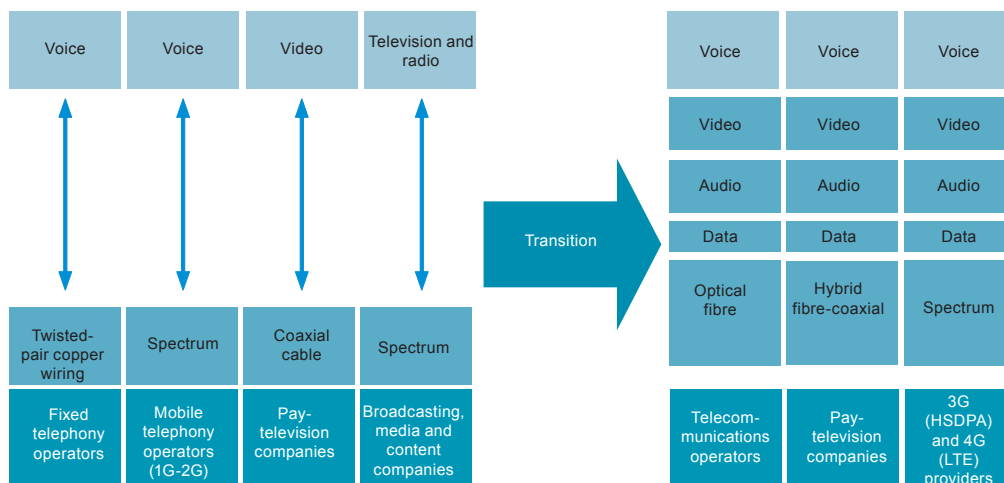
Chapter IV

Telecommunications operators and the transition to convergence and broadband

A. Introduction

The telecommunications industry stands now at a particularly complex juncture brought about by the extensive penetration of communications services, rapid pace of technological development, collapse of traditional barriers between communications services (fixed and mobile telephony, broadband access, Internet, pay television and broadcasting) and evolving consumer habits. As a result, current regulatory frameworks are becoming obsolete and the major operators must urgently adjust their business models and corporate strategies accordingly. And with traditional sources of revenue based on voice traffic dwindling, sector companies are under pressure to enter new business segments for handling data traffic. At the same time, old networks are increasingly overloaded by new applications that require greater bandwidth (especially video), making bandwidth saturation a genuine concern. Operators are responding by migrating to next generation networks based entirely on the Internet Protocol (IP) (see diagram IV.1). This presents the industry with a dual challenge: making the necessary investments in infrastructure to meet the new services' technical requirements, while consolidating and boosting the demand for those new services in order to reverse the downtrend in revenues and ensure the sustainability of the new business models adopted.

Diagram IV.1
MIGRATION FROM TRADITIONAL SWITCHED NETWORKS TO NEXT GENERATION NETWORKS
BASED ON THE INTERNET PROTOCOL



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from WIK-Consult.

Abbreviations: 1G, first generation; 2G, second generation; 3G, third generation; 4G, fourth generation; HSDPA, High Speed Downlink Packet Access; LTE, Long Term Evolution.

Operators in advanced economies are optimizing the use of spectrum available for third-generation (3G) mobile services and starting to deploy fourth-generation (4G) Long Term Evolution (LTE)¹ infrastructure to provide more sophisticated data services. Despite the progress made, mobile technologies are still a complement to fixed optical-fibre infrastructure and cannot yet replace it. Twisted-pair copper wire lines, which had seen their performance enhanced by the asymmetric digital subscriber line (ADSL) technology, are gradually being replaced by fibre-optic networks across major cities in the developed countries, and that involves investment by telecommunications operators, electricity companies and national, regional and municipal governments. The foregoing notwithstanding, the mass uptake of the new technologies will likely be slower than expected since telecommunications companies will be monitoring market response to the new service offerings and will build up infrastructure capacity only if there is a profitable increase in demand (Jordán and de León, 2010).

According to ECLAC (2010), the Latin American and Caribbean region has made progress in this sphere, but not at the pace seen in industrialized countries. In fact, the gap between the region's countries and the advanced economies has widened, particularly in the area of new broadband technology; the only exception is in mobile telephone technology. Despite broad 3G coverage in the region, almost 90% of mobile communications users are subscribed to second-generation (2G) prepaid services,

while ADSL technology dominates in fixed broadband connections by a wide margin. These characteristics of the region's market translate into low average revenue per user (ARPU), which is why companies have focused their strategies on gaining scale to the detriment of uptake of new broadband access technologies. Companies are also seeking to maximize their return on investments in old infrastructure (ADSL, coaxial cable and satellite) by offering bundled service packages combining fixed-line telephony, broadband Internet access and pay television (known as "triple play") and thus skimming the market. Rigid regulations and a lack of proactive development policies have kept the market for convergent services small, confined essentially to the high-income sectors.

The Spanish company Telefónica and the Mexican company América Móvil² are the two dominant operators in the region's main markets today. Among the other operators, pay-television and mobile telephony companies stand out for their significant share of domestic capital.

This chapter examines the principal trends in the global communications services industry, describing first the situation in developed countries and then analysing the situation in Latin America and the Caribbean. The focus will be on the corporate strategies pursued by the leading global and regional stakeholders to deal with the evolving conditions in this industry. Public policy considerations, particularly relating to investment and regulation, are discussed in the chapter's closing section.

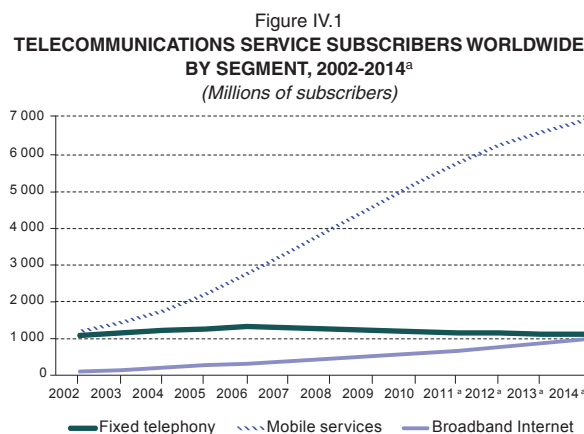
¹ The fourth generation (4G) of cellular wireless standards will provide all-IP based mobile broadband and will enable high-speed broadband options for IP telephony, games and multimedia streaming. Long Term Evolution (LTE) is expected to be the dominant 4G technology. It will enable download speeds on the order of 100 megabits per second (Mbps) and upload speeds of at least 40 Mbps.

² As discussed below, América Móvil, Telmex and Telmex Internacional—all part of the same financial group—merged under the name América Móvil in early 2010. In this chapter, the names América Móvil and Telmex are used interchangeably, except in specific references to the merger process.

B. The world market for telecommunications services: a sea change in the industry

The past few years have seen a slowdown in growth in the world telecommunications market, exacerbated by the fallout from the recent international crisis. That slowdown, however, was much less severe than the general downturn witnessed by most national economies and economic sectors. Nonetheless, the aggregate data hide a number of disparities and conflicting forces, such as the following:

- Developing economies are still expanding, driven in large part by the boom in mobile services (see figure IV.1), while developed countries are experiencing a systematic decline in revenue from telecommunication services. Even though two thirds of the market's global revenue between 2008 and 2010 was concentrated in advanced economies, a small group of emerging countries (Brazil, China, India, Mexico and the Russian Federation) were responsible for nearly 60% of worldwide growth in telecommunications services (IDATE, 2010a and 2011d).
- Technological advances have prompted major changes in consumer habits. As fixed telephony has gradually lost market share, the migration to mobile platforms for voice and data transmission using the Internet Protocol has accelerated. The steady fall in personal computer prices and the emergence of smartphones³ have spurred high growth in mobile data services.



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by Institut de l'Audiovisuel et des Télécommunications en Europe (IDATE).

^a Projected figures for 2011-2014.

- Burgeoning demand from users of telecommunications services has put added pressure on access infrastructure. The industry is thus moving, in varying degrees and at different paces, from traditional broadband access platforms based on twisted-pair copper wires and coaxial cable (ADSL and modem) to next generation networks comprising third- and fourth-generation (3G and 4G) mobile communications technology and high-speed fixed networks using optical fibre (referred to as fibre-to-the-x, or FTTx).

1. Major pillars of change: technological convergence and emerging markets

With the decline in fixed telephony,⁴ mobile services are now the main driving force in the world market for telecommunications services (see figure IV.1). Shrinking fixed telephony penetration is especially evident in

advanced economies (see figure IV.4). In the second half of the last decade, mobile services accounted for more than half of the industry's revenue and, since 2009, the sector has generated more than double the revenue derived

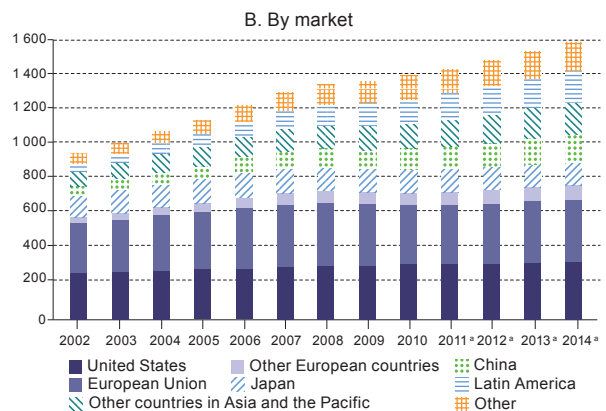
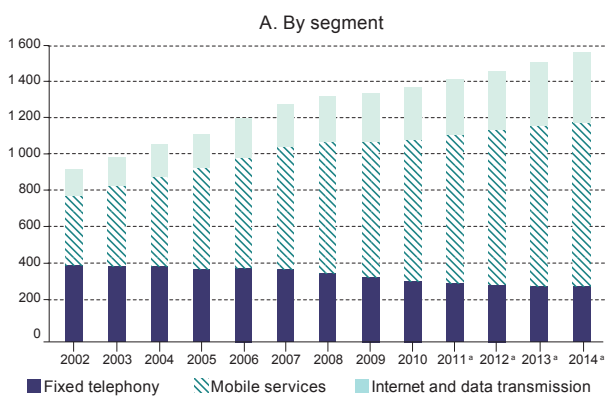
³ In 2010, smartphones accounted for 22% of mobile telephone sales worldwide. Nokia had the largest share of the market, with 33%; it was followed by Research in Motion (BlackBerry) and Apple, each with 16% (Teleco, 2011).

⁴ Between 2002 and 2010, the share of fixed telephony in the industry's total revenue fell consistently, from 44% to 24% (see figure IV.1)

from fixed telephony (see figure IV.2). The change is even more dramatic in terms of the user base. Almost 60% of fixed telephone users and over 75% of mobile telephone users worldwide live in developing countries (see figure IV.3). This rapid growth has sparked equally fast mobile telephony penetration, which rose from 18% to 72% between 2004 and 2010. During the same period, the customer base in developed countries expanded by less than 50%, although penetration increased from 77% to 113% (IDATE, 2011d).

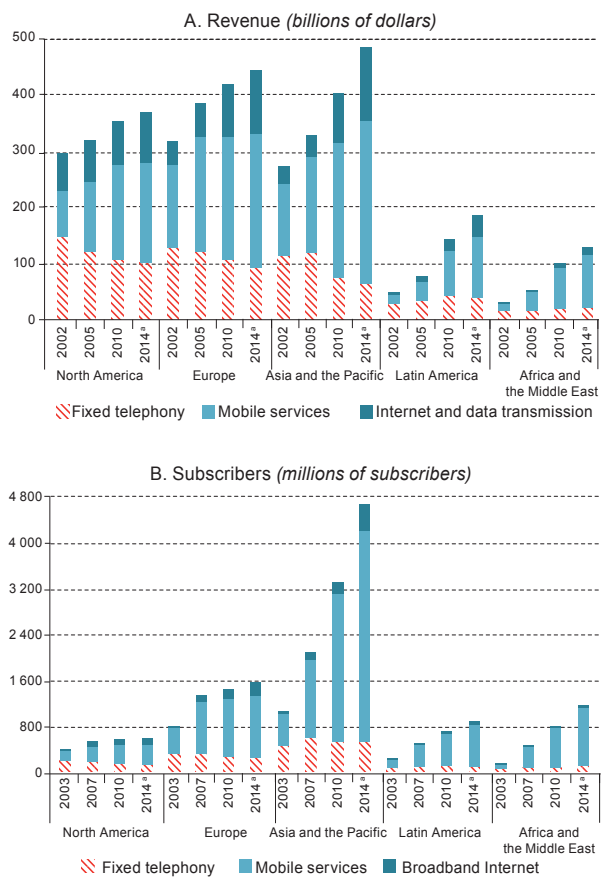
The heightened concentration in mobile telephony has a downside, however. The expansion of this segment's customer base and revenue is starting to show signs of stagnation, pushing companies to find ways to increase ARPU. Although this is a natural consequence of the mass influx of low-income customers from emerging markets (see figure IV.3), the pressure is also being felt in advanced countries, especially in Europe.

Figure IV.2
WORLD TELECOMMUNICATIONS REVENUE BY SEGMENT AND BY MARKET, 2002-2014^a
(Billions of dollars)



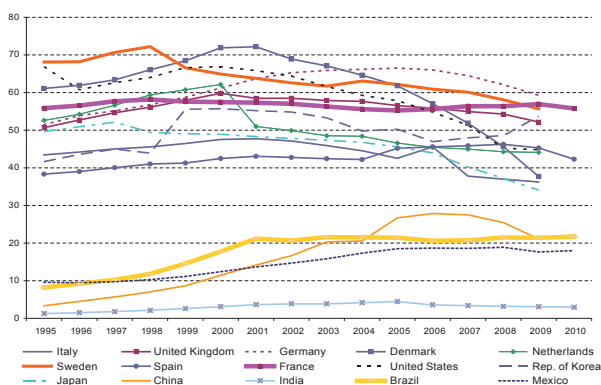
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by Institut de l'Audiovisuel et des Télécommunications en Europe (IDATE).
^a Projected figures for 2011-2014.

Figure IV.3
WORLD TELECOMMUNICATIONS SERVICES: REVENUE AND SUBSCRIBERS BY REGION AND SEGMENT, 2002-2014^a



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by Institut de l'Audiovisuel et des Télécommunications en Europe (IDATE).
^a Projected figures for 2014.

Figure IV.4
SELECTED COUNTRIES: FIXED TELEPHONY PENETRATION, 1995-2010
(Number of subscribers per 100 inhabitants)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by the International Telecommunication Union (ITU).

Between 2002 and 2010, Internet and data services continued to gain ground worldwide, increasing from 15% to 20% of total telecommunications services (see figure IV.2), and that trend looks set to intensify in the near future (see figure IV.1). In 2009, for the first time this segment's contribution to growth did not offset the losses in fixed telephony (IDATE, 2010a). However, the increase in Internet services, especially broadband, has been nothing less than remarkable: in 2010, broadband subscriptions numbered more than 500 million and accounted for 80% of Internet connections worldwide.

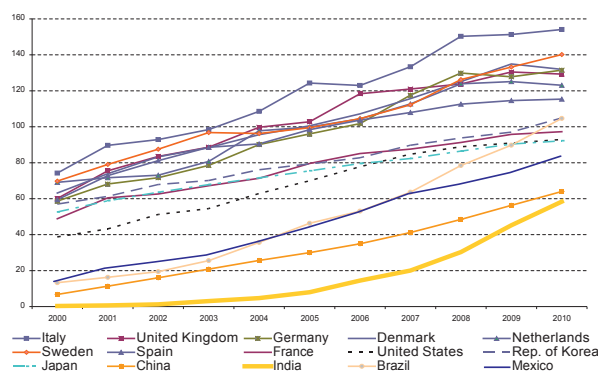
As fixed services rapidly migrate from telephony to Internet access and ever greater value is attached to mobility, broadband is the segment presenting the highest growth potential. At present, average broadband penetration in developing countries is less than 5%, while in advanced economies just under 30% of the population have a fast Internet connection. Future growth will thus likely be sustained by countries having a customer base of over 20 million and low broadband penetration (5%-15%), such as Brazil, China, Mexico and the Russian Federation. With 10 million broadband subscribers and a penetration rate of less than 1% in 2010, India will probably overtake China as the main driver of growth in the medium term (IDATE, 2011d).

To the extent that the industry's revenues continue to be generated mainly in advanced countries while it is the emerging economies that see their customer base grow, the asymmetries of the world market will become even more marked (see figure IV.3). Europe, the United States and Asia—in particular China and Japan—are the principal markets for telecommunications services (see figures IV.2 and IV.3). These three regional markets have a similar share of 25%-30% in terms of revenue, although Asia leads by a wide margin in terms of subscribers, with 50% of the world market.

In Europe, the surge in migration from fixed lines to mobile telephones and Voice over Internet Protocol (VoIP) technology is spurring on the development of mobile communications (see figure IV.5). Revenue from fixed telephony has plummeted, and income from the wireless segment has also started to slow. In addition, the global financial crisis and high levels of penetration have dampened growth in the broadband sector, leading to fewer new subscribers than expected and impeding this segment from offsetting the declines in other segments (see figure IV.6).

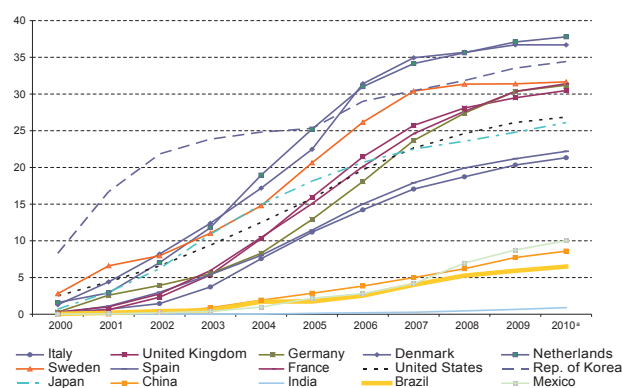
Figure IV.5
SELECTED COUNTRIES: MOBILE TELEPHONY PENETRATION,
2000-2010

(Number of subscribers per 100 inhabitants)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by the International Telecommunication Union (ITU).

Figure IV.6
SELECTED COUNTRIES: BROADBAND PENETRATION, 2000-2010
(Number of subscribers per 100 inhabitants)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by the International Telecommunication Union (ITU); OECD Broadband Portal of the Organization for Economic Cooperation and Development (OECD); and national sources.

* Data up to June 2010.

In the United States, the high concentration of pay-television operators providing fixed services coupled with high subscriber loyalty has kept the market from contracting sharply. Still, the increased revenue from Internet services has not offset the losses in the telephony segment, even though the segment could be revitalized by offering bundled packages (triple play) and incorporating new services. At the same time, the relative underdevelopment of mobile services—as illustrated by a penetration rate lower than in advanced countries in Europe and Asia—has enabled this segment

to continue driving growth in the sector (see figure IV.5). And although the surge in new subscribers is starting to lose steam, there is still strong competition in the voice segment, which will mean a drop in operators' revenues and increased pressure on ARPU. In addition, revenue from voice services is starting to feel the effects of the first mobile VoIP applications, especially following the launch of Google Voice for Android and BlackBerry⁵ smartphones. With broadband access via Wi-Fi or 3G networks enabling smartphones to make calls and send messages without going through a telecommunications operator, the latter's revenue from voice traffic is under threat, as happened with fixed telephony. The income generated by mobile data services, which are gaining in popularity as smartphones and tablets become more widespread, should rise in the coming years (IDATE, 2011c).

Generating nearly 30% of the industry's worldwide income, Asia has become the second largest regional market and, given its strong growth, it could overtake Europe in 2011 (IDATE, 2011d). However, there are

two contrasting realities in this region. While advanced economies (such as Australia, Hong Kong Special Administrative Region of China, Japan, New Zealand and the Republic of Korea) are showing signs of stagnation caused by the global financial crisis and high levels of penetration similar to those of the United States and Europe, the emerging markets have posted a much more positive performance, in particular China. In addition, Asia has been the leading contributor to expansion in the global subscriber base, both in mobile telephony and broadband Internet (see figure IV.4). Mobile services, which represent nearly 60% of Asia's telecommunications market, have continued to grow, thanks in particular to the burgeoning number of subscribers in China and India (see figure IV.5). In 2010, those two countries accounted for more than 50% of the increase in the number of subscribers worldwide, and they still have room for further expansion (IDATE, 2011d). Broadband access has shown sustained growth and has the potential to outperform mobile telephony, given that penetration levels are still low (see figure IV.6).

2. Swelling data traffic and network saturation: the industry's bottleneck

As indicated above, broadband Internet access is the industry's most vibrant segment and that has caused data traffic to shoot up, particularly video. Users now have access to content and applications that would have been unimaginable just a short time ago. Mobile data traffic worldwide in 2010 stood at more than triple the sum total of Internet traffic (fixed and mobile) generated worldwide in 2000; and it had grown 4.2 times faster than data traffic over fixed broadband connections (Cisco, 2011). Various analysts (ECLAC, 2010; Cisco, 2011; and IDATE, 2011d) agree that the principal factors explaining this growth are as follows:

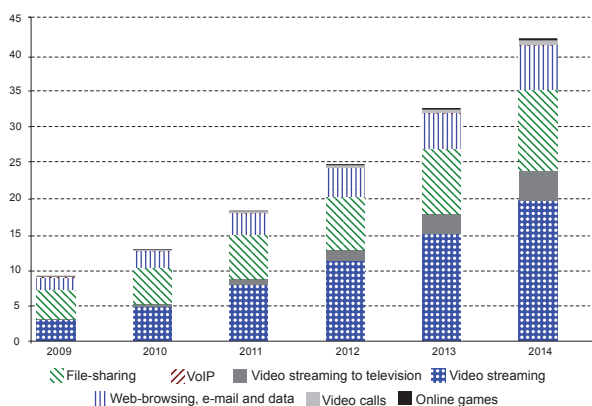
- **Enhanced network infrastructure.** When telephone networks using twisted-pair copper wires were upgraded with ADSL technology, the way was

opened for mass-scale Internet access. The ensuing gradual migration to optical fibre and 3G networks in mobile communications multiplied transfer speeds and enabled greater use of content and applications requiring greater bandwidth, including Internet Protocol television (IPTV), exchange of video over the Internet, video on demand (VoD) and online gaming. At present, video represents an important part of the business of selected operators in developed countries, accounting in some cases for as much as 50% of mobile data traffic (IDATE, 2010b). High-definition audio-visual content is expected to gain share in overall Internet traffic. In fact, an estimated 75% of VoD IP traffic and nearly 50% of video exchanges via Internet will be in high-definition format by 2014 (Cisco, 2010) (see figure IV.7).

- **New service offerings.** The launch of attractive service offerings, particularly bundled service packages such as triple play and other, more sophisticated versions, has boosted the number of subscribers to broadband access plans.

⁵ In July 2007, the Internet giant Google launched Google Voice for Android and BlackBerry devices. This free application, available only in the United States, extends Google's VoIP services and allows users to make local and international calls from mobile telephones, as well as send text messages and listen to voice-mail messages.

Figure IV.7
**GLOBAL CONSUMER INTERNET TRAFFIC (HOUSEHOLDS,
 UNIVERSITIES AND INTERNET CAFES), 2009-2014**
 (Thousands of exabytes per month)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information provided by Cisco, *Hyperconnectivity and the Approaching Zettabyte Era*, 2 June 2010.

- **Rapid technological advances and cheaper access devices.** Personal computers (notebooks and netbooks), smartphones (BlackBerry and Apple's iPhone), televisions, games consoles, e-book readers (Amazon Kindle), tablets (Apple's iPad) and other devices are increasingly powerful and versatile, enabling users to access the Internet anywhere and at any time.
- **Changes in user habits**, especially among young people. This can be seen in particular in the boom

in social networks, such as Facebook, MySpace and Twitter, where users interact via chat, messenger, e-mail and videoconference, and also share files, maintain blogs and participate in discussion groups.

- **Increased connectivity through multi-tasking and passive use of networks** (i.e. sending or downloading files in the background while working on other tasks). Taking as an example surveillance and traffic monitoring cameras and video streaming, it is clear that networks are transmitting much more information in video format than users are actually consulting.
- **Cross-platform migration of information usage.** The transmission of data traffic has shifted in a very short time from fixed to mobile platforms; free-to-air television and even pay television have been superseded by VoD; and users are migrating from personal computers to mobile devices (such as smartphones and tablets). This tendency, together with users' growing expectation of having access to high-speed broadband anytime and anywhere, is exerting considerable pressure to speed up advances in technology, network infrastructure and devices, particularly mobile telephones.

This all points to continued robust expansion of data traffic. However, the escalating growth to date has already started to reveal infrastructure constraints, especially in mobile communications networks in densely populated urban areas. Many sector analysts are in fact pessimistic, predicting that operators will soon run into serious problems.

3. Corporate strategies and business models: the search for new data services to recoup investments in next generation networks

Over the past decade, communication services companies embarked on across-the-board restructuring exercises that saw company closings, staff layoffs and intense consolidation in the form of large-scale mergers and acquisitions. The subsequent technological convergence, dismantling of barriers between the different segments of the industry and dwindling share of voice services prompted a shift in the major global operators' business models: they would cease to be providers of individual services over specialized networks (voice, television or content, for example) and become instead operators of broadband access offering multiple services on a single IP platform (see diagram IV.1). The pace of that change varied across markets and regions owing to such factors

as local per capita income, competition, the emergence of alternative operators, consumer demand and the existence of proactive public policies fostering information and communications technologies (ICTs).

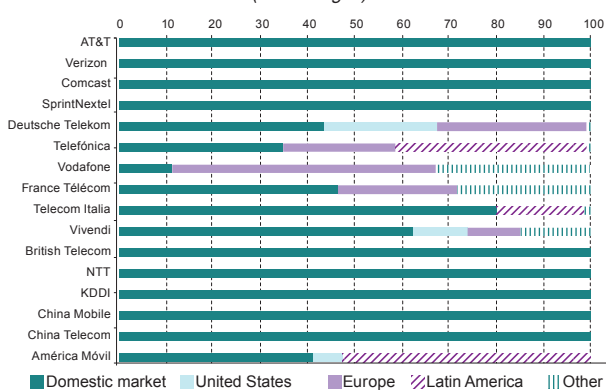
(a) Consolidating the industry: market power in advanced economies and scale in emerging markets

After the dot-com bubble burst and the nascent 3G mobile services in Europe had completed the arduous task of acquiring licences, the telecommunications industry underwent a massive reorganization. Operators reacted to the initial signs of technological convergence by going on the offensive to seek economies of scale

and expand their service offerings (ECLAC, 2008). The period from 2004 to 2007 saw a spate of mergers and acquisitions among telecommunications service providers, especially in the domestic markets of developed countries, in particular the United States⁶ (see table IV.1). In Europe, operators strove to shore up their regional position, in line with their historical preference for internationalizing their activities. Spain's Telefónica and the British mobile operator Vodafone stood out for their ambitious, diversified strategies that combined emerging and advanced markets, while Deutsche Telekom (Germany) and France Télécom focused on the competitive markets in developed countries (see figure IV.8).

When the economic outlook began to improve, however, the process regained its momentum. In a context marked by steadily falling revenues in the traditional segments and more rapid technological convergence, the main operators are seeking to secure assets that will enable them to offer bundled service packages, scale up their operations in competitive markets and guarantee their access to emerging countries with high growth potential. Local markets are consolidating further and the major global operators are bolstering their international operations. At the same time, the operators with the highest number of subscribers worldwide, except for China Mobile and Vodafone, are continuing to move towards establishing integrated businesses that can offer convergent services (see figure IV.9).

Figure IV.8
LEADING GLOBAL OPERATORS: SALES BY MARKET, 2010
(Percentages)

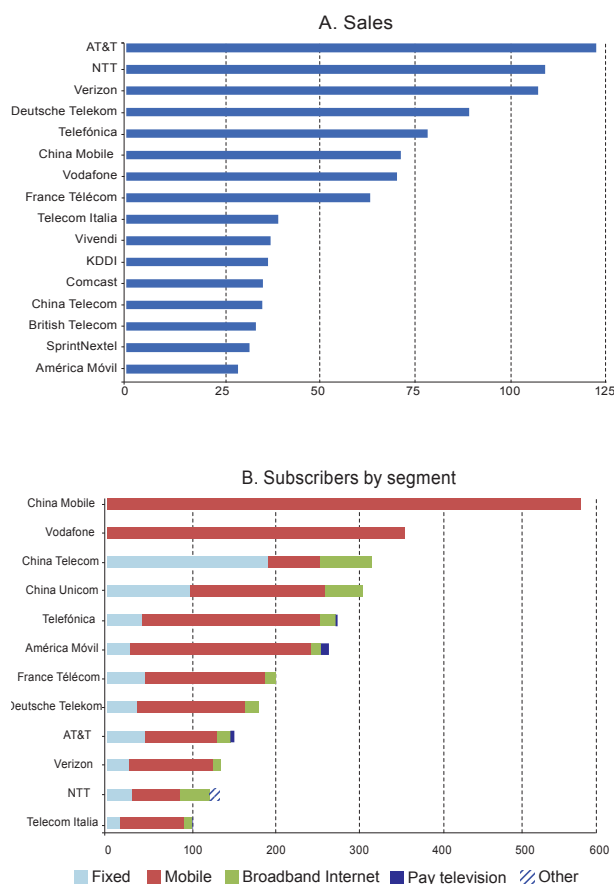


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from national regulatory authorities and from the companies.

In 2008 and early 2009, the thrust towards consolidation slowed as a result of the international crisis and the combined effect of the credit crunch, depreciation of assets and a less-than-optimistic economic outlook. During this period, activity in the mobile telephony and broadband segments continued to be mainly national in scope.

⁶ As a result of this intensive consolidation in the United States, long-distance telephony operators disappeared and the Regional Bell Operating Companies gained new momentum with the re-emergence of the emblematic AT&T and the strengthening of Verizon Communications. Both companies became market leaders in the United States as integrated companies with a presence in the major segments of the industry. This move was the response of telecommunications operators to intense competition from cable television providers, which had gained an advantageous position early on in terms of broadband access and convergent packages (such as triple play) (ECLAC, 2008).

Figure IV.9
PRINCIPAL GLOBAL TELECOMMUNICATIONS SERVICE OPERATORS: SALES IN 2009 AND SUBSCRIBERS AS AT SEPTEMBER 2010



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the companies.

Table IV.1
PRINCIPAL MERGERS AND ACQUISITIONS IN THE TELECOMMUNICATIONS INDUSTRY, 2003-2011
(Millions of dollars)

Date	Purchasing company	Country of purchasing company	Company acquired	Country of company acquired	Segment	Amount
1 December 2006	AT&T Inc.	United States	BellSouth Corp.	United States	Mobile	89 432
2 October 2004	Cingular Wireless	United States	AT&T Wireless Inc.	United States	Mobile	47 100
3 August 2005	Sprint Corporation	United States	Nextel Communications	United States	Mobile	46 514
4 March 2011 ^a	AT&T Inc.	United States	T-Mobile USA Inc.	Germany	Mobile	39 000
5 October 2008	China Unicom	Hong Kong Special Administrative Region (SAR) of China	China Netcom Group Corp. Ltd	Hong Kong SAR of China	Fixed	32 012
6 April 2006	Telefónica	Spain	O ₂ Plc	United Kingdom	Mobile	31 798
7 January 2007	América Móvil	Mexico	América Telecom	Mexico	Mobile	31 757
8 June 2005	Telecom Italia SpA	Italy	Telecom Italia Mobile SpA (TIM)	Italy	Mobile	28 821
9 January 2009	Verizon Wireless	United States	Alltel Corp.	United States	Mobile	28 100
10 August 2003	Olivetti & Co SpA	Italy	Telecom Italia SpA	Italy	Fixed-mobile	27 835
11 June 2010	América Móvil	Mexico	Carso Global Telecom (Telmex)	Mexico	Fixed-mobile	27 483
12 November 2007	Atlantis Holdings LLC	United States	Alltel Communication	United States	Mobile	27 262
13 January 2011	Comcast Corp.	United States	NBC Universal Inc.	United States	Pay television	23 500
14 April 2011	VimpelCom Ltd	Netherlands	Weather Investments Srl	Italy	Fixed-mobile	22 382
15 November 2005	SBC Communications	United States	AT&T Corp.	United States	Fixed	22 276
16 April 2011	CenturyLink Inc.	United States	Qwest Communications International Inc.	United States	Fixed	22 170
17 April 2006	Softbank Corp.	Japan	Vodafone KK (subsidiary in Japan)	United Kingdom	Mobile	17 531
18 November 2009	DirecTV Group Inc.	United States	Liberty Entertainment Inc.	United States	Pay television	14 499
19 May 2004	NBC	United States	Vivendi Universal	United States	Content	13 677
20 August 2005	Weather Investment	Egypt	Wind Telecomunicazioni SpA	Italy	Internet	12 799
21 May 2007	Vodafone Group PLC	United Kingdom	Hutchison Essar Ltd	India	Fixed-mobile	12 748
22 July 2009	CenturyTel Inc.	United States	Embarq Corp.	United States	Internet	11 516
23 November 2010 ^a	Vivendi SA	France	SFR SA	France	Fixed-mobile	11 320
24 June 2010	Bharti Airtel Ltd	India	Zain Africa BV	Kuwait	Mobile	10 700
25 January 2006	Nordic Telephone Co.	United Kingdom	Tele-Danmark Communications A/S	Denmark	Fixed	10 618
26 July 2002	China Mobile Ltd	Hong Kong SAR of China	CH Mobile HK	China	Mobile	10 335
27 September 2010	Telefónica	Spain	Vivo (50% of Portugal Telecom)	Brazil-Portugal	Mobile	9 743
28 December 2003	China Telecom Corp.	China	China Telecom (fixed-line assets)	China	Fixed	9 676
29 October 2008	China Telecom Corp.	China	Unicom New Horizon (code division multiple access (CDMA) network assets)	China	Mobile	9 562
30 July 2006	Valor Communications Group Inc.	United States	Alltel Holding Corp.	United States	Mobile	9 096
31 January 2006	Verizon Communications	United States	MCI Inc.	United States	Fixed	8 846
32 March 2006	NTL Inc.	United Kingdom	Telewest Global Inc.	United Kingdom	Fixed-mobile	8 765
33 December 2002	Telia AB	Sweden	Sonera Oyj	Finland	Fixed-mobile	8 763
34 July 2010	Frontier Communications Corp.	United States	Verizon Communications Inc. (rural fixed lines)	United States	Fixed	8 583
35 April 2010	Orange PLC (France Télécom)	France	T-Mobile (Deutsche Telekom)	Germany	Mobile	8 496
36 June 2010 ^a	National Broadband Network (NBN)	Australia	Telstra Corp. (fixed lines)	Australia	Fixed	7 933
37 September 2003	Liberty Media Corp.	United States	QVC Inc.	United States	Pay television	7 903
38 November 2005	Orange PLC (France Télécom)	United States	Auna	Spain	Mobile	7 725
39 June 2006	Sprint Nextel Corp.	United States	Nextel Partners Inc.	United States	Mobile	7 545
40 November 2008	Clearwire Corp.	United States	Sprint Nextel Corp. (mobile broadband)	United States	Mobile	7 400

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Thomson Reuters.

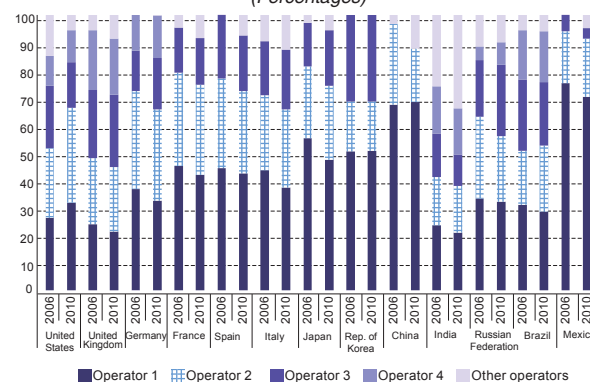
^a Operation not yet authorized by national or regional regulatory authorities.

In the advanced economies, operators obtain most of their revenue by retaining customers and preventing subscriber churn: the high-income bracket is willing to pay for more sophisticated services and premium customers predominate among those who sign postpaid contracts. In the area of wireless communications, the large domestic markets have consolidated quickly and intensely. In the United States, AT&T and Verizon expanded their market power through an aggressive series of acquisitions; the merger of Nextel and Sprint was also a landmark development in that market (see table IV.1 and figure IV.10). Two of the most recent of these mega-deals were the purchase of Alltel by Verizon,⁷ which made Verizon the largest mobile telephony operator in the United States market and relegated AT&T to second place; and the acquisition by AT&T of T-Mobile USA, the Deutsche Telekom subsidiary in the United States, which returned AT&T to the top spot in its market of origin. The AT&T operation is pending approval by the United States competition authorities (*The Wall Street Journal*, 22 March 2011). There is currently speculation as to the fate of some of the smaller local companies, such as MetroPCS and Leap Wireless, which could be bought up by one of the market's three dominant operators. Lastly, the merger of Qwest Communications Inc. and CenturyLink Inc. has created a domestic provider of content, applications and services over high-speed Internet with a network totalling over 290,000 kilometres of optical fibre; that merger is expected to give a new boost to the United States telecommunications market.

The European market is relatively consolidated and recent deals have involved small operators focusing on market niches, thus allowing large companies to move forward with their integration strategies. In the larger countries, the mobile telephony subsidiaries of the integrated incumbent operators—which took over from the former State telecommunications companies—have lost market share, enabling operators from other European Union countries to strengthen their position in local markets. In the region's larger economies (except for the United Kingdom), the three leading operators control about 90% of the market (see figure IV.10). This scenario could change, however, as the joint venture Everything Everywhere between the British subsidiaries of Deutsche Telekom (T-Mobile) and France Télécom (Orange) has created the

largest mobile operator in the United Kingdom, overtaking the Telefónica subsidiary O₂. A similar deal was pursued in Switzerland between the subsidiaries of France Télécom and Tele-Danmark Communications (TDC), but it was ultimately blocked by the national anti-trust commission in April 2010. In general, the numerous acquisitions of broadband companies are testimony to the maturity of this segment in Europe and to the perseverance of the various small, but very dynamic, operators in national markets, such as Wind in Italy and Free in France (IDATE, 2011d).

Figure IV.10
MARKET SHARE OF THE FOUR LEADING MOBILE TELEPHONY OPERATORS IN SOME OF THE PRINCIPAL WORLD MARKETS, 2006 AND 2010
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from national regulatory authorities and from the companies.

The market structure in the more advanced economies of Asia, particularly in Japan and the Republic of Korea, is similar to that of the larger European economies, showing domination by a few local operators with limited space for foreign companies to enter the market (see figure IV.10). Vodafone, for instance, sold its assets in Japan to the local company Softbank in 2006 (see table IV.1).

The hub of this process is now shifting towards the emerging markets: Brazil, China, Hong Kong Special Administrative Region of China, India, Malaysia, Mexico and the Russian Federation. The trend has been particularly apparent in the mobile communications segment, where expectations are high for rapid growth in large markets having low rates of penetration. Evidence of this shift can be seen clearly in the consolidation of Chinese operators, the mergers between América Móvil and Telmex and between Brasil Telecom and Oi, the entry of Vodafone into the Indian market and the acquisitions of the Indian company Bharti Airtel in Africa,⁸ of Telefónica and Vivendi

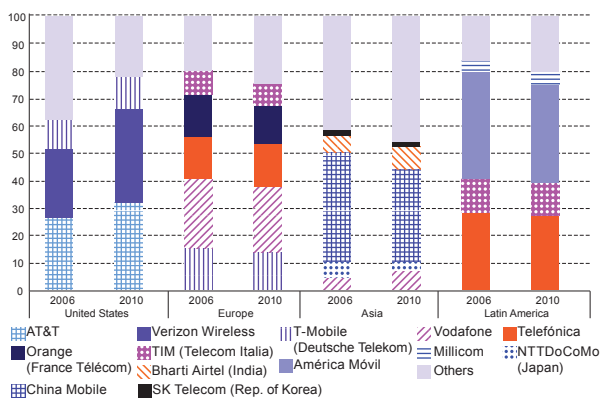
⁷ In early 2009, the United States competition authorities approved the acquisition of Alltel by Verizon Wireless for US\$ 28.1 billion. Thus, Verizon wrested the position of top mobile telephony company in the country from AT&T. The operation took place some months after Alltel had been acquired by a consortium of Investment Funds for US\$ 27.5 billion; however, the deal suffered a setback as a result of the international financial crisis. At the time, the deal was considered risky because of the saturation of the United States mobile telephony market and the fact that considerable future revenue was expected to come from the Internet segment and Web-based applications.

⁸ In June 2010, Zain announced the sale of 100% of Zain Africa BV to Bharti Airtel Limited for US\$ 10.7 billion. The Indian company acquired Zain's operations in 15 African countries: Burkina Faso, Chad, Congo, Democratic Republic of the Congo, Gabon, Ghana,

in Brazil and of France Télécom in Egypt (see table IV.1). Three of the top four companies worldwide in terms of number of subscribers are Chinese, with China Mobile in the lead by a very wide margin (see figure IV.9). The main telecommunications service operators are slowly positioning themselves in these markets by acquiring minority interests in local companies, often financed through share swaps. One example of this is Telefónica's share in China Unicom. In all likelihood, the fragmented Indian market will be a magnet of industry interest in the foreseeable future.

At the regional level, recent activity shows that Asian and United States companies are focusing on domestic markets, while European companies have divided their attention between local markets and active internationalization strategies targeting the European Union and, in addition, one or more areas outside the European region. Building on their strong position in Europe, Telefónica and Telecom Italia have set their sights on Latin America, while Vodafone is concentrating on the United States,⁹ Asia and North Africa, France Télécom is targeting Africa and Deutsche Telekom is honing in on the United States (see figures IV.8 and IV.11).

Figure IV.11
UNITED STATES, EUROPE, ASIA AND LATIN AMERICA: MARKET SHARE OF MOBILE TELEPHONY OPERATORS BY COMPANY, 2006 AND 2010 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from national regulatory authorities and from the companies.

In the reigning climate of volatility and tight credit, the larger companies with greater financial clout have been better able to seize the opportunities offered by an industry in the throes of rapid transformation and consolidation. Consolidation of the wireless segment in the more advanced

Kenya, Madagascar, Malawi, Niger, Nigeria, Sierra Leone, Uganda, United Republic of Tanzania and Zambia.

⁹ In the United States, Vodafone set up a joint venture with Verizon Communications under the name Verizon Wireless. The British company owns 45% of the joint venture and the United States company owns the other 55%.

markets has pared the field down to just three operators, which seems to be the right number for achieving a return on operations in the domestic market. This process will undoubtedly continue, moving next into the larger, still highly fragmented emerging markets. In addition, the expansion of new technologies (LTE, Worldwide Interoperability for Microwave Access (WiMax) and IPTV) will open the way for yet more mergers and acquisitions.

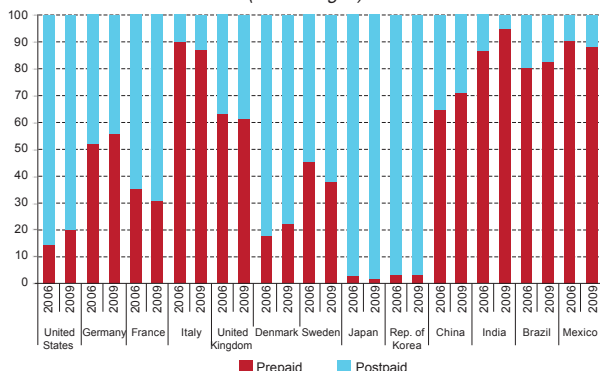
(b) Premium offerings for premium clients: the key to financing next generation networks

In addition to creating economies of scale and synergies by offering a broad range of convergent services, industry leaders are seeking to reshape subscribers' consumption profile in an effort to cover the cost of deploying the infrastructure needed to take the new technologies to the market. These measures are being taken in both the mobile and the fixed telephony segments.

In the wireless communications area, operators hope to trim prepaid customer numbers by encouraging mobile service users to sign on to postpaid contracts. This strategy basically reflects the fact that contractual customers are more profitable for a company: they produce higher ARPU and more call traffic. As operators begin to offer higher value added services and applications (text messages, mobile Internet and mobile broadband) to this class of subscriber, revenues have soared. In advanced countries, especially Japan, the Republic of Korea and the United States, telecommunications companies have shown scant interest in building their prepaid business any further (see figure IV.12). In Europe and the main emerging markets, however, prepaid customers still make up the bulk of the subscriber base (see figure IV.13).

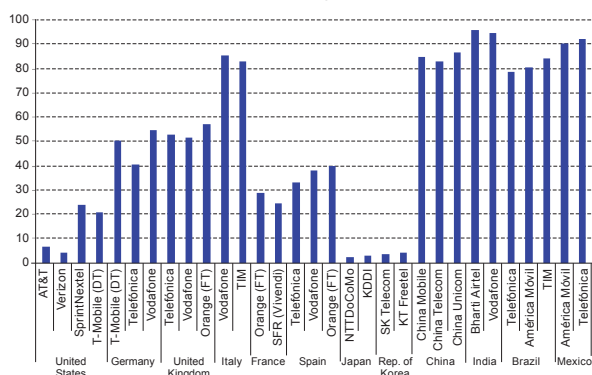
Under this scenario, telecommunications companies have gone to great lengths to deploy infrastructure and provide widespread access to 3G mobile communications services, especially data functions, and thereby relieve some of the intense pressure on ARPU. As a result, the number of 3G customers has boomed, with future activities expected to centre around three areas: (a) moving towards wireless technologies with higher spectral efficiency, such as LTE (the new 4G standard); (b) obtaining additional radio spectrum; and (c) using complementary wireless technologies—such as Wi-Fi, WiMAX and femtocells—to alleviate data traffic on fixed networks. In the absence of additional available spectrum, the network usage model put forward for the coming years could paralyse market growth and development (see figure IV.14). Fortunately, some spectrum will be freed up when the analogue television signal is switched off—creating what is referred to as the digital dividend—and that should ease the situation somewhat.

Figure IV.12
SELECTED COUNTRIES: PREPAID AND POSTPAID MOBILE CUSTOMERS, 2006 AND 2009
 (Percentages)



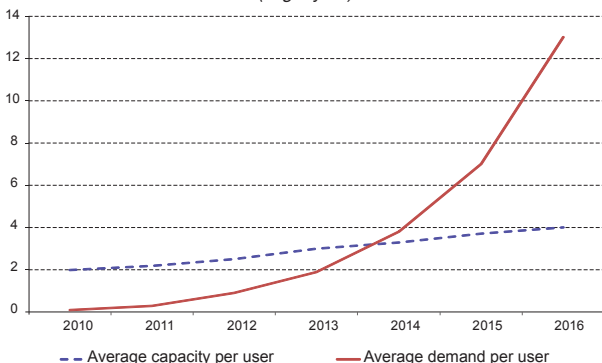
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Institut de l'Audiovisuel et des Télécommunications en Europe (IDATE).

Figure IV.13
SELECTED COUNTRIES: PREPAID MOBILE CUSTOMERS OF LEADING OPERATORS, 2010
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the companies.
 Abbreviations: DT, Deutsche Telekom; FT, France Télécom,

Figure IV.14
AVERAGE MOBILE NETWORK DEMAND AND CAPACITY PER USER, 2010-2016
 (Gigabytes)

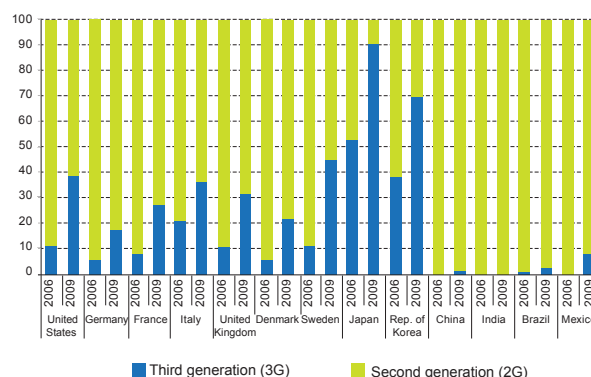


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Rysavy Research, *Mobile Broadband Capacity Constraints and the Need for Optimization*, 24 February 2010 [online] http://www.rysav.com/Articles/2010_02_Rysavy_Mobile_Broadband_Capacity_Constraints.pdf.

On networks designed several years ago, the emergence of smartphones was already beginning to bring wireless infrastructure to a standstill, not because of saturation resulting from the increase in data traffic but because of the signalling burden.¹⁰ A warning bell was sounded at the end of 2009, when AT&T had to suspend iPhone sales in New York because of network congestion. At the same time, O₂—the Telefonía subsidiary in the United Kingdom—had to issue an apology to subscribers for similar failures in central London (*Expansión*, 26 March 2010). Devices using the Android operating system are likely to trigger similar problems in the near future because of their high-definition camera, bearing in mind that the exchange of photographs in data format is very popular on social networks (Rysavy Research, 2011).

At the end of 2010, there were some 940 million 3G users worldwide—almost 18% of all mobile subscribers (ITU, 2010). This technology has been embraced most quickly in Asia, in particular in Japan (96%), the Republic of Korea (80%), Australia (65%) and Singapore (55%), followed by the United States (48%) and some European countries, such as Spain (46%), Sweden (45%), Italy (42%), the United Kingdom (38%) and France (32%) (Morgan Stanley, 2010). In contrast, developing countries have made much slower progress in this regard (see figure IV.15).

Figure IV.15
SELECTED COUNTRIES: THIRD-GENERATION MOBILE TELEPHONES, 2006 AND 2009
 (Percentages)



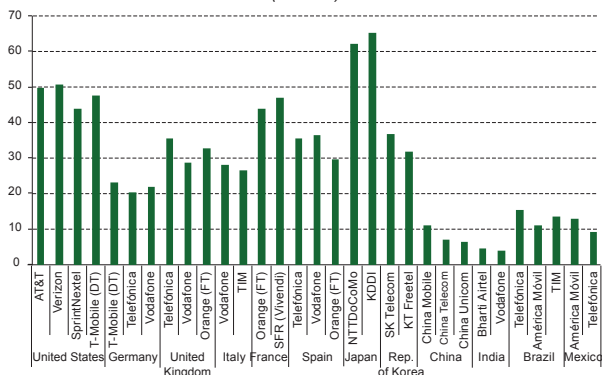
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Institut de l'Audiovisuel et des Télécommunications en Europe (IDATE).

¹⁰ Signalling is the way that devices communicate with the network, and their ability to do so is vital to the smooth functioning of mobile infrastructure. Smartphones produce significantly more signalling traffic than conventional mobile telephones. These new devices are able to keep several applications open at the same time, with each application refreshing automatically or sending or receiving information from the network (for example, e-mail, Internet and browsing and location). As a result, when smartphone users enter an area where the signalling capacity is saturated, their voice calls may fail or they may lose their Internet connection.

This strategy has benefited operators and users alike in the form of better financial results and improved service availability. Demand is presently driven by the enhanced performance of network infrastructure, a surge in attractive commercial offerings and the huge popularity of personal computers, smartphones and other multifunctional devices. In addition, mobile broadband has made robust progress in the advanced economies, complementing traditional voice services and leading to a revolution in Internet access. It is estimated that, by 2012, the number of mobile users accessing the Internet by smartphones will exceed the number of people accessing the Internet from desktop and personal computers (Morgan Stanley, 2010a). For some leading companies, data traffic already accounts for a sizeable part of their revenue from mobile services, such as NTT DoCoMo (49%), Verizon (36%), AT&T (35%), Orange-France Télécom (29%) and Vodafone’s European operations (29%) (Huawei, 2010). As mentioned above, the upsurge in mobile data traffic is nonetheless a cause for concern among network administrators, and operators have been obliged to rethink their business strategies for mobile Internet access, including such measures as discontinuing unlimited data plans and modifying the rates applied.

In general, the current operators are not prepared to take on the double challenge posed by increasing demand and falling revenues. Although the ARPU of mobile communications operators in the advanced economies is still substantially higher than in the less advanced economies, all indications are that the level will drop rapidly in the near future (see figure IV.16). The expansion of mobile Internet has prompted telecommunications operators to change both their business models and network infrastructure.

Figure IV.16
SELECTED COUNTRIES: AVERAGE REVENUE PER USER AMONG LEADING MOBILE TELEPHONY OPERATORS, 2010
 (Dollars)

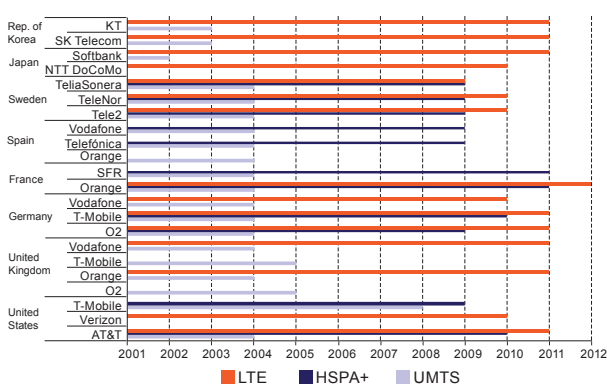


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the companies.
 Abbreviations: DT, Deutsche Telekom; FT, France Télécom.

Companies have thus had to introduce changes in order to manage mobile traffic more efficiently. A state-of-the-art platform designed especially for mobile Internet, for instance, could benefit operators and subscribers alike. For this, high-performance networks are needed that can manage a large number of devices, provide better service quality, offer faster speeds and shorter lag times, and produce higher returns in order to harness the potential of new business models that include applications and services more in sync with user needs (Tellabs, 2011). In this connection, most operators in the more competitive and demanding markets have opted for the new 4G networks with LTE technology.

At the end of 2010, as progress continued on 3G networks, the first 4G platforms with LTE technology began to operate commercially in Japan, the United States and parts of Europe (Austria, Denmark, Finland, Germany, Norway and Sweden). This new technology seems to be set for very fast uptake: in addition to the 17 existing networks, 180 operators in 70 countries are investing in the deployment of 4G LTE networks (GSA, 2011a) (see figure IV.17); and commitments to establish new networks have been met much more quickly than happened with the previous generation (GSA, 2011b). Verizon’s launch of the largest ever LTE network in December 2010 was an industry milestone (see box IV.1). By 2015, there will be an estimated 371 million users of LTE technology worldwide (IDATE, 2011a).

Figure IV.17
SELECTED COUNTRIES: DEPLOYMENT OF THIRD- AND FOURTH-GENERATION MOBILE COMMUNICATIONS NETWORKS, 2000-2012
 (Year of commercial launch)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from 4G Americas, *Global 3g Status HSPA, HSPA+ and LTE*, 27 January 2011; and Global Mobile Suppliers Association (GSA), *Evolution to LTE Report*, 12 January 2011.
 Abbreviations: LTE, Long Term Evolution; HSPA+, Evolved High-Speed Packet Access; UMTS, Universal Mobile Telecommunications System.

Box IV.1

VERIZON LAUNCHES THE WORLD'S LARGEST AND MOST ADVANCED MOBILE BROADBAND NETWORK

In December 2010, Verizon announced the launch of the world's first large-scale fourth-generation (4G) Long Term Evolution (LTE) network; it was the fastest and most advanced network in the United States. The new 4G network operates in the 700 MHz spectrum with speeds up to 10 times faster than the company's third-generation (3G) network. Ericsson and Alcatel-Lucent are the network's primary providers.

During the initial phase, the service will be available in 38 cities and 60 airports, covering almost a third of the population of the United States. It is expected to expand quickly, equalling the company's existing 3G network coverage by 2013.

Users of personal computers were among the first to benefit from the commercial launch of the 4G network, which included two universal serial bus

(USB) modems at a cost of US\$ 100 and monthly access plans starting from US\$ 50. Users travelling outside the 4G coverage area are automatically connected to the company's 3G network. In loaded network environments, Verizon expects the 4G network to reach speeds of between 5 and 12 megabits per second (Mbps) on the downlink and between 2 and 5 Mbps on the uplink.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), based on information from Verizon.

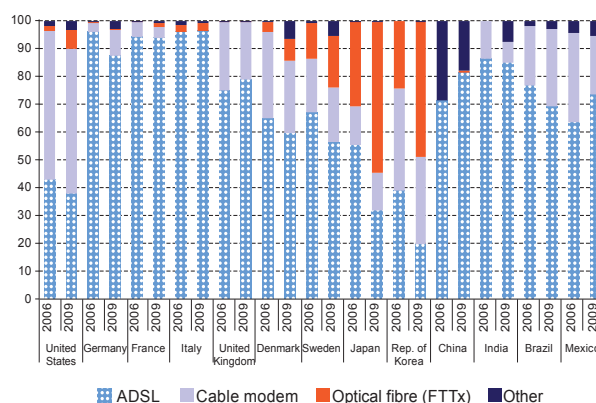
Despite the significant progress made so far, mobile solutions are not yet a substitute for fixed, optical fibre infrastructure. Fixed infrastructure continues to be the best option for applications requiring large bandwidth (such as video streaming, videoconferencing and IPTV). That said, wireless networks will remain the most feasible option in remote areas with low population densities, where it would not be profitable to lay optical fibre. Both platforms are expected to coexist into the near future, in particular over the "last mile".

For fixed infrastructure, ADSL technology continues to be, by a wide margin, the world's leading broadband access route. In the advanced economies, the expansion of fibre-optic solutions for the mass market varies widely, but the technology's features have clearly captured the attention of the leading operators.¹¹

In Europe, where ADSL and triple play-style packages dominate, high-speed options such as fibre-to-the-home (FTTH), fibre-to-the-building (FTTB) and fibre-to-the-node (FTTN) are progressively gaining ground. At the end of 2010, optical fibre reached just over 17% of homes passed, even though some of the region's countries—Denmark, France, Italy and Sweden—are among the world's largest markets for this high-speed access technology (see figure IV.18).¹² In Europe, alternative operators have been responsible for most of these connections (73% of

homes passed by FTTH or FTTB at the end of 2010); they are followed by incumbent companies (19%) and municipalities and electricity companies (8%) (FTTH Council Europe, 2011). Despite aggressive pricing strategies, optical fibre has struggled to gain market share, even in the region's wealthier countries. A core concern of the companies investing in these technologies, and in wireless solutions in general, has been finding applications that are exclusive to such high-speed networks, as that is key to financing this new infrastructure (see box IV.2).

Figure IV.18
SELECTED COUNTRIES: FIXED BROADBAND ACCESS
TECHNOLOGIES, 2006 AND 2009
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Institut de l'Audiovisuel et des Télécommunications en Europe (IDATE).

¹¹ Next generation networks based on optical fibre, and in particular gigabit-capable passive optical networks (G-PON), will make it possible to fully integrate all network layers, thereby making more services available (including VoIP, IPTV, HDTV and VoD) through a single IP infrastructure. This will yield substantial savings for operators since there would be a higher number of users per access node and longer exchange-to-subscriber distances would be possible, thus lowering the number of exchanges needed and enabling all users to have access to all services; and with less cable needing to be laid, there would also be fewer weak points.

¹² In Europe, residential and commercial users are not yet convinced of the benefits of FTTH technology. At year-end 2010, the penetration rate (percentage of subscribers per homes passed) was only 17.5%, compared with 39% in Japan and 34% in the United States (IDATE, 2011b).

Box IV.2

**MAKING THE DEPLOYMENT OF HIGH-SPEED BROADBAND NETWORKS PROFITABLE:
THE CASE OF FRANCE TÉLÉCOM**

France is among the world leaders in deploying high-speed broadband fibre-optic networks. Towards the end of 2007, Free—the first local service provider to offer triple-play packages in France—started to market services (mainly high-definition television) through a 100 Mbps fibre-to-the-home (FTTH) network in Paris. The following year, France Télécom began offering similar services under the Orange brand name. Since then, other companies have entered this market and the leading providers have had to gradually lower the prices of their high-speed broadband plans.

In January 2011, France Télécom announced it would extend FTTH coverage

to 60% of homes by 2020 and to 10 million homes in 3,600 municipalities by 2015. To reach those targets, France Télécom is looking to partner with other network operators interested in providing access options under the new regulatory framework set up by the national regulatory authority for the sector (ARCEP). France Télécom is willing to consider co-investment options, even though it has already agreed to invest 2 billion euros between 2010 and 2015 to reach its targets (*TeleGeography's CommsUpdate*, 4 February 2011).

During the first quarter of 2011, France Télécom deployed FTTH networks in 15 major French cities, serving 1 million

homes. The authorities, however, were not satisfied with that coverage level and have asked the company to step up the pace to achieve 2 million homes passed by FTTH by year-end. France Télécom is working with local authorities to provide regions not mentioned in the government's request with intermediate solutions, such as fibre-to-the-node (FTTN) or satellite access, in an effort to revolutionize high-speed broadband access in the country. In this way, France Télécom is consolidating and expanding its position in the competitive French market and making the most of the growth opportunities that next generation networks offer for the future.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

An interesting feature of the United States market is the predominance of cable modem for broadband access: it accounts for over 50% of users (see figure IV.18). Although ADSL also has a significant market share, high-speed access is experiencing sustained growth—driven mainly by HDTV—as a result of the deployment of optical fibre by two of the leading telecommunications operators (Verizon and AT&T) in a direct challenge to the long-standing dominance of cable television companies in this segment and in triple-play offerings. Verizon is deploying an ambitious FTTH network, while AT&T has opted for the quicker and cheaper option of a fibre-to-the-building/node (FTTB/N) network, in which subscriber connections combine the existing twisted-pair copper wiring with very-high-speed digital subscriber line 2 (VDSL2) technology.¹³ These two operators are responsible for almost 80% of optical fibre deployment; the rest is in the hands of several smaller companies that have installed high-speed infrastructure across the country. In 2010, there were roughly 20 million homes passed by optical fibre in the United States. The authorities have expressed concern at this slow progress and are looking for other ways to optimize the deployment of the new networks.

Asia is the world leader in the area of fibre-optic access; Japan and the Republic of Korea in particular have actively promoted this technology. Optical fibre networks have been able to develop on a massive scale in these countries because of high population density and concentration in urban areas, the predominance of high-rise dwellings, keen competition in the broadband market (especially in Japan) and proactive public policies fostering development of the communications

industry. More than 50% of broadband access is through optical fibre in both countries (see figure IV.18). Recently, Australia has been pursuing a similar strategy as part of an ambitious policy to expand access to broadband.¹⁴

Against a backdrop of rapidly changing technology and consumer habits, operators are thus trying to strike a difficult balance among demand for increasingly sophisticated services, network saturation and overlap, and falling revenues. In short, they must make larger investments with lower returns. Operators, technology and infrastructure providers, content generators and regulators will all have to adapt quickly to this constantly evolving environment. The larger operators are already rethinking their business models to identify applications and services—mainly associated with high-speed broadband access and video traffic (including HDTV, IPTV and VoD)—capable of ensuring the profitability of next generation networks, both 4G mobile networks and fixed optical-fibre networks. The dual challenge facing these business models will be how to enhance the value added of the applications and services available on the new networks while generating revenue from services that were free in the past. An additional challenge lies in the unresolved problems in the area of regulation, as will be discussed in the closing section of this chapter.

¹³ The AT&T network will have an estimated cost per user of US\$ 250, while for the Verizon network that figure will be US\$ 850 (IDATE, 2011).

¹⁴ Australia's new National Broadband Network (NBN) aims to avert regional digital divides in the deployment of ultrafast broadband access by setting up a public sector company to design, build and operate an open access network capable of offering download speeds of up to 100 Mbps to 93% of homes and businesses by 2017. The remaining 7% will be covered by alternative technologies, in particular wireless and satellite, with download speeds of about 12 Mbps. At a cost of US\$ 35 billion, the Network will be the largest investment in an infrastructure project in the history of Australia. The first phase of the programme was inaugurated in Tasmania in August 2010.

4. Looking ahead: high-speed broadband access anytime and anywhere?

The forecasts for data traffic growth are daunting. In December 2009, data traffic on mobile platforms surpassed voice traffic and, for the first time in history, mobile broadband subscribers outnumbered ADSL fixed-line subscribers, mainly thanks to the 3G technology used on personal computers and smartphones. In 2015, mobile data traffic worldwide could reach 6.3 million gigabytes, with video making up two thirds of that amount, and there will be almost one mobile device connected per capita (7.1 billion mobile connected devices, including machine-to-machine (M2M) traffic) (Cisco, 2011). Mobile communications are therefore likely to continue to be the driving force of the industry and new business areas will develop rapidly, such as mobile applications software and making payments over mobile devices (Cisco, 2010a).

High growth rates and a volatile international environment have led telecommunications industry leaders to focus their attention on emerging markets. Operators will likely intensify their internationalization strategies, seeking new sources for growth outside their saturated, mature domestic markets. New mergers and acquisitions will fall potentially into two categories: consolidation of emerging markets and revitalization of cross-border transactions. Although many of these operations could be high-risk, they also hold the promise of bringing growth and significant financial gains. The recent acquisition of the Kuwaiti company Zain's assets in Africa by the Indian operator Bharti Airtel can be cited as a good example. Some of these peripheral operations will serve to shore up the position of companies set to be future leaders in the industry, especially in the mobile communications segment.

The deployment of 4G networks will set off a new phase of technological migration, one that will probably take place at a quicker pace than previous migrations. More than 40 networks using LTE technology are expected to be launched commercially in 2011: leading the field will be Europe, with nearly 40% of the new networks, followed by North America (28%) and Asia (19%) (GSA, 2011a). By the end of 2011, each of these three regions should have just over 1 million LTE connections, representing 95% of the world total. That scenario could bring new commercial offerings based

on price segmentation instead of flat rates. Without a doubt, pricing structure will be a key consideration in the near future, as that is how operators will differentiate their mobile broadband services and manage more efficiently the migration towards LTE technology. During the initial phase, operators may concentrate on premium data plans for top-end customers, keeping the uptake of LTE technology circumscribed to a relatively limited group of high-income residential users and to the business sector with a view to generating new financial resources.

Hand in hand with the robust growth of mobile communications, machine-to-machine (M2M) connections are also expected to mushroom. The first step—connecting homes—is reaching saturation point; the next step was the connection of individuals and mobile devices; and now, connections are being established between mobile devices and machines, but on a much larger scale than seen before. In 2009, an estimated 1 billion homes, 4.6 billion individuals and 1.4 billion machines were connected; by 2010, those figures are expected to reach 1.2 billion homes, 6 billion individuals and 40 billion machines. A full 90% of the predicted 50 billion connected devices are expected to use mobile communications (*El País*, 30 August 2010).

With the launch of the first LTE networks, there is a clear need for devices that will allow users to explore every dimension of this technology's capacities. The main equipment providers are expected to release in 2011 the first 4G smartphones, with the Android operating system likely to predominate.¹⁵ Infrastructure providers will face stiff competition for new contracts to build LTE networks; Ericsson, Alcatel-Lucent and Cisco lead the pack, but the Chinese company Huawei could gain further ground with its aggressive pricing strategy.

The use of applications is becoming ever-more widespread in the advanced economies. The main problem for applications developers continues to be assigning a price to an application. Applications will need to be more dynamic and enjoy rapid uptake in the near future (see

¹⁵ At the end of 2010, sales of smartphones with the Android operating system surpassed those of smartphones with Symbian (used in Nokia smartphones), which had led the market up to that point (Teleco, 2011).

chapter V). Among the applications holding the greatest potential are those associated with video traffic and those that enable contract-free payments from mobile devices.¹⁶ Manufacturers and operators have reached

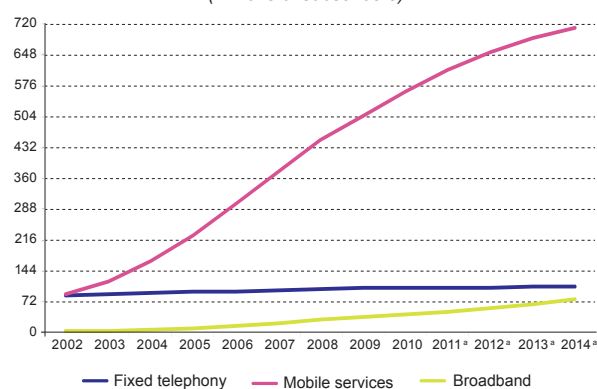
consensus on the basic technical standards for this type of operation.¹⁷ The next steps must be taken by the large retail chains and financial institutions in order to achieve mass the uptake of this payment option.

C. Latin America and the Caribbean: consolidating a hybrid business model that favours mobile options

1. Are Latin America and the Caribbean keeping up with global trends?

During the first decade of this century, the telecommunications services industry in Latin America and the Caribbean experienced sustained, vigorous growth at annual rates much higher than the world average, thanks mainly to the boom in the mobile services market (see figure IV.19). Between 2002 and 2010, the mobile segment saw its share in the industry's revenues jump from 32% to 56% (see figure IV.20).

Figure IV.19
LATIN AMERICA AND THE CARIBBEAN: TELECOMMUNICATIONS SERVICE SUBSCRIBERS BY SEGMENT, 2002-2014^a
(Millions of subscribers)

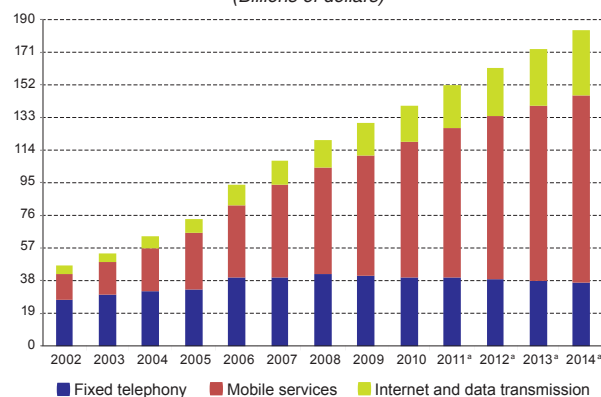


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Institut de l'Audiovisuel et des Télécommunications en Europe (IDATE).

^a Projected figures for 2011-2014.

¹⁶ This is not a new technology but rather is based on the so-called "mobile wallets" that are very popular in Japan. The device contains a microchip that transfers data to a reader which processes the transaction without the need for direct contact between customer and vendor.

Figure IV.20
LATIN AMERICA AND THE CARIBBEAN: TOTAL REVENUES FROM THE TELECOMMUNICATIONS SERVICES MARKET BY SEGMENT, 2002-2014^a
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Institut de l'Audiovisuel et des Télécommunications en Europe (IDATE).

^a Projected figures for 2011-2014.

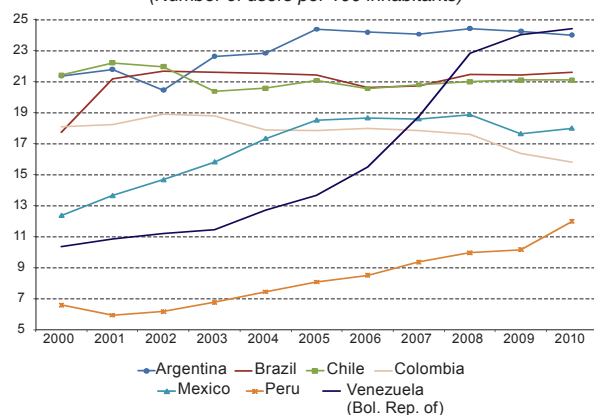
¹⁷ The main equipment manufacturers (in particular Apple, Nokia and Research in Motion) have expressed their support for the Near Field Communication (NFC) standard for future devices and, in some cases, have already incorporated it, such as in the new Google Nexus S, which is manufactured by Samsung and equipped with the latest version of the Android operating system. The next iPhone release is also expected to incorporate the NFC standard, which could give the industry a boost. In November 2010, the United States operators AT&T, T-Mobile and Verizon announced the forming of a new partnership to set up a national mobile payment network, and Orange is planning on deploying the NFC standard on an unprecedented scale in Europe by the end of 2011.

In recent years, however, the loss of momentum in the mobile segment combined with the fallout from the international financial crisis have triggered a downturn in the growth rates of the industry as a whole. This slowdown is attributable to mobile services' high penetration rates in most countries of the region, on a level comparable with those of more developed economies (see figures IV.5 and IV.22). The region's market for telecommunications services represents 10% of the world total and generated some US\$ 141 billion in 2010 (IDATE, 2011d).

Early on, the region's telecommunications services market showed strong potential for growth, making it a highly prized option for some leading international operators (especially from Europe) that were seeking new sources of growth outside their saturated and increasingly competitive domestic markets. At present, the industry is dominated by transnational companies and the sector has become one of the main destinations of foreign direct investment for the vast majority of countries in the region.

After a period of expansion following the privatization of the incumbent operators in the 1990s, fixed-line voice services have been losing ground consistently; their share of the industry's revenues plummeted from 58% to 29% between 2002 and 2010 (see figure IV.20). During the same period, the customer base rose modestly from about 86 million to 104 million subscribers, which means that one in five inhabitants in the region currently has a fixed line. Given the state of the region's existing infrastructure and its demographics and the state of technological advances, the leading sector companies have invested a large part of their resources in deploying wireless solutions. As in other developing regions, in Latin America fixed telephony is suffering from the effects of direct competition from mobile telephony.

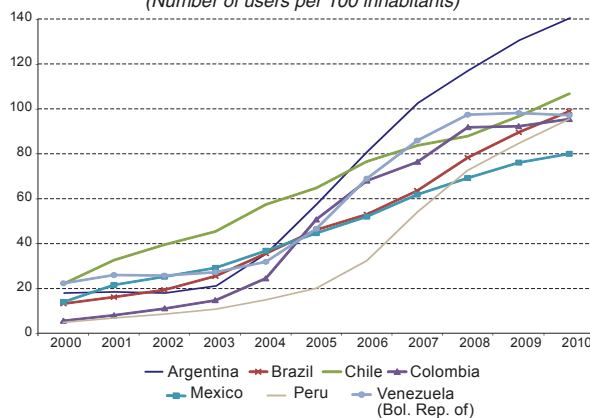
Figure IV.21
LATIN AMERICA (SELECTED COUNTRIES): FIXED TELEPHONY
PENETRATION, 2000-2010
(Number of users per 100 inhabitants)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the International Telecommunication Union (ITU).

Despite the recent slowdown, mobile services have posted remarkable growth (Jordán, Galperin and Peres, 2010). Penetration rose from under 10% to nearly 100% of the population in just one decade. In fact, the gap with industrialized countries is closing rapidly, as are the gaps between the region's different economies. The differences in penetration across countries at different stages of development are also shrinking quickly. In 2010, the average penetration rate of mobile telephony in the region was 98%, although some countries far surpassed the 120% mark, such as Argentina and several smaller economies, in particular Panama (165%), El Salvador (123%), Guatemala (123%) and Uruguay (123%). In contrast, the region's two largest markets (Brazil and Mexico) recorded lower penetration rates, of 98% and 81% respectively, at the end of 2010 (see figure IV.22). These latter figures are among the factors underlying the expectations of robust growth for the industry in Latin America and the Caribbean.

Figure IV.22
LATIN AMERICA (SELECTED COUNTRIES): MOBILE TELEPHONY
PENETRATION, 2000-2010
(Number of users per 100 inhabitants)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the International Telecommunication Union (ITU).

In a region with low penetration in its two largest markets and strong growth prospects at the regional level overall, the market's potential is even higher considering the limited use made of mobile options for data traffic. A relevant measure in this regard has been the mass migration of networks to the Global System for Mobile Communications (GSM) standard, which has generated economies of scale, improved interconnectivity of regional infrastructure and facilitated the migration to advanced 3G technologies, namely Universal Mobile Telecommunications System (UMTS) and High Speed Downlink Packet Access (HSDPA). At the end of September 2010, this technology family covered 93% of the more than 560 million mobile services users in Latin America and the Caribbean (4G Americas, 2011). Some of the

most basic mobile data traffic applications, such as text messaging (short message service, or SMS), thus began to be widely used.

Although 3G networks currently cover a large part of Latin America and the Caribbean, the use of smartphones and the penetration of 3G services are still low compared with other regions and, in particular, compared with the advanced economies (see table IV.2). In early 2011, there were 64 such networks in operation in 27 countries across Latin America and the Caribbean, including the Evolved High-Speed Packet Access (HSPA+) infrastructure¹⁸ deployed in Chile

(Entel PCS), Mexico (Iusacell) and Bermuda (Digicel) (4G Americas, 2011). While voice services are still the main source of profits for operators, the appearance of new devices, infrastructure and innovative applications has given a boost to data services, which accounted for nearly 20% of total mobile telephony revenues in Latin America at the end of 2010 (*El Universal*, 7 February 2011). Judging by the pattern taking shape elsewhere around the world, this uptrend should continue, driven by increasing use of smartphones and tablets. In fact, by the end of 2011, data services are expected to make up close to 30% of total revenues.

Table IV.2
SELECTED COUNTRIES AND REGIONS: COMPARATIVE OVERVIEW OF THE STATUS OF THIRD-GENERATION MOBILE COMMUNICATIONS SERVICES, 2010

	Japan	Europe	North America	Latin America
Mobile communications users (millions of individuals)	117	645	320	564
Mobile telephony penetration (percentages)	92	129	93	98
Market share of 3G technology (percentages)	94	50	31	3
Market share of prepaid services (percentages)	3	50	12	83
Average revenue per user (dollars)	31	20-49	50	14
Data services as a percentage of mobile services sales (percentages)	48	27	30	20
Market share of smartphones (percentages)	50	44	43	8

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Erasmo Rojas, "Mobile broadband update in the Americas", paper presented at the GSMA Americas Conference, Miami, United States, 21 June 2010; and information from Institut de l'Audiovisuel et des Télécommunications en Europe (IDATE).

Mobile data traffic has not just gained ground: it has also undergone sweeping changes. In the space of just a few years, text messaging dropped from 85% to 65% of total data traffic, as applications such as mobile Internet, video, music and photograph downloads and e-mail all rose in share. In addition, these new value-added services have been crucial in helping mobile telephony companies to pare down the ranks of prepaid subscribers by encouraging them to sign on to postpaid plans.

At the end of 2010, 3G mobile telephones accounted for almost 10% of the market in Brazil and Mexico, and close to 7% in Latin America as a whole (4G Americas, 2011). Mobile broadband penetration remains low, however, at between just 2% and 3%; that being said, mobile users with fast Internet connections are expected to double by year-end 2011 and should account then for between 4% and 6% of all users. This low percentage can be explained by the fact that some subscribers own smartphones but

do not sign up for a data plan. 3G plans with unlimited mobile Internet access can cost three times the price of a basic traditional voice plan. The main challenge for operators is therefore to boost both customer numbers and subscriber uptake of wireless Internet by offering attractive service packages, subsidizing devices for postpaid customers and incorporating popular new applications and services that cater to the specific demands of each market (video, music, information and games). In all likelihood, expanded use of mobile data options will sustain growth in the coming years.

At the same time, the rapid expansion of these services can trigger serious problems for the leading mobile operators, as already observed in some advanced markets. To avert such problems, government authorities and private communications companies need to take joint action. On the one hand, clear and predictable policies on spectrum allocation and a proactive approach to promoting mobile broadband use are needed; on the other, there must

¹⁸ HSPA+ provides speeds of up to 84 Mbps on the downlink and up to 22 Mbps on the uplink (although these speeds are theoretical maximums that are rarely achieved). HSPA+ also introduces an optional all-IP architecture for

networks whose base stations are directly connected to IP-based backhaul services. This technology delivers a significant improvement in battery life and quicker access to content through an always-on connection.

be a willingness to invest the necessary resources to offer advanced services at a reasonable price and with wide coverage that is not limited only to major cities. Companies are therefore pressing for new spectrum allocations, a

quicker analogue television switch-off, preference to mobile Internet when allocating the digital dividend and elimination of the spectrum caps in place in the vast majority of Latin American markets (see table IV.3).

Table IV.3
SELECTED COUNTRIES: RADIO SPECTRUM PER OPERATOR, 2010
(Megahertz)

Latin America		European Union and United States	
Radio spectrum per operator with spectrum cap		Radio spectrum per operator without spectrum cap	
Brazil ^a	85	T-Mobile and Orange (United Kingdom)	160
Mexico ^a	80	Deutsche Telekom (Germany)	145
Chile	60	France Télécom (France)	132
Peru	60	Telefónica-Movistar (Spain)	111
Colombia	55	Telecom Italia Mobile (Italy)	100
Argentina ^a	50	AT&T (United States) ^b	96
		Verizon Wireless (United States) ^b	89

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Ezequiel Domínguez, "Benchmarking ICT regulatory developments in EU and Latin America", paper presented at the Latin America-European Union Symposium on ICT Regulation, European Parliament, Brussels, 15 November 2010; and Sebastián Cabello, "Gestión del espectro: demanda y el debate sobre sus usos alternativos", paper presented at the ACORN-REDECOM Conference 2010, Brasilia, 13 May 2010.

^a By operator and service area.

^b National average.

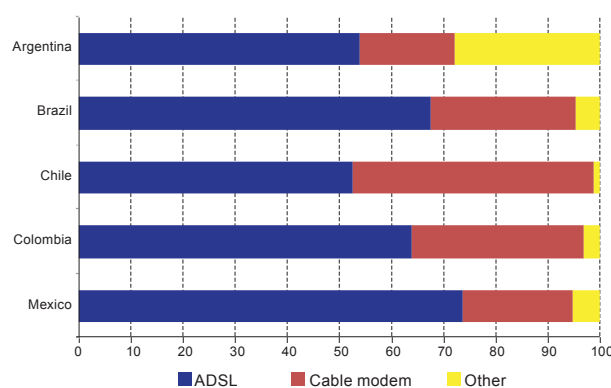
Despite mobile broadband's promising progress in Latin America, this technology —as in advanced markets— is far from being a perfect substitute for fixed infrastructure, particularly for applications that require large bandwidth or for which the small screen size of mobile devices is a severe limitation. In addition, fixed broadband is a pivotal element of triple-play packages, which have been extremely successful recently. The low cost and ease of deployment of mobile options, however, has attracted strong investment by operators to the detriment of investment in optical-fibre next generation networks, which has dwindled to near-negligible levels.

ADSL and cable modem continue to be the technologies of choice for fixed broadband access (see figure IV.23). ADSL is the more common, carrying two thirds of all broadband connections as compared with one in four for cable modem (IDATE, 2011d). The remaining users access the Internet via wireless means such as Worldwide Interoperability for Microwave Access (WiMAX) or Fixed Wireless Access (FWA). Optical fibre networks for fast broadband access are rare in the region, and most countries suffer from significant infrastructure hurdles to basic Internet access. In early 2011, some of the larger regional operators announced plans for deployment of FTTx networks in major cities; for example, Telefónica announced plans for deployment in Buenos Aires, Santiago and São Paulo. Even so, companies are unlikely to show much interest in deploying optical fibre networks given the lower profitability vis-à-vis ADSL (Ganuza and Viécens, 2010).

Broadband penetration has enjoyed sustained growth over the past decade, but it is still far from the levels seen in advanced economies (see figures IV.6 and IV.24). At the end of 2010, the average density of Internet access in

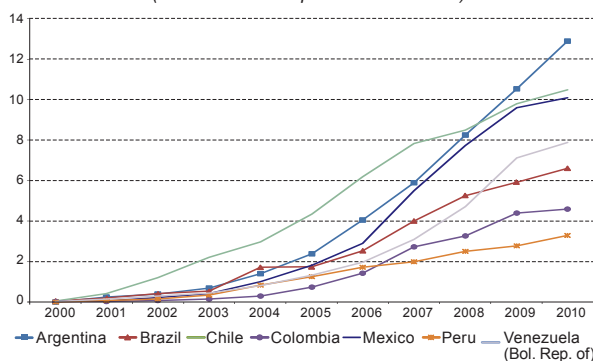
the region stood at about 7%; only a few countries, such as Argentina, Chile and Mexico, topped the 10% mark (see figure IV. 24). In other words, this segment has a lot of space to grow in Latin America. To reach penetration levels similar to those seen in the advanced countries (over 20%), the region must incorporate more than 150 million new users, which, at a rate similar to the uptake of mobile telephony, could take some 10 years. Access is not the only problem, however; the region also lags significantly behind the advanced economies in terms of quality, including in areas such as upload and download speeds (see figure IV.25). Solving this problem will require sizeable investments in next generation networks. The foregoing notwithstanding, the Latin American and Caribbean region continues to outperform other emerging regions.

Figure IV.23
LATIN AMERICA (SELECTED COUNTRIES): FIXED BROADBAND ACCESS TECHNOLOGIES, 2010
(Percentages)



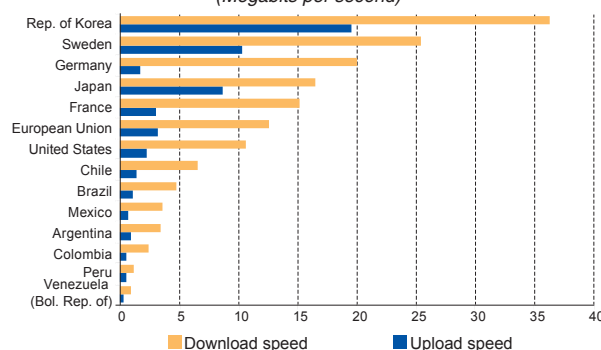
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from national regulatory agencies.

Figure IV.24
LATIN AMERICA (SELECTED COUNTRIES): FIXED BROADBAND PENETRATION, 2000-2010
(Number of users per 100 inhabitants)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the International Telecommunication Union (ITU).

Figure IV.25
ADVANCED ECONOMIES AND LATIN AMERICA (SELECTED COUNTRIES): AVERAGE DOWNLOAD AND UPLOAD SPEEDS, FEBRUARY 2011
(Megabits per second)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Net Index.

2. Corporate strategies of communications services operators in Latin America: mobile options, asset integration and bundled service packages

In recent years, the major telecommunications companies have had to rethink entirely their highly segmented business models to adjust to advances in technological convergence. First, they sought to scale up operations to overcome problems stemming from low ARPU. Next, they moved to supplement and integrate different business segments in order to offer bundled service packages (such as triple or quadruple play) using the available infrastructure; in many cases that led to overlapping of networks (voice and broadband via ADSL, and television via satellite).

Although these stages are not yet complete, the thrust now is to upgrade the customer base and have more users of more sophisticated services and applications. This process hinges on domestic market size and maturity and on regulatory elements that determine the strategy's feasibility. For example, operators in the region's larger markets (Argentina, Brazil and Mexico) face legal obstacles to the delivery of bundled services and coexist with large broadcasting and media groups that do not necessarily share the same objectives and interests (see box IV.3).

Box IV.3

ARGENTINA: CORPORATE STRATEGIES SHAPED BY THE REGULATORY FRAMEWORK

After much heated debate, in late 2009 Argentina passed the Media Act, completely overhauling regulation of the broadcasting sector. Implementation of that legislation has been postponed, however, by court rulings against the Act's article 161, which deals with the divestment of licences for providing audio-visual services. Critics of the legislation claim that it was drafted without taking account of developments in the industry and that it focused on local issues, such as the market share of specific groups. One of those groups was Grupo Clarín, whose holdings include the pay-television provider Cablevisión, Artear (the company that produces and markets Canal 13 in Buenos Aires), various content producers for cable television and the newspaper *Clarín*.

Despite the legal prohibition on their offering pay-television services, a number

of telecommunications operators recently launched bundled services packages (double and triple play). The law's restrictions are inconsistent, however, as cable television providers are allowed to offer broadband and home telephone services. In response, the main telecommunications providers —Telefónica and Telecom— developed hybrid triple-play models, offering the three services over a mix of platforms as part of a customer-retention marketing strategy. The two providers each formed a business partnership with DirectTV whereby they would offer voice services and broadband and DirectTV would provide pay television. Those strategies simply heated up the legal dispute with the cable television operators, with the outcome that the courts banned the telecommunications providers from offering packages in partnership with DirectTV. As a result, under present

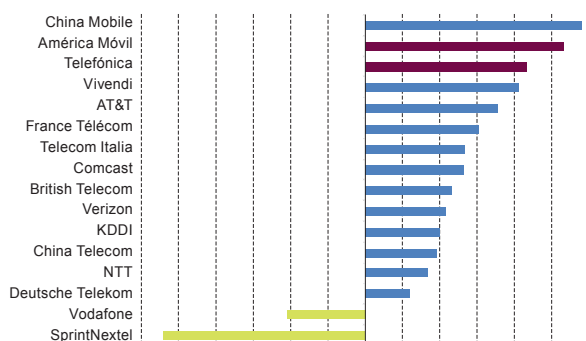
restrictions it is almost impossible to set up a competitive alternative to cable television and free-to-air digital television.

By early 2011, the Media Act had still not entered into force. If implemented, it will lead to radical changes in the communications and broadcasting industry. Not only will restrictions be lifted on telecommunications providers, thus enabling them to offer bundled services, but the dominant audio-visual providers will be obliged to release free-to-air television licences and assets linked to the production and distribution of content. Under such a scenario, Grupo Clarín will probably decide to keep its cable television companies and divest from free-to-air television, while Telefónica will have to sell its television channel Telefe, if it wants to offer triple-play packages.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

Nonetheless, the region's industry leaders have been the most profitable global operators over the past five years, apart from China Mobile (see figure IV.26), and that is testimony to how successful their corporate strategies have been.

Figure IV.26
**PRINCIPAL TELECOMMUNICATIONS SERVICES COMPANIES
 WORLDWIDE: AVERAGE PROFITS AS A PERCENTAGE
 OF SALES, 2005-2009**
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from *Fortune Global 500*, various issues.

(a) Rapid expansion of the Latin American market in the wake of the industry's global slowdown

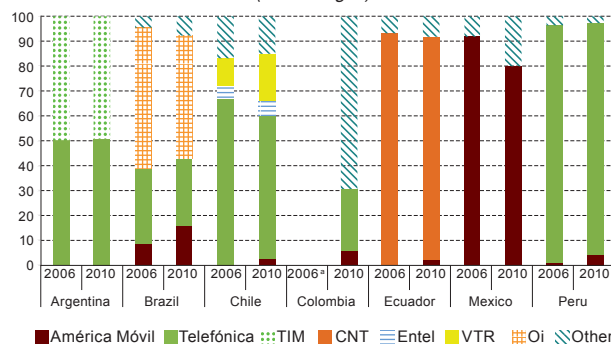
For a good part of the last decade, Latin America was the stage for a tug of war over the telecommunications industry's prize assets: different-sized companies in different segments and spectrum licences. Fierce global and regional competition and the impact of the crisis on technology companies led to the exit of the main global operators, including the United States companies BellSouth (now part of AT&T), Verizon and AT&T and the European companies France Télécom and, partially, Telecom Italia.¹⁹ At the same time, however, a smaller group of companies seized on the situation to shore up their position in the regional market, in particular Spain's Telefónica and the Mexican company América Móvil-Telmex (ECLAC, 2008). Some companies were able to maintain their position and even broaden their presence in specific market niches. In mobile telephony, the following companies performed particularly well: Telecom Italia Mobile (TIM), Portugal Telecom (in partnership with Telefónica) and the local operator Oi in Brazil; the United States company Nextel in several countries; the former TIM subsidiary Entel, which is currently in the hands of local investors in Chile; and Sweden's Millicom and the

¹⁹ Between 2004 and 2006, Telecom Italia sold off its mobile telephony assets in the Bolivarian Republic of Venezuela, Chile and Peru. In April 2007, the Government of the Plurinational State of Bolivia announced the partial nationalization of Entel Bolivia, in which Telecom Italia held a 50% stake. At present, Telecom Italia has operations in Brazil and owns a share in Telecom Argentina.

Irish company Digicel,²⁰ with their strong presence in Central America and the Caribbean. The following made their mark in pay television: the cable operators VTR (in Chile) and Megacable (in Mexico) and the broadcasting and media giants Clarín (Argentina) and Televisa (Mexico) (see boxes IV.4 and IV.6). Clarín and Televisa have become the main competitors of the region's leading companies, wresting away part of their market share by offering triple-play packages from early on.

Telefónica emerged as the top winner early on in the process, when State-owned telecommunications companies were being privatized. Leveraging its dominant position in a domestic market where regulators and market conditions allowed it to maintain rates higher than in the rest of Europe, Telefónica consolidated its presence in Latin America by investing more than US\$ 125 billion, making it the leading foreign investor in the region. During the initial phase, it acquired incumbent fixed-line operators in Argentina, Brazil, Chile and Peru, and then later in Colombia (see figure IV.27). With this solid platform of customers and infrastructure, Telefónica began to strengthen its foothold in mobile telephony by acquiring assets of its competitors (BellSouth, Motorola and Portugal Telecom), ultimately achieving absolute control of its Latin American subsidiaries through a series of takeovers.

Figure IV.27
**FIXED TELEPHONY: MARKET SHARE BY OPERATOR AND
 COUNTRY, 2006 AND 2010**
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from national regulatory agencies and from the companies.

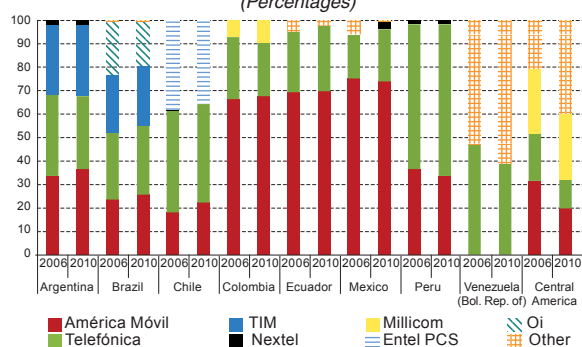
Abbreviations: CNT, Corporación Nacional de Telecomunicaciones (of Ecuador).

* There are no data for Colombia for 2006.

²⁰ Millicom focuses on mobile telephony in emerging markets in Africa (Chad, Ghana, Senegal, Sierra Leone and United Republic of Tanzania), Asia (Cambodia, Lao People's Democratic Republic and Sri Lanka) and Latin America (Colombia, El Salvador, Guatemala, Honduras, Paraguay and Plurinational State of Bolivia). Digicel is the fastest growing mobile telecommunications operator in the Caribbean, with activities in more than 20 countries and territories (Anguilla, Antigua and Barbuda, Aruba, Barbados, Bermuda, Bonaire, Cayman Islands, Curaçao, Dominica, French Guiana, Grenada, Guadeloupe, Guyana, Haiti, Jamaica, Martinique, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago and Turks and Caicos Islands), as well as in El Salvador in Central America.

With a very similar initial situation in the Mexican market as Telefónica had in Spain, Telmex opted to pursue a strategy of internationalization, focusing from the outset on mobile telephony (see figure IV.28). In 2000, Telmex split off some of its assets in this segment in Mexico, Brazil, Ecuador and Guatemala and set up an independent company: América Móvil. The new company capitalized on the low penetration of wireless communications in the region and grew rapidly, first through partnerships and then, like Telefónica, through an aggressive strategy of acquiring rivals' assets (BellSouth, Verizon, AT&T, MCI, TIM and France Télécom).

Figure IV.28
MOBILE TELEPHONY: MARKET SHARE BY OPERATOR AND
COUNTRY, 2006 AND 2010
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from national regulatory agencies and from the companies.

The two companies were thus able to secure, rapidly, a solid and broad-based presence in the region (see table IV.4). As wireless communications advanced, Telefónica and América Móvil shifted the focus of their strategies to this segment, and that made separating the different businesses they were involved in a more obvious option. With an eye to scaling up operations, enhancing their bargaining power with equipment, technology and infrastructure providers and offering new customer services, the companies migrated on a large scale to GSM technology. Their regional operations thus began to look very similar, a perception that was reinforced with the creation of the single brands Claro (by América Móvil) and Movistar (by Telefónica). Mexico's Telcel and Brazil's Vivo stood out as exceptions, as those two brands were firmly rooted in their markets. On the strength of its successful expansion in Latin America, Telefónica decided to venture into other, more competitive markets in Europe (Czech Republic, Germany, Italy and United Kingdom) and, more recently, China.

In the face of growing competition from alternative operators (see figure IV.27), especially cable television companies, and buttressed by its position as dominant company in the main regional markets, Telefónica made investments that, though more modest than before, allowed it to market ADSL broadband access and offer television services by developing its own satellite platform. It was thus able to begin offering triple-play packages in markets where this was possible (see figure IV.29).

Table IV.4
TELEFÓNICA AND AMÉRICA MÓVIL-TELMEX: OPERATIONS IN LATIN AMERICA AND THE CARIBBEAN
BY COUNTRY, DECEMBER 2010
(Thousands of subscribers)

	Telefónica				América Móvil-Telmex			
	Mobile telephony	Fixed telephony	Broadband	Pay television	Mobile telephony	Fixed telephony ^a	Broadband	Pay television
Argentina	16 149	4 622	1 505	...	19 637 ^b	216	...	...
Brazil	60 293	11 293	3 848	486	51 638	18 588	...	...
Chile	8 794	1 939	836	341	4 871	850	...	...
Colombia	10 005	1 587	554	205	29 413 ^c	2 988	...	...
Ecuador	4 220	95 ^d	...	...	10 624	108	...	...
Mexico	19 662	566 ^d	...	...	64 138	22 951	...	...
Peru	12 507	2 871	885	691	9 686	436	...	...
Uruguay	1 709	...	...	...	...	...	...	...
Venezuela (Bolivarian Republic of)	9 515	966 ^d	...	69	...	...	...	...
Central America and the Caribbean	6 404	466	3	...	17 269	5 374	...	...
Total	149 258	24 405	7 631	1 792	207 276	51 511	...	...

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the companies.

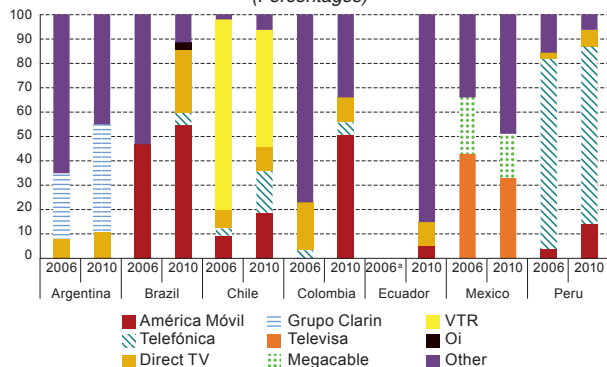
^a Following the merger of Telmex, Telmex Internacional and América Móvil, aggregate data are provided on fixed services (fixed-line telephony, broadband and cable television and direct-to-home (DTH) satellite television).

^b América Móvil presents aggregate data for Argentina, Paraguay and Uruguay.

^c América Móvil presents aggregate data for Colombia and Panama.

^d Fixed wireless lines.

Figure IV.29
PAY TELEVISION: MARKET SHARE BY OPERATOR AND COUNTRY, 2006 AND 2010
 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from national regulatory agencies and from the companies.

^a There are no data for Ecuador for 2006.

Telefónica currently offers direct-to-home (DTH) television in the Bolivarian Republic of Venezuela, Brazil, Chile, Colombia and Peru through Telefónica Media Networks (Tecnos & Telcos, 2010).²¹ In the markets where Telefónica is the incumbent company, DTH has been offered in an effort to retain broadband customers. In Argentina, the service cannot be offered because of legal restrictions, but the company controls various free-to-air television stations (see box IV.3). In late 2010, Telefónica was granted a licence to provide pay television and satellite data transmission in Mexico, a market that is growing by leaps and bounds in Latin America (*El Universal*, 11 November 2010). In Mexico, Telefónica will implement the same system that it uses in the Bolivarian Republic of Venezuela, offering the service through its Movistar brand.²²

Meanwhile, América Móvil-Telmex opted to supplement its limited fixed-line options by buying up assets that would allow it to offer broadband access and television. After acquiring Embratel, Brazil's largest long-distance operator (equipped as well with an extensive backbone network), América Móvil-Telmex shifted its attention to pay-television companies. Its main operations

are in Brazil and Colombia. In Brazil it acquired a share in Net, the country's largest cable television company, and in Colombia it bought several sector companies, moving it to the position of leading operator. América Móvil-Telmex deployed a similar strategy in Ecuador and Peru (see figure IV.29). In Chile, which presented a consolidated pay-television market and few acquisition options, the company opted for an independent satellite alternative.

In the space of just a few years, both companies established a solid, diversified presence in Latin America, becoming leaders in increasingly consolidated domestic markets (especially the larger markets). With a strong position in mobile communications, they began to approach the critical mass required in the fixed-line segment to offer bundled packages (see figures IV.27, IV.28 and IV.29). At first, América Móvil-Telmex lagged behind Telefónica somewhat, but the gap was quickly closed. Owing to regulatory obstacles in several countries in the region and the presence of powerful local broadcasting and media groups, the operation of convergent services has nonetheless been quite difficult. To cite an example, Telmex—despite its extremely high market power in Mexico—has not yet managed to offer pay television, the one element of a triple-play package that it lacks.

Most of the strategic moves have thus already been played. Any newcomer would be hard put to build a position like that of Telefónica or América Móvil in Latin America. In fact, the process cannot be replicated: both companies enjoy a geographically and technologically diversified position whose competitive advantage is virtually impossible to match.

(b) Integrating fixed and mobile assets to offer convergent services

With their broad regional presence firmly established, the leading companies embarked next on an across-the-board restructuring to leverage the boom in Internet traffic (as they had done in the past with mobile telephony) and thus boost revenues. During this stage, they did not seek out new acquisitions but rather focused on internal growth and integrating operations in order to offer commercial service packages. Indeed, a central element of triple-play strategies is generating a long-term relationship with customers, making it hard for them to leave a provider that offers all three services. This type of product can therefore generate greater customer loyalty and greater certainty for the company with regard to demand and revenue.

Telefónica took the upper hand in this process by drawing on a well-balanced asset portfolio and a modern corporate culture thanks to its expansion in Europe, particularly with the acquisition of the British mobile

²¹ In 2008, Telefónica set up Telefónica Media Networks to provide wholesale digital television services in Latin America, both to the group's subsidiaries and to other customers, such as the Brazilian companies Oi and Companhia de Telecomunicações do Brasil Central (CTBC) and Corporación Nacional de Telecomunicaciones (CNT) of Ecuador. The new company, headquartered in Peru, brought together the uplink and head-end facilities owned by Telefónica del Perú, Media Networks and Servicios Editoriales del Perú. In addition, it produces content in Peru, which it also markets selectively in other countries.

²² Telefónica launched Latin America's first prepaid satellite DTH television service in the Bolivarian Republic of Venezuela.

telephony operator O₂. It quickly integrated its fixed and mobile operations in Argentina, Chile, Colombia, Ecuador, Peru and Uruguay under the Movistar brand. However, in Brazil it encountered difficulties in replicating this strategy owing to differences with Portugal Telecom (its partner in the mobile operator Vivo) and the limited coverage of Telesp (the fixed telephony provider in the city of São Paulo). The huge potential for consumption—more than 190 million inhabitants, 43% of whom are younger than 24 years old—and the relatively low penetration of mobile telephony made Brazil a priority market for attracting new Internet and mobile communications customers at a time when the European economies, especially Spain, were suffering from the effects of the international crisis. With the adoption of standards for mobile virtual network operators, competition in the Brazilian mobile communications market will continue to grow. In an attempt to counter this situation, Telefónica took action on two fronts:

- Since 2007, Telefónica had been trying to acquire Portugal Telecom's 50% share of Vivo. Between July 2007 and June 2010, it raised its offer several times, going from 3 billion euros to 6.5 billion euros.
- Telefónica made a bid for a 100% takeover of the Brazilian company Global Village Telecom (GVT), considered one of the country's best companies in terms of infrastructure and service. The operation was particularly attractive because the combination of Telesp and GVT would allow Telefónica to provide high-quality broadband, cross-sell products and offer other bundled service packages across a large part of Brazil. Telefónica would gain benefits of scale, a more streamlined business, savings on interconnection costs and access to modern optical fibre infrastructure. Despite Telefónica's offer to pay some 2.7 billion euros (about US\$ 4 billion), the hard-fought battle ended with the French company Vivendi taking over GVT.²³

Following the failed attempt to acquire GVT and the advance of its competitors in the Brazilian market, Telefónica stepped up the pressure on its Portuguese partner in Vivo. Finally, with an offer of 7.5 billion euros (about US\$ 10 billion), it gained absolute control of the mobile operator in mid-2010. At the end of that year, Telefónica announced its intention to merge Vivo with Telesp with a view to integrating the businesses of the two subsidiaries

and generating synergy (*Cinco Días*, 29 December 2010). Pending authorization by the securities regulator, Telefónica could become the first integrated operator in Brazil. In addition, the lifting of restrictions on pay television is expected to enable the existing foreign fixed telephony operators to offer a broader range of services and provide triple-play packages. This would also make it feasible to invest in high-speed optical-fibre broadband networks, bearing in mind that this infrastructure could be used as well to interconnect base transceiver stations that make up part of the 3G network coverage.

Telefónica subsequently announced the restructuring of its Latin American operations into three divisions: one dedicated to the Brazilian market; one that would bring together its operations in Argentina, Chile, Colombia, Ecuador, Peru and Uruguay, where its fixed and mobile communications services are integrated; and a third division responsible for activities in Mexico, the Bolivarian Republic of Venezuela and Central America, where it has operations only in the wireless segment. With these changes, Telefónica should achieve greater geographical diversity in its operating results.²⁴ Its priority is to strengthen its position in Mexico, the domestic market of its main competitor. In 2010, even though rules prohibiting the company from providing fixed telephony services were still in force, Telefónica took an important step towards tapping into potential changes in that market. Together with Televisa and Megacable, it won a bid for a pair of dark fibre strands (i.e. optical fibre that is not connected to an operational network) from the Federal Electricity Commission (see box IV.4).

The greatest technological progress has been seen in the mobile segment, driven by the decision to tap into the mobile broadband boom. However, 3G telephony has seen much slower uptake than in the advanced economies; it is focused mainly in the large, more buoyant economies and targets the highest-income segments (see figures IV.17 and IV.30). The gamble on service packages and broadband is starting to yield fruits, however. At the end of 2010, 66% of customers with a fixed line had a contract for some sort of bundled services package (Internet or pay television), while 86% of broadband customers received an additional service in the form of double- or triple-play offers (Telefónica, 2011). The offering of bundled services packages, enhanced broadband service and the new business focus on pay television are behind the boost in business experienced by Telefónica at the regional level (Telefónica, 2010b).

²³ Telefónica's takeover bid did not go through inasmuch as it was conditional on obtaining at least 51% of GVT, and Vivendi had secured over 57% of the company through a deal with GVT's majority shareholders. The bid by Vivendi came as a surprise, as it had no presence in Brazil and it was paying a high price for a company that accounted for just over 3% of the Brazilian market (*Cinco Días*, 19 November 2009).

²⁴ At the end of 2010, Telefónica generated 41% of its revenue in Brazil, a percentage that should increase when it completes the consolidation of its operations in that country; next in order are Argentina (12%), Chile (9%), the Bolivarian Republic of Venezuela (9%), Mexico (8%) and Peru (8%).

Box IV.4

DARK FIBRE OPTICS: A BATTLE BETWEEN TITANS

In 2006, the Federal Electricity Commission of Mexico started to deploy a fibre-optic network parallel to its electricity network in an investment worth US\$ 75 million. The only company in Mexico with similar infrastructure was Telmex. After the launching, however, the government came under pressure to make the network available to the private sector in order to boost competition in the telecommunications sector. In May 2009, the government announced the privatization of the first double strand of dark fibre with the aim of creating a new national network. A year later, a contract was awarded to the consortium formed of Telefónica, Televisa and Megacable: three companies that normally compete with one another and with the incumbent Telmex.

The winning consortium (which was the sole bidder) offered 3% more than the minimum price set by the Ministry of Communications and Transport. It paid US\$ 70 million and

will invest nearly US\$ 100 million in network infrastructure to extend coverage in regions having only one provider (usually Telmex) and expand broadband capacity. Barring any unforeseen delays, this infrastructure could be in service by the end of 2011, putting Mexico in a position to absorb telecommunications services demand for the next 10 years (*CNN Expansión*, 10 July 2010).

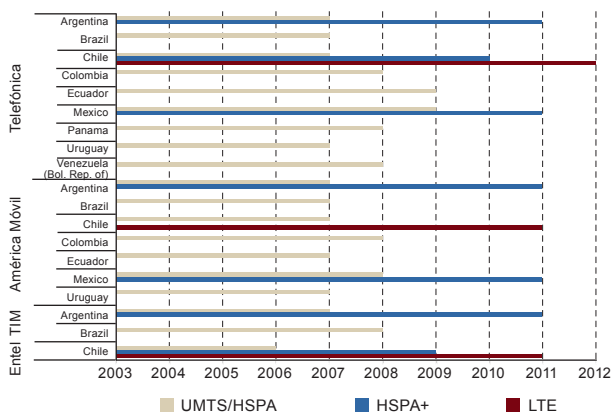
This partnership and the overall good relations among Telmex's key competitors could lead to restructurings and even faster concentration in the sector. On the one hand, the cable industry might consolidate around Televisa, which could acquire Megacable. The two companies have grown closer recently as a result of several developments: the launch of Yoo, a joint triple-play package; the implicit agreement not to compete for subscribers in the same territory; an unsuccessful attempt to submit a joint bid for spectrum for 3G mobile services; and

the aforementioned dark fibre concession from the Federal Electricity Commission. On the other hand, Megacable could be the perfect asset to strengthen Telefónica as an integrated operator in Mexico.

Opening up the dark fibre network will not be enough, though, to spark new activity in the market: interconnection and local loop unbundling rates must also be lowered. Pay-television companies in particular are keen on this alternative (especially as regards the provision of triple-play services), and other companies could use Telmex infrastructure at lower costs. The Mexican authorities are clearly resolved to increase competition in this sector. In fact, the Federal Anti-Trust Commission and the Federal Telecommunications Commission are seeking to implement an interconnection pricing system that would allow access to the Telmex fibre-optic networks at reasonable prices.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

Figure IV.30
LATIN AMERICA (SELECTED COUNTRIES): DEPLOYMENT OF
THIRD- AND FOURTH-GENERATION MOBILE COMMUNICATIONS
NETWORKS BY THE LEADING OPERATORS, 2003-2012
(Year of commercial launch)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from 4G Americas, *Global 3g Status HSPA, HSPA+ and LTE*, 27 January 2011; and Global Mobile Suppliers Association (GSA), *Evolution to LTE Report*, 12 January 2011.

Abbreviations: LTE, Long Term Evolution; HSPA, High-Speed Packet Access; HSPA+, Evolved High-Speed Packet Access; UMTS, Universal Mobile Telecommunications System.

The Mexican market incumbent did not remain indifferent to the progressive loss of share in its domestic market or to Telefónica's foray into South America. Telmex responded by announcing a corporate restructuring that merged the sister companies América Móvil, Telmex and Telmex Internacional. In other words, a decade after having split from Telmex, América Móvil absorbed its

parent company through a share swap valued at some US\$ 20 billion. The aim of the operation was to create a more flexible, integrated company able to take advantage of technological convergence opportunities. Several factors justify making the mobile communications company the central axis of that organizational and financial restructuring:

- In recent years, América Móvil has showed greater buoyancy, flexibility and innovative capacity than Telmex. The wireless telephony company has displayed a strong ability to offer new services and packages in a fast-growing and highly competitive segment. Furthermore, América Móvil was able to seize opportunities to extend its operations to the majority of countries in Latin America. For its part, Telmex has maintained its strong position with a large share of the Mexican fixed telephony market, a segment that offers scant possibilities for growth and where, for a long time, it faced little competition from other operators. This notwithstanding, the packages offered by the cable television operators, especially Televisa, and regulatory restrictions have caused Telmex to lose market share.²⁵

²⁵ For the United States companies Verizon and AT&T, the bundling of television, Internet and telephony services has been a key strategy for maintaining their customer base. The case of Telmex seems different because of its considerable market power—it has an 8% share of the fixed segment, a 70% share of the mobile telephony segment and is the main provider of broadband access—which would give it more breathing room and bargaining power if it were not able to offer video services.

- In a setting of rapid technological convergence, Internet access has become a core element in telecommunications operators' strategies. And in a region where mobile telephony has advanced very quickly, major business opportunities have opened up for wireless broadband and that has only served to strengthen América Móvil's position even further. The Telmex subsidiaries in South America—except in Brazil and Colombia—were considerably smaller than those of América Móvil and were less able to compete in the mobile broadband market. In addition, América Móvil started offering wireless triple-play options, using 3G platforms combined with satellite television alternatives.
- The merger was intended to create savings and tap managerial and operational synergies. Up to that point, América Móvil and Telmex had been operating outside Mexico as separate, independent companies, with the consequent duplication of infrastructure and staff in many cases. Accordingly, the merger could generate savings of between US\$ 500 million and US\$ 2 billion per year (*CNN Expansión*, 22 February 2010 and 11 May 2010).
- Given the broad presence of América Móvil and Telmex in Latin America, the newly merged

company could start to offer more sophisticated service packages. Telmex will almost certainly start in Brazil and Colombia, the only two countries besides Mexico where it has large-scale fixed telephony operations. In fact, about 80% of the operating profit of Telmex Internacional—a company that split from Telmex in 2009 only to be reabsorbed by América Móvil—flows from operations in Brazil. In 2004, Telmex acquired a majority share in Embratel and that platform has enabled it to offer triple play in the Brazilian market. This transaction was fundamental in garnering experience in convergent commercial offerings, which the company has replicated in other Latin American markets. In 17 of the 18 countries in which the new América Móvil has operations, there are no regulatory constraints on offering the three services (which América Móvil markets in most cases under the Claro brand). Only in Mexico is the company expressly prohibited from offering pay-television services.²⁶ However, to remain competitive, Telmex formed a commercial partnership with the MVS group to provide satellite television (see box IV.5).

Box IV.5

CONVERGENT OFFERINGS IN MEXICO

A number of recent developments in the Mexican telecommunications market have consolidated the position of the companies and groups that will be the sector leaders for the coming years. The process has however not been without controversy, triggering heated debate among the business community, political forces and government and regulatory authorities.

In late 2006, the Ministry of Communications and Transport issued a rule on convergence (the "Convergence Agreement") intended to promote integrated delivery of voice, data and video transmission services. However, legal incompatibilities within the rule made enforcement difficult; for example, while private-sector Telmex was prohibited from offering pay-television services, public network concessionaires were given the right to offer any and all technically feasible services.

Market saturation, coupled in many cases with the collapse of traditional lines of business, forced telecommunications and broadcasting companies to seek out new sources of revenue. Fixed-line telephone companies, for instance, were witnessing client migration to mobile telephones; broadcasting companies were grappling with a sharp drop in advertising sales, their main revenue source; and pay-television companies faced the growing challenge of holding on to subscribers as the new audio-visual options available through the Internet continued to expand.

Against such a backdrop, Mexico's main pay-television operators and telecommunications companies pieced together the first convergent offerings. Cable television operators initially adopted defensive strategies, with Telmex aggressively expanding its share in the broadband sector under the Prodigy

brand name. Around the middle of 2006, Megacable, Mexico's principal cable television operator, launched a "triple-play" package (i.e. telephone, cable television and Internet connection). Shortly thereafter, Televisa offered a similar package in Mexico City through Cablevisión (*CNN Expansión*, 31 August 2007). During the first stage of its launch, this service was aimed at the middle- and high-income sectors with an eye to a quick return on the investment.

Increased competition pushed prices down quickly and led to the launching of new, more appealing packages to attract potential customers. The market rapidly concentrated, with intense acquisition activity by the major operators, Megacable and Cablevisión. At this point, the Federal Anti-Trust Commission stepped in and ordered Televisa to open up its content to other interested cable companies. Megacable and Televisa currently account

²⁶ The 1989 concession title prohibits Telmex from offering television services. The pressure exerted by technological progress has prompted negotiations to amend this restriction in which competition issues such as number portability and interconnection have prevailed, but there has been considerable pressure from broadcasting competitors (Televisa and Televisión Azteca) not to amend the regulation (see boxes IV.4 and IV.5).

Box IV.5 (concluded)

for more than 70% of the Mexican market but do not compete in any major cities.

The entry of cable television companies in the Mexican market jeopardized Telmex's dominant position, prompting it to enter into a triple-play business agreement with the Mexican company MVS Comunicaciones, which operated a satellite television system (direct-to-home). In late 2008, Telmex launched its Dish service plan offering Internet, television and telephone services under a single monthly statement. Despite protests from competitors, the Federal Anti-Trust Commission approved this business partnership's offering of satellite television service throughout Mexico.

In February 2009, the Federal Telecommunications Commission (COFETEL) launched a basic interconnection and interoperability plan aimed at making fixed-line and mobile telephone, Internet and pay-television services available through a shared infrastructure. The plan sought as well to regulate delivery and ensure non-discriminatory access to interconnection services among operators. Although intended to foster market competition by benefiting businesses with limited infrastructure or those starting to offer convergent services, the plan has made only limited progress because the authorities have claimed Telmex did not meet the plan's conditions, in particular regarding interconnection requirements, the guarantee of interoperability and number portability (*Excelsior*, 24 November 2010). In December 2009, Telmex formally requested a temporary court suspension of the plan. COFETEL, however, has remained firm in not modifying the Telmex concession.

Keen to replicate the success of the Dish plan, Televisa and Megacable joined together to launch Yoo, touted as the cheapest triple-play package on the market. The idea was to capture a relatively overlooked market segment (low-income households) by offering a service similar to or the same as Dish, before Telmex gained a solid foothold in the television sector—which was simply a matter of time (*El Universal*, 11 November 2010). These new partnerships and service packages fanned sharp competition to attract Internet and fixed telephone users, as that was a market dominated almost completely by Telmex. Pay-television operators specifically targeting the high-income sectors, such as

Televisa's subsidiary Sky, began to slash their prices. The upshot of all this activity was even keener competition between the two giants of the Mexican market: Telmex and Televisa.

Cable television companies thus had to rethink entirely their business models. As pay television dwindled as a source of revenue, it was replaced by such other services as telephony, Internet and high-tech digital services that included video on demand, high-definition television, video games and digital music. Companies lacking the necessary resources to quickly modernize and embrace market innovations either went out of business or were acquired by others. This trend fuelled further concentration of the industry around Televisa and Megacable. Noteworthy for their absence were any foreign companies, in particular the regional leader Telefónica. Although ready and financially able to expand its share in the Mexican market, under the country's foreign investment legislation Telefónica was prohibited from operating fixed services, which are crucial to bundled service packages. In late 2010, Telefónica was nonetheless awarded a licence to offer pay satellite television, thus enabling it to compete with Dish, Sky and Yoo and bringing a promise of fresh activity in the Mexican market.

At the same time, other companies have been at work creating more sophisticated service packages. Early in 2009, Maxcom put a "quadruple-play" package on the market under a business agreement involving mobile virtual network operator (MVNO) services with Telefónica (*Expansión*, 21 May 2009 and 15 February 2010); Maxcom was the first company to offer Internet Protocol television in Mexico (*CNN Expansión*, 13 September 2010). In mid-2010, Megacable announced a business agreement with Telefónica to offer similar services using MVNO (*Excelsior*, 25 August 2010). Megacable had previously considered a partnership with Televisa and Nextel to offer a more sophisticated business package, but those negotiations were unsuccessful, probably owing to the number of legal disputes involved in the spectrum tender won by those two firms. Televisa, too, has sought to offer higher-sophistication services; joining up with Nextel, it won a 3G telephony tender (although the partnership was later dissolved) and—in a joint undertaking

with Telefónica and Megacable—Televisa also won a tender for a pair of fibre-optic strands from the national power company.

The friction between the main operators continued to worsen in 2011. In March, all the mobile operators except Telefónica lodged a complaint with the Federal Anti-Trust Commission alleging that América Móvil and Telefónica were engaging in interconnection rate-fixing in order to split the market between themselves. The Mexican group filed a counter-complaint against Televisa, Televisión Azteca and other cable providers alleging monopolistic practices. Early in April speculation circulated that Televisa would purchase 50% of mobile telephone operator Iusacell, thus significantly boosting its share of the domestic Mexican market (*TeleGeography's CommsUpdate*, 8 April 2011). If that purchase goes through, Televisa and its traditional archrival, the television broadcaster Televisión Azteca (part of the same financial group as Iusacell), would be joining forces against the dominant operator, América Móvil-Telmex. In mid-April, the Commission issued a decision on an investigation launched in 2006, ordering América Móvil to pay a fine of US\$ 1 billion for monopolistic practices in the mobile telephone call termination market. That firm has in fact been accused of charging the highest interconnection costs anywhere in the world after Australia (*El Espectador*, 17 April 2011). This is the highest fine ever imposed by the Commission since its establishment in 1993. In early May, the Supreme Court—looking to discourage any further litigation—decided that judges may not suspend COFETEL decisions concerning interconnection rates between telecommunications operators.

The climate is thus both tense and highly legalized, with no easy solution on the horizon that would ensure a supply of convergent communications services in the near future, in particular with regard to the announced modification of the América Móvil-Telmex concession (the Ministry of Communications and Transport reiterated in late May 2011 its intention not to revise the concession). At the same time, a clear case has been made for updating foreign investment legislation to allow full access for foreign companies, although that is an initiative that could trigger new turmoil in the Mexican market.

- Finally, the merger of Telmex and América Móvil operations put the new company in a stronger position to compete against its main rival in the region: Telefónica. With integrated subsidiaries in several South American countries, Telefónica had an advantage over América Móvil in the area of convergent services. As mentioned above, Telefónica has a single corporate structure that enables it to offer integrated service packages in several countries all under the Movistar brand. Thus, the new América Móvil is becoming a more dynamic and coordinated company, integrating voice and data services on both fixed and mobile platforms under a single continental brand: Claro. In 2010, América Móvil is reckoned to have invested around US\$ 5.4 billion in total, equivalent to 10% of its sales (*CNN Expansión*, 11 May 2010) and is expected to invest a further US\$ 8.3 billion in 2011 (*TeleSemana*, 2011).

In Mexico, the transaction caused upset among the company's competitors. The National Chamber of the Cable Telecommunications Industry felt the merger would lead to an increase in abusive practices, since the two companies were the dominant telecommunications operators in both the fixed and mobile segments. In February 2010, the Federal Anti-Trust Commission ruled that the merger between América Móvil (Telcel in Mexico's case) and Telmex was essentially a corporate restructuring that did not alter the structure of the markets in which the two companies operated. According to the Commission, the two companies were controlled by the same business group both before and after the merger (*El Financiero*, 12 February 2010). The transaction finally went through, with América Móvil acquiring the vast majority of Telmex and Telmex Internacional shares in June 2010.

At that point, América Móvil then set its sights on stepping up the pace of integration of its operations in the key markets: Brazil and Mexico. In Brazil, it launched a takeover bid of US\$ 2.544 billion in October 2010 (through Embratel) for the cable television operator Net, seeking to increase its stake from 35% to 77%. Despite América Móvil's majority stake, Net continues to be controlled by Organizações Globo because of legal and regulatory constraints under the Cable Act. América Móvil is therefore banking on a favourable legislative outcome for a bill that would allow foreign capital to control pay-television companies. The company's investments currently announced for 2011 are earmarked mainly for Mexico (US\$ 3.66 billion) and Brazil (US\$ 2.5 billion). In Brazil, the infrastructure of Claro, Embratel and Net is expected to be integrated rapidly with a view to offering bundled services. At the same time, América Móvil is rationalizing its operations in Central

America and the Caribbean. In March 2011, it announced an agreement with Digicel to acquire 100% of the latter's operations in El Salvador and Honduras. It also intends to sell its operations in Jamaica to Digicel; that transaction was expected to be finalized in the second quarter of 2011 subject to authorization from regulatory authorities in El Salvador, Honduras and Jamaica (América Móvil press release, 11 March 2011).

Alongside the Telefónica and América Móvil operations, the merger of Grupo Oi and Brasil Telecom is also noteworthy. Backed by the Government of Brazil, the transaction was intended to create a "national champion" capable of taking on the two regional leaders. The National Telecommunications Board (ANATEL) approved in late 2008 the purchase of Brasil Telecom by Oi. That was the largest operation the sector had seen since the era of the privatizations: the new operator boasted 22 million fixed telephone lines and over 20 million mobile subscribers. ANATEL imposed a number of conditions on its approval of the transaction, including investments in national technology research and development, a ban on mass layoffs, the surrender of overlapping licences and the granting of network access to small operators. Initial doubts about control remaining in the hands of Brazilian capital were dispelled by government guarantees authorizing the National Bank for Economic and Social Development (BNDES) to veto any foreign transfer. The complex situation surrounding Vivo, however, prompted the Brazilian authorities to change their priorities and introduce flexibility to allow the entry of foreign strategic partners, with the focus on making alternative infrastructure available in order to stimulate competition (see box IV.6). Late in January 2011, Portugal Telecom formed a strategic partnership to acquire a 22% stake in Oi for some US\$ 4.98 billion and thereby remain in the Brazilian market. Under the agreement, Oi may in turn acquire a 10% stake in Portugal Telecom.

Since the start of 2011, the industry's two main players have been focusing on faster and deeper restructuring and integration of their operations to jump to the forefront of broadband access expansion on both mobile and fixed platforms. Latin America's traditional telecommunications operators are undergoing a radical transformation as they metamorphose into providers of a broad range of content and services on various platforms in the effort to boost their subscriber base: the only way to secure a return on the substantial investments needed to stay in step with technological progress. In such a setting, options must be assessed for creating next generation networks, especially on fixed platforms whose current infrastructure is largely based on outdated twisted-pair copper wiring.

Box IV.6

THE RETURN OF TELEBRÁS

As part of its broadband expansion plan, the Brazilian government decided to establish a State company to manage a backbone network of fibre-optic cables: it revived Telebrás for that role. The plan aimed to create wholesale access for third-party companies, stimulate competition, reduce access costs, foster provision of services in neglected areas and increase national broadband coverage. The authorities planned to use the electricity companies' fibre-optic networks and the Petrobrás gas pipelines to expand the available infrastructure. Infrastructure was not the

cornerstone of this initiative, however; the emphasis rather was on technological development and the production of content and applications. Telebrás was keen to support the government's objectives in education, health and e-government at the federal, state and municipal levels. According to the authorities, Telebrás would pressure operators to exit the profitable voice market—where they were “comfortable”—and this would lead to both lower prices and growth of services.

Some sectors questioned the State company's role in the national broadband

plan, claiming that existing private companies could implement the project better than Telebrás and in turn significantly decrease the tax burden. At 30%, Brazil had one of the highest tax burdens in the industry, surpassed only by Turkey and Uganda. The measure was also seen as a step backwards in a process that had started more than a decade earlier with the privatization of the former Telebrás, which had spawned the country's present regional and national operators. The government has not amended the plan despite concern and disapproval among sector companies.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

(c) Operational and marketing adjustments: new business models for seizing growth opportunities in Latin America

After consolidating their presence and position in the region's main markets and setting in motion an intensive process of asset reorganization and integration, the major operators began developing new business models to tap the opportunities offered by mass broadband access and guarantee the sustainability of their business. The focus now is on subscriber base, market share, revenue levels and generation of a substantial and sustainable cash flow. As in the advanced economies (albeit at a later point in time), companies have begun to value alternative sources of revenue beyond traditional voice services, without however abandoning traditional services whose markets they aim to skim while boosting customer loyalty through attractive packages and efficiency gains. The revenue pattern of communication services providers should therefore shift significantly in the future to reflect the following key elements:

(i) Dynamic mobile communications: the cornerstone for future growth

High penetration levels notwithstanding, the wireless segment remains a major source of growth for companies and will continue accounting for the majority of the industry's revenue (see figure IV.20). The main challenge for operators lies in holding on to their subscribers in a market that is ever-more competitive and subject to regulatory shifts, for example with regard to number portability. As a result, operators are striving to enhance their customer contact points (distribution channels, online platforms, user support) and offer appropriately segmented packages and—capitalizing on their size and negotiating power with suppliers—new and diversified

mobile devices at competitive prices. All this is taking place in a context of new services and applications based on mobile broadband access, and that could help to build customer loyalty.

With an eye to tapping into these opportunities, companies are redoubling efforts to facilitate and encourage customer migration within the value chain from prepaid arrangements to hybrid products and postpaid service contracts. Telefónica, for instance, hopes to increase its postpaid customer base from 16% in 2008 to between 25% and 30% by 2012. Companies are also aiming to reverse the downtrend in average revenue per user by exploiting new opportunities in the area of data traffic and new services and applications. In parallel, operators are curbing benefits for prepaid telephones as they seek out formulas for building greater value into SIM cards and cutting operating costs. Steps are also being taken to attract new subscribers to advanced services and, at the same time, retain current subscribers.

As companies gradually shift their focus from attracting new customers to retaining existing customers, the operating model is also being overhauled to increase the emphasis on efficiency. Agreements with third parties are another way in which companies are seeking to include new products, applications and services in their portfolios and share development and marketing risks. The search for more effective use of the network infrastructure is another of the priorities.

Thanks to the early uptake of mobile options by the region's main communications services operators, new technologies are constantly being incorporated although the region still lags behind developed countries. Companies are investing in new 3G infrastructure and are already announcing initial plans to introduce 4G LTE technology with a view to strengthening the capacity and coverage of mobile broadband (see figure IV.30).

In Chile, for example, the main operators have launched ambitious projects to enhance their fibre-optic infrastructure (which in some cases is hybrid). Considering the features of the Chilean market, it is likely that companies are using it—as has occurred in the past—as a testing ground to later extend these services to the rest of the region. Telefónica has begun deploying a new national FTTH network with speeds topping 100 Mbps in a drive to connect some 700,000 homes; the investment is on the order of some US\$ 2.5 billion. The initial phase got under way in 2010, aiming to connect some 50,000 homes with fibre-optic infrastructure in the cities of Concepción, Chillán, Los Ángeles and Talcahuano, which were especially hard hit by the February 2010 earthquake (*TransMedia*, 3 September 2010). For its part, América Móvil has announced investments for the three-year period 2011–2013 totalling US\$ 2 billion to build a FTTH network; ultimately, it hopes to offer its services wirelessly using high-speed 4G technology and is therefore looking forward to the next spectrum auction (*El Mercurio*, 13 April 2011). Finally, VTR has invested some US\$ 700 million in upgrading its fibre-coaxial network in order to offer services with speeds of up to 120 Mbps. This initiative received additional impetus when the company was granted a mobile telephony licence allowing it to generate synergy between its fixed and mobile segments. VTR hopes to become the world's leading fixed and mobile operator by transferring its mobile traffic to its fixed network without losing mobility (*La Tercera*, 22 March 2011).

(ii) *Corporate transformation: from voice to broadband*

Faced with falling revenues from traditional voice-based business, companies are looking to grow their broadband and pay-television segments to reverse the downtrend in average revenue per user. One outgrowth of this shift is that business models are changing rapidly as companies move beyond specialization in telephony to become broadband operators. Operators are thus simplifying their range of products and services, strengthening partnerships with providers and revisiting managerial practices, all with a view to retaining customers and increasing customer satisfaction through better quality services. Bundled services continue to be a core strategy, coupled with continuous upgrading of infrastructure in order to offer new services and enhance access speeds, with priority given for the time being to ADSL technology in order to get the most out of existing copper networks. Operators are committed to integrating

existing infrastructure to offer multiple services. Despite the lag in the deployment of optical-fibre next generation networks, this technology is already being used in new trunk and backhaul networks for base stations in the region's major cities.

Enormous investments are required in next generation network infrastructure, and the dilemmas faced by companies in the developed economies have now surfaced in the region. The leading operators are paying close attention to the debate around the future model²⁷ for the Internet, especially with regard to unlimited plans and network neutrality. It has been suggested that content providers, such as Google, Facebook, Twitter, Yahoo and YouTube, should contribute to network maintenance and that a gamut of Internet tariffs should be offered in order to make current business models sustainable. Otherwise, costs risk outstripping revenue given the huge investments needed to ensure that network quality responds to consumer requirements. For most operators, the only way to avoid collapse is to introduce flexible, segmented tariffs tailored to the consumption profile of each subscriber, as opposed to the current unfair flat rates²⁸ (*El País*, 30 August 2010). At present, 5% of mobile telephone subscribers account for 75% of traffic, while for fixed broadband the figures are 20% and 80% respectively. With smartphones skyrocketing in popularity, the problem is bound to get worse in the future.

(iii) *Towards the integration and regionalization of operations*

Complementing their efforts in the areas of fixed and mobile communications, companies are seeking to integrate those segments and regionalize operations. Newly integrated operators are looking for ways to reduce operating costs and optimize investments so that they can concentrate on offering integrated fixed-mobile services. Telefónica, for example, generated over 1 billion euros per year in synergies in the region over the past decade. Leveraging its size, it purchases

²⁷ For most operators, there is an increasingly unsustainable asymmetry between the Internet service providers maintaining fixed and mobile broadband networks and the providers of Internet applications and content using this infrastructure to sell services or charge for advertising. The latter group generates 15 times more traffic than the Internet service providers and operators managing the network, in a context where data traffic has increased fivefold in five years (*Financial Times*, 9 August 2010).

²⁸ In June 2010, AT&T was the first major operator to eliminate unlimited data plans in mobile telephony. At the end of 2010, Telefónica's British subsidiary O2 followed suit and included in its contracts a ceiling on the number of megabytes that may be downloaded by users each month.

materials and equipment for the entire region, operates on shared service platforms²⁹ (Huawei Service Delivery Platform and Telefónica) and has implemented a regional invoicing system.

In addition, companies have developed marketing mechanisms and infrastructure that help them to cut costs, create areas of synergy and generate additional revenue. By way of example, Telefónica has several assets that bolster its capacity for wholesale in the region, including Telefónica International Wholesale Services

(TIWS), owner of a submarine cable interconnecting Latin America and the Caribbean that is used to market a large portion of the region's Internet traffic; Media Networks, which is a platform for exclusive content and the distribution and marketing of wholesale television services; and Terra, which is set to become the region's leading Internet provider. For its part, América Móvil is completing a fibre-optic ring that will link Miami to the northern border of Mexico and the whole way to Tierra del Fuego (*El Mercurio*, 13 April 2011).

D. Policy conclusions

The telecommunications industry is undergoing a sweeping reorganization and transformation at the global, regional and national levels. In a setting of rapid technological change, the traditional barriers between voice, data and video traffic are crumbling and the industry is shifting its focus from voice to broadband services. Consumer habits are changing; companies have been obliged to rethink their business models; and national authorities have had to modify sector-specific standards in the light of technological convergence and must reconsider the role of broadband access in society and in national development strategies.

At the global level, corporate revenue from the industry's traditional segments has plummeted. Users have migrated from fixed telephony to mobile options; and applications that destroy the value of traditional segments, such as VoIP, are spreading rapidly. At the same time, the boom in mobile technologies is starting to slow down as penetration peaks around the world. The rapid expansion of broadband access is becoming operators' main hope for reversing the decline in revenues. Fixed and mobile platforms are being developed and deployed to offer better services to satisfy the needs of increasingly demanding users. As a result, traditional telephony operators are engaged in an intensive transformation to become broadband providers.

Operators have not abandoned their traditional businesses during this transition; on the contrary, they have sought ways to extend the useful life of those businesses. Examples include bundled service packages, which guarantee continued revenue from voice services while helping —albeit not enough— to expand broadband use and the development of pay television and build stronger customer loyalty. While it is true that these hybrid solutions have allowed operators to continue making money from infrastructure based on twisted-pair copper wiring and cable modem, it is also true that they have delayed the migration to fibre-optic platforms.

The mobile segment has witnessed rapid modernization of infrastructure —thanks to low costs and high penetration— and large-scale migration to 3G technology, and even the first steps towards the deployment of new 4G LTE networks. Future demand for mobile communications will require the segment to offer the same services that are offered on fixed platforms. At present, mobile communications are not a substitute for fixed infrastructure, but they do complement it. Fixed technologies have so far led the way in the development of broadband access, as they have greater available capacity than the mobile segment. And mobile solutions have so far been limited by shared use of the radio spectrum utilized for transmission. Nonetheless, mobile technologies —though lagging behind— have gradually started to offer better alternatives that are closer to fixed access solutions. The convergence of these two technologies indicates that the technological difference between the services they provide will diminish significantly in the near future.

The countries of Latin America and the Caribbean and the companies operating there have not been unaffected by this process and the related challenges: evolving consumer habits, profitable business models, rapid technological

²⁹ At the start of 2009, Huawei Technologies, a Chinese telecommunications network provider, signed an agreement with Telefónica for the roll-out of a new service delivery platform (SDP) to serve all Latin American countries in which Telefónica operates. The platform centralizes the distribution of value-added services and facilitates the introduction of others, such as universal mobile mail, newspapers on mobile telephones, 3G messaging options and mobile advertising. Moreover, the platform paves the way for convergence services on fixed or mobile networks for both the residential and commercial markets (Huawei press release, 2 February 2009).

progress and rigid or inadequate regulations. In just over a decade, notable changes have occurred in the region's industry: the penetration of mobile telephony has reached almost 100%; fixed telephony has stagnated and even diminished in density; broadband access is gaining ground, albeit more slowly than in the advanced economies; bundled service offerings (triple play) are becoming widespread; operators are showing a clear strategic preference for the mobile segment in terms of coverage, deployment of infrastructure, promotional tariffs and loyalty policies; and there has been rapid consolidation around two transnational operators (Telefónica and América Móvil).

A number of developments are expected in the foreseeable future. Revenue from mobile voice services will continue to decline steadily owing to more intensive use of social networks and text messaging. Wireless broadband connections will experience a sharp increase, accompanied by greater use of new mobile services and

applications. Smartphones will become more widespread, especially those using the Android platform, as will multi-purpose devices such as tablets. Video will feature more prominently in data traffic. Selective advances in 4G LTE technology will help to reduce current infrastructure congestion. Machine-to-machine (M2M) communications will expand. And competition between fixed and mobile platforms will become more fierce, and that could result in lower access prices.

In such a complex scenario, two major policy areas sit at the centre of the regional and global debate: first, how to adapt regulations to a reality that is evolving quickly as a result of an ongoing technological revolution that is moving towards convergence; and, second, how to strike a balance between service prices that are low enough to allow mass uptake but yield revenues high enough to ensure returns on the large investments that operators must make to modernize their networks.

1. Regulatory issues

Although the sector's major operators have been deploying wireless infrastructure on a large scale, progress has been complicated by regulatory issues impeding the mass uptake of broadband in particular. First, if the debate on network neutrality is not settled, companies will have no clear incentive to invest in next generation fibre-optic networks; second, discussion continues on the allocation of the digital dividend that will be produced by the switch-off of analogue television. On one side in the discussion are the

telecommunications operators, who wish to see this scarce resource used for the development of mobile broadband; on the other side are the powerful broadcasting groups, who do not want to lose what they consider an acquired right and who want to use this resource for new advanced audio-visual options, such as multiple digital television channels, high-definition content and interactive television. These are but two of the regulatory issues under discussion both in advanced countries and in the region (see box IV.7).

Box IV.7

REGULATORY CHALLENGES IN THE COMMUNICATIONS SERVICES INDUSTRY

In the vast majority of countries, the sweeping changes in technology, corporate business models and consumer habits co-exist with a number of regulatory problems on which there is not yet any consensus.

Institutional structure and degree of intervention. National regulations currently address a number of interrelated, indivisible issues: access; spectrum management; structure, ownership and management of next generation networks; competition between infrastructure; and content standards. In these circumstances, some countries have opted for convergent regulators that govern all the issues, while others have kept separate agencies with close links between each other.

Network infrastructure and competition. Competition between services displays two different tendencies: competition between communication operators' infrastructure versus shared use of that infrastructure. The United States, for instance, promotes competition between access networks, in particular between telecommunications operators and pay-television companies; this has stimulated investment in next generation networks to offer Internet Protocol services. However, in Europe —where cable television penetration is low— authorities have forced dominant operators to share their infrastructure with competitors, offering wholesale services at regulated prices and unbundling the local loop.

Functional versus structural separation of next generation networks. One school of thought favours functional separation of the different network segments to establish discrete business units, thus enabling wholesale products and services to be offered under similar conditions by the dominant companies and their competitors. Another school prefers structural separation that does not create a forced division of functions, allowing the dominant company to remain intact. A prime example of functional separation in Europe is the agreement between the British Office of Communications, a regulatory agency, and British Telecom to create an independent business unit (Openreach) to manage access and infrastructure. Following this experience,

Box IV.7 (concluded)

the European Commission has encouraged functional separation, but member States have not yet arrived at a consensus.

Access to next generation networks.

Next generation networks are being deployed all over the world and are replacing traditional switching centres and switched networks. The regulatory emphasis is on access to new infrastructure, seeking to balance the necessary competition between networks with communication services profitability in order to stimulate investment in next generation networks. In the United States, the Federal Communications Commission has promoted the construction of next generation networks by exempting operators from the obligation to share their infrastructure with other companies. In Japan, deployment of next generation networks has been fostered by asymmetric legislation that deregulated wholesale prices of fibre-optic networks while establishing very low prices for access through traditional copper networks. Of the various measures adopted in Europe special mention can be made of the non-discriminatory access granted to alternative operators and the obligation to share underground conduits used to lay fibre-optic networks.

Network neutrality. As video and peer-to-peer applications, such as games and Voice over Internet Protocol (VoIP), become more popular and thus cause greater network congestion, the question of indiscriminate traffic arises. While Internet companies and content providers maintain that network neutrality favours users' freedom of choice and Internet innovation, others argue that it does not help operators to achieve a return on their investments in infrastructure and it does

not guarantee the quality of new services offered, in particular the IP Multimedia Subsystem, VoIP and video streaming. In the United States, telecommunications and cable operators originally opposed network neutrality, but Verizon and Google recently announced in a joint statement that they were against blocking or giving priority to specific online content (*New York Times*, 10 August 2010). In Europe, the situation is different since there is an obligation to offer unbundled loops in wholesale access. In Asia, measures have been taken to speed up or slow down certain types of traffic. Japan allows offering higher quality and faster video traffic than generic Internet, and in the Republic of Korea VoIP is blocked from high-speed networks.

Spectrum management and the digital dividend.

The radio spectrum is a scarce resource and there is stiff competition for it between 3G and 4G mobile operators, wireless broadband access providers, audio-visual content producers and distributors and other companies interested in launching new services. The switch-over from analogue to digital technology will create a digital dividend, i.e. it will free up a significant amount of VHF (Very High Frequency, or 30 MHz to 300MHz) and UHF (Ultra High Frequency, or 300 MHz to 3GHz) radio spectrum that will be available for data transmission. Digital television is six times more efficient than analogue technology and needs less bandwidth per channel, thus making spectrum available. The European Union is working for harmonized allocation of spectrum among member States, thus facilitating compatibility of services, creating economies of scale and promoting regional competition. In Japan, the spectrum is

reallocated by service, with compensation being given to former licence-holders. The United States has opted for competitive spectrum tenders and the creation of a secondary spectrum market.

Interconnection charges. Interconnected network systems require arrangements for cross-network payments. Europe uses the "calling party pays" system whereby the person making the call pays the entire cost of the call. The United States takes the opposite approach, with the network on which the call ends paying all termination charges without any financial compensation. As IP-based next generation networks begin to spread, these mechanisms will gradually lose importance; for the time being, however—and even though interconnection charges between fixed networks are reasonably low—mobile call termination charges remain high. European bodies support lowering mobile interconnection charges, linking such charges to actual costs and removing asymmetries.

Content regulation. Legislating the free circulation of content is another topic of debate and various stances have been proposed. Some cite the futility of trying to control new forms of social networking on the Internet. Others view self-regulation as a compromise between company and user interests. Yet others would like to see existing regulations adapted to the new services.

International roaming. Roaming is an issue that extends beyond national borders. In Europe, progress has been made towards lowering rates for calls made and received within the region with a view to ultimately eliminating such charges by 2015. Text messaging (SMS) and data traffic are not yet included in this arrangement.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

Work must be stepped up in defining the following specific areas: digital television and the analogue switch-off; radio spectrum management; operator spectrum caps, network neutrality and interconnection charges; use of alternative fibre-optic network infrastructure (such as that belonging to electricity companies); regulation of content and applications; fostering competition in an industry undergoing rapid consolidation and

concentration; convergent services and disputes between telecommunications operators and broadcasting companies; incentives for the development of next generation infrastructure, both fixed fibre-optic and mobile LTE; and consumer rights aspects, especially as relates to quality and transparency. At the institutional level, the regulatory bodies that will lead this process need to be endowed with resources and legitimacy.

2. Mass uptake and further investment: the pending dilemma

As discussed in this chapter, the region stands at a crucial turning point in this industry's development. What happens next will depend on the balance struck to arrive at service

prices (especially for high-speed broadband) that are low enough to allow mass uptake but still able to generate revenues high enough to ensure returns on operators' new

investments. There is no obvious answer. The countries of Latin America and the Caribbean have opted for a mix that combines varying levels of direct control by the public sector (countries with State operators or operators heavily controlled by the government), incentives and regulation of foreign operators. Confidence levels vary as to the ability of the forces of competition to produce satisfactory results. Even in the region's largest economies, only a small number of operators can operate efficiently in a local market owing to economies of scale and network. A combination of competition and concentration is possible, but it is notoriously difficult to manage and the results are not always predictable.

In this context, ECLAC has recommended two lines of action that remain fully valid: strengthen the technical capacity and independence of sector regulators; and launch a substantive dialogue between governments and operators to arrive at specific definitions. Although progress has

been made in both areas, it has proceeded at a pace that has left the region lagging not just in broadband access availability and uptake by users, as examined in detail in ECLAC (2010), but also in investment in advanced networks, as presented in this chapter. Steps must be taken promptly along these lines of action, especially since decisions on matters currently under consideration will affect not only the size of investments but also which areas will benefit, i.e. further development of advanced mobile networks or further deployment of fixed optical fibre networks. The direction in which the scales tip will depend on the relative weight of operator interests in the former and the potential long-term benefits of mass uptake derived from the latter. Strengthening effective mechanisms for technical dialogue between the authorities and the major operators as input for policy decisions is the best way forward.

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Chapter V

Foreign direct investment in the software industry in Latin America

A. Introduction

Foreign Direct Investment in Latin America and the Caribbean 2008 assessed FDI in offshore business services (offshoring) in the countries of Latin America and the Caribbean. Offshoring refers to the provision of services from a location outside the country where the customer is located, through the use of information and communications technologies (ICTs). Offshore business services cover a broad range of activities, including contact centres, business processes, information technology (IT) services, and knowledge-intensive, analytical services. FDI in offshore business services is regarded as a high-quality investment because it can contribute to the economic, technological and social development of countries even if it does not entail substantial investment outlays. Specifically, such investment brings workers into the global labour market, creating new sources of income, jobs and exports. This is to the benefit of economies that are largely dependent on natural resources or low-value-added manufactured goods (ECLAC, 2009).

The 2008 report concluded that transnational corporations had made sizeable investments in offshoring operations in the region, that many governments had implemented specific policies targeting the software industry and that there was growing recognition of the potential of Latin America and the Caribbean as an offshoring destination. But a large share

of these investments has been in relatively low-value-added, low-skilled contact centres and business process services in which countries essentially compete on the basis of cost or a combination of cost and nearshore advantages. The region is currently seen as poised to move towards higher-value-added, higher-skilled offshore operations such as in the software

industry, attracting new investment not only on the basis of low costs but also on the strength of technological capacity and skilled human resources. Such investment would also be a significant source of technology transfer.

This chapter describes the status of FDI in the region's software sector, explains the strategies pursued by transnational software companies and those strategies' impact in the countries of the region and assesses the growth prospects for these companies. It also examines the public policies that have been put in place to attract FDI in the software sector and to enhance its impact on economic development. The focus is on those countries in the region that have received the most FDI in the software sector: Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico and Uruguay.

Recent experience shows that as companies increasingly compete to become more efficient, cut their international production costs and speed up their innovation cycles, the large transnational companies are offshoring their ever more sophisticated and knowledge-intensive corporate functions, especially software processes (applications, services and engineering) and other IT-intensive services (horizontal, vertical and knowledge-based business processes). Among the principal consequences of offshoring are that it increases trade flows and FDI in the software sector and encourages changes in productive specialization models.

FDI in the software sector is a new, non-traditional kind of FDI (see box V.1). It has a high technological content, does not require large investments and does not need large local markets. What it does require is highly skilled human resources. There is an ongoing debate on the impact of non-traditional FDI on developing countries, the circumstances in which such investment promotes development and, in particular, what role public policies play in this process (Nelson, 2009).

Latin America's share of the software market is growing, and it is receiving an increasing flow of FDI to this sector. Since the early 2000s, the region has been an attractive location for software centres thanks to a combination of internationally competitive costs, ready availability of skilled human resources and time-zone proximity to the United States and Europe (the main consumer markets). This process has been enhanced by the fact that the region combines traditional locations with the "global service supply model" adopted by the major international software companies (Gereffi, Castillo and Fernandez-Stark, 2009).

At this stage in the development of FDI in the software sector, the largest transnational company projects are located in the major cities of Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico and Uruguay. Most are highly specialized and operate according to the same standards as the best international centres. But the situation varies widely from country to country, with three patterns of specialization. First are the countries with a large domestic market that is not very export-oriented; second are the countries with a small domestic market that is highly specialized in exports; and third are the countries with a medium-sized domestic market that combines both strategies.

Installing and operating these centres in the region creates new relationships between transnational software companies and governments, local businesses and innovation systems. The primary public policy challenge therefore lies in determining how governments can improve their policies for attracting non-traditional FDI and for integrating FDI into national development in the spheres of human resources, technology transfer and innovation, and the opening of international markets. International evidence shows that the software industry does not develop spontaneously. Instead, it requires a set of structural factors that include policy instruments with a balanced approach to promoting the development of local supply and the arrival of transnational software companies while encouraging businesses to actively participate in national and local innovation systems.

In view of the above, this chapter proposes that transnational software companies can be an effective vehicle for transferring new knowledge and technologies that impact productivity and growth. However, the potential for industry deployment will be limited to countries and locations that meet certain structural conditions in terms of available human resources, quality infrastructure and a sound institutional framework. The choice of a location is based on standard factors and criteria, but, in practice, transnational companies tend to favour locations that are already consolidated (see box V.2). Public policy thus plays an essential role in reducing information asymmetries and tempering misperceptions as to the risks associated with new locations. A strategy for attracting technology investment that is consistent with national and local strategies for innovation can therefore serve a dual purpose by minimizing systemic risk in new locations and maximizing FDI impact.

Box V.1

IMPORTANCE OF THE SOFTWARE INDUSTRY IN DEVELOPING COUNTRIES

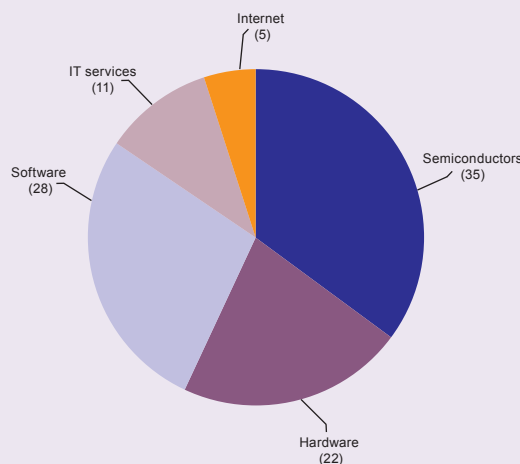
The significance of the software industry in particular and of information and communications technologies (ICTs) in general lies in their contribution to structural change in developing countries by transferring and disseminating new technologies, creating skilled jobs and generating exports of services. International experience shows that the ICT industry, like the manufacturing industry, is subject to Kaldorian economies of scale. It has spillover effects on all sectors of the economy, spurs productivity and helps to diversify the supply of exports, making it a driver of economic growth in lower-income countries.

For this reason, developing countries are increasingly interested in developing the software industry and participating in its international networks. As hardware, services and communication networks converge, software has become the industry's technological core. It is the platform that allows different technologies to converge. The international expansion of the software industry in recent years is taking place amidst snowballing technological innovation and economic globalization in which three trends stand out. They are: (a) the swift opening and integration of the economies of large emerging countries

such as China and India, (b) the increasing specialization of global production in global value chains and (c) the internationalization of the service industry.

The ICT industry, along with the pharmaceutical/biotechnology industry, is one of the most technology-intensive in terms of the ratio of investment in research and development to sales. In 2009, the ICT industry invested nearly US\$ 96 billion in research and development—that is 12% of the global investment by the top 1,000 companies worldwide. The semiconductor and software industry accounted for the largest share.

DISTRIBUTION OF INVESTMENT IN RESEARCH AND DEVELOPMENT IN THE GLOBAL INFORMATION AND COMMUNICATIONS TECHNOLOGY INDUSTRY, 2009
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Ajit Singh, "The past, present, and future of industrial policy in India: adapting to changing domestic and internal environment", *Industrial Policy and Development*, Mario Cimoli, Giovanni Dosi and Joseph E. Stiglitz (eds.), Oxford University Press, 2009; Mario Cimoli, André Hofman and Nanno Mulder, *Innovation and Economic Development. The Impact of Information and Communication Technologies in Latin America*, Edward Elgar, 2010; European Commission, *The 2010 EU Industrial R&D Investment Scoreboard*, Joint Research Centre Institute for Prospective Technological Studies, 2010.

This chapter is divided into three parts. The first part, on industry trends, provides an overview of the industry, its patterns of internationalization and Latin America's potential as an emerging location. The second part, on business strategies and their impact in the countries of the region, examines how the industry has evolved, the presence of major transnational software companies in the region and their contribution to local economies. The business strategy analysis distinguishes among global

transnational software companies, transnational software companies associated with vertical software development industries and transnational software companies of Latin American origin (trans-Latins). The third part looks at market opportunities and public policies and provides background on the international market space for the Latin American software industry, country competitiveness and the current status of public programmes and main policy proposals.

Box V.2

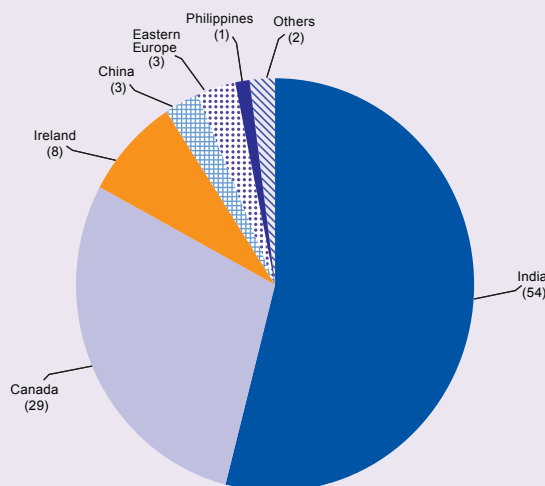
INTERNATIONAL DEVELOPMENT OF THE SOFTWARE INDUSTRY

The international deployment of FDI in the information and communications technology industry has triggered unprecedented growth in international trade in information technology services over the past two decades. McKinsey (2007) estimates that the international software business

is growing at an average 20% yearly, with the market totalling US\$ 85 billion in 2010. FDI in the software sector is concentrated in a few locations in a small number of countries. Cities like Bangalore, Delhi and Mumbai are the leading software development locations

in India, which accounts for nearly 54% of the global software trade; it is followed by Canada at 29% and Ireland at 8%. Other countries that have more recently developed a software industry are China and the countries of Central and Eastern Europe, with a 3% share.

DISTRIBUTION OF THE GLOBAL INFORMATION AND COMMUNICATIONS TECHNOLOGY SERVICES MARKET
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Bank, *The Global Opportunity in IT-Based Services: Assessing and Enhancing Country Competitiveness*, Washington, D.C., InfoDev, 2010.

B. Trends in foreign direct investment in the software industry

1. Description of the software industry

The software industry is characterized by the continuous development of new products and applications, the creation of new markets and the transformation of the business models of many traditional industries. Businesses in this industry belong to a new generation of entrepreneurs with novel business models, new strategies for cooperation and competition and original systems for innovation. The creation and development of the software industry has taken place in what is

called “innovation clusters,” with their exceptional mix of universities, technology excellence centres, leading companies, angel capital and venture capital funds within a culture of tolerance, entrepreneurship and creativity. After its initial phase of development, the industry expanded geographically through the creation of international value chains involving countries with readily available human resources, low costs and a suitable business environment (see box V.3).

Box V.3

WHAT IS THE SOFTWARE INDUSTRY?

The software industry is the set of businesses specializing in software processes (applications, services and engineering); it also encompasses other industries engaged in software development tailored to the needs of vertical industries such as technology conglomerates, the financial industry and the electronics

industry. The software industry has evolved as part of the global service industry value chain, having one component associated with the outsourcing of software processes and another component involving information-technology-enabled business process outsourcing. Software processes are classified in three broad segments

depending on proximity to the end-user: software applications, software services and software engineering. Business processes break down into three segments based on degree of specialization and level of business application sophistication: horizontal business processes, vertical business processes and knowledge processes.

SOFTWARE AND BUSINESS PROCESSES IN THE GLOBAL SERVICES INDUSTRY
AND ESTIMATED GLOBAL TRADE IN 2010

Component	Market segment	Description	Global trade
Software processes	Software applications	Application development and maintenance Integration and testing	Software applications and services: US\$ 55 billion
	Software services	Infrastructure services Consulting services	
	Software engineering	Product engineering and embedded software Research and development	Software engineering: US\$ 30 billion
Business processes	Horizontal processes	Customer support, human resources management, administration and finance Logistics and supply	Business processes: US\$ 45 billion
	Vertical processes	Banking, insurance and travel Manufacturing and telecommunications	
	Knowledge processes	Financial analysis, analytical services and legal services Audio-visual industry	

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Gary Gereffi, Mario Castillo and Karina Fernández-Stark, *The Offshore Services Industry: A New Opportunity for Latin America*, Washington, D.C., Inter-American Development Bank (IDB), 2009; World Bank, *The Global Opportunity in IT-Based Services: Assessing and Enhancing Country Competitiveness*, Washington, D.C., InfoDev, 2010.

The software industry is characterized above all by its drive, high concentration of supply and demand, stiff competition and growing globalization:

- The international software business has been growing at rates in excess of 20% a year. Estimates for 2010 put the market at US\$ 55 billion for software applications and services and US\$ 30 billion for software engineering. While estimates of the international demand for software differ, they all agree that offshore production accounts for a small percentage of the potential market of US\$ 325 billion. At present, nearly 26% of production takes place in offshore locations. This percentage could rise to nearly 50% of the market (World Bank, 2010; McKinsey, 2007).
- More than half of the demand for software is concentrated in the United States. Companies from India and the United States dominate the supply side, and most of the demand for applications is from the financial and manufacturing industries. This trend has

been bolstered in recent years by the consolidation of major companies through acquisitions.

- Rapid technological change and new consumer needs have made this an extremely competitive sector. This competitive pressure can be seen in the need to improve service quality at a lower cost and to make systems more secure and reliable, in the preference for open-source software and in the shift from software as a product (licence sales) to software as a service (cloud computing).
- Access to global resources is increasingly an option for companies, thanks to their economies of scale and global presence. Except for sales and marketing activities that require physical proximity to customers and markets, all of the other functions performed by programmers, analysts and engineers are being transferred to remote (offshore) operations that are competitive in price and quality and relatively low in risk. It is estimated that the software applications industry employs more than 700,000 people

internationally and that about half of those jobs (particularly in research and development) could, in theory, be in any location with competitive advantages (McKinsey, 2007).

- The impacts of the new worldwide distribution of jobs associated with global services have turned offshoring into a political issue in the developed countries. During the most recent presidential

elections in the United States, regulations were proposed to check this process. But the threat of protectionist measures against offshoring has waned as the opening of centres in developed countries (particularly the United States) has picked up and a policy rapprochement between authorities of India and the United States has gained traction (InfoWeek, 2010).

2. Evolution of foreign direct investment strategies in the software industry

Transnational software companies have played a significant role in the evolution of FDI in the software sector, pursuing business strategies that have shifted from cost arbitrage

to a geographically diversified global production model (global offshoring). The major sector companies are listed in table V.1

Table V.1
PRINCIPAL TRANSNATIONAL SOFTWARE INDUSTRY COMPANIES BY COUNTRY OR REGION OF ORIGIN

Industry segment	United States	Europe	India	Asia
Software applications	Microsoft Apple IBM Google Oracle Yahoo Hewlett-Packard McAfee Symantec Adobe	SAP (Germany) Software AG (Germany) Sage (United Kingdom) Dassault (France)	Tata Consultancy Services Infosys Wipro HCL	Nintendo (Japan) Softbank (Japan)
Software services	IBM Hewlett-Packard CSC Accenture	Capgemini (France) Ericsson (Sweden) Indra (Spain)	Tata Consultancy Services Infosys Wipro HCL	NTT Data Corp (Japan) NEC (Japan)
Software engineering	Synopsis Hewlett-Packard Dell Intel Cisco Motorola Apple Cadence	Nokia (Finland) Alcatel-Lucent (France) Ericsson (Sweden)		Cannon (Japan) Toshiba (Japan) Kyocera (Japan)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of "Global Software Top 100" and "2010 Software 500."

The software industry has globalized in successive stages of offshoring and international deployment from the developed countries towards new, emerging markets. The business models on which globalization strategies are based have been determined by the degree of control that companies want to have over operations and by access to human resources at a competitive cost in new locations.¹

Over time, the software industry has evolved internationally in sequential phases.² The most recent

¹ Companies that seek to maintain control over operations (an in-house business model) can develop their own local or onshore centres or establish captive (nearshore or offshore) centres in third countries. The options for software service outsourcing are to engage local providers (onshoring) or to use international providers operating in third countries (offshoring).

² The first phase corresponds to the industry's first wave of international deployment, which began in the 1980s and was led by United States companies that set up captive centres in India, Ireland and Israel to provide services to their local and international operations. The second phase began in the 1990s with the birth of the first generation of companies providing offshore services, especially Indian and United States companies specializing in IT services. The third phase, which began in the 2000s, is being led by European, Indian and United States companies in a second wave of international deployment as the industry moves into new regions with skilled human resources and competitive costs, such as China, the Philippines and countries of Central and Eastern Europe (Gereffi, Castillo and Fernandez-Stark, 2009).

phase corresponds to the third wave of industry deployment based on a model with centres operating in a coordinated fashion in multiple locations, making new pools of skilled human resources available in time zones that are complementary to centres in already consolidated locations. Noteworthy among these emerging markets are countries of Latin America and the Caribbean, the Middle East and North Africa (A.T. Kearney, 2009).

Indications are that the software industry is entering a new growth cycle that will be shaped by ongoing changes associated with new technologies, business models and business strategies (see box V.4). There are at least four trends linked to this new phase: (a) the need to integrate global operations; (b) migration of the hardware industry towards higher-value-added service segments; (c) adoption of new business models in the industry; and (d) changing innovation processes.

Box V.4

CONVERGENCE OF INFORMATION AND COMMUNICATIONS TECHNOLOGIES

New products now depend on greater integration of hardware and software components, which are combined in multidimensional processes. Against a backdrop of rapid technological integration, the development of information and communications technologies (ICTs) in the coming decade will be shaped by the trend towards convergence of

technologies. Snowballing convergence between information technology and media and telecommunications technology is reflected in a number of areas: communications networks (networks and services), hardware (mobile multimedia equipment), processing and applications services (cloud computing) and Web technologies (Web 2.0).

These new technologies will lead to a new ICT cycle characterized by burgeoning development of wireless and mobile applications with falling costs and exponential growth in processing capacities thanks to cloud computing. They will spark new changes in user behaviour patterns through the new social networks associated with Web 2.0.

PRINCIPAL TECHNOLOGICAL TRENDS ASSOCIATED WITH INFORMATION AND COMMUNICATIONS TECHNOLOGIES

Type of convergence	Technology	Impact in developing countries
In networks	Cable and mobile network technology for convergence of networks and services Third- and fourth-generation (3G and 4G) wireless mobile technologies for fixed- and mobile-network convergence	Greater service flexibility; lower prices; development of mobile Internet; new regulation for convergence; and migration of fixed-line subscribers to mobile platforms
In hardware	3G and 4G mobile multimedia equipment	Access to different services from a single device; multistandard and multiplatform mobile terminals; changes in user habits through the use of smart phones
In applications and data processing services	Cloud computing	Change in ICT business model; access to new ICT services; lower cost of ICT services; lower cost of hardware; new local ICT enterprises; new investments in broadband and data centres
In Web technologies	Web 2.0	Changes in consumer behaviour, Internet- and television-based consumption habits, social relationships and relationships with government services

Source: Economic Commission for Latin America and the Caribbean (ECLAC), ICT for Growth and Equality: Renewing Strategies for the Information Society (LC/G.2466), Santiago, Chile, November 2010.

The first trend has to do with the growing demand for applications on the part of businesses with international operations (the Fortune 500 and the Global 500), which, post-crisis, are in urgent need of cutting costs and optimizing resources by integrating their operations

globally in consolidated and emerging markets. This integration process requires very sophisticated software services, tools and platforms for optimizing work flows, standardizing processes and modelling good work practices.³ Among the success stories in Latin America

³ Noteworthy among the major open-integration software platforms that the leading companies have been using to improve efficiency and operational flexibility are SAP, PeopleSoft and JD Edwards (Oracle). One of the pioneering projects in this sphere is the Global Business Excellence (GLOBE) programme rolled out worldwide by Nestlé in 2000. The GLOBE programme harmonized good business practices, implemented data management systems and

standardized information systems and technology platforms with a view to more efficient supply chains, back-office processes, operations management and innovation in local markets. By mid-2006, nearly 50% of Nestlé's operations were working under GLOBE systems, covering more than 90,000 users, 300 plants, 350 distribution centres and 250 sales offices (IBM Institute for Business Value, 2010; Nestlé, 2006).

are Nestlé in Brazil, Unilever in Chile, Banco Santander in Chile and Mexico and Procter and Gamble in Costa Rica. The major transnational companies in other industries with strong software operations are shown in table V.2.

The second trend relates to hardware industry migration from manufacturing to higher-value-added service segments. This trend highlights two business strategy models that have consolidated over the past decade. On the one hand, a small group of hardware companies has decisively shifted towards services, transitioning from the production of computer hardware to

software services, systems integration and infrastructure development; notable in this group is IBM in Argentina in Mexico. On the other hand, most hardware companies have joined internationally integrated production systems, enabling them to contract standardized manufacturing activities out to independent companies and then specialize in product design and development, which are highly software-intensive. Some 50% of the top 100 hardware companies are producers of highly sophisticated software, notably Hewlett-Packard, Intel, Motorola and Dell in Argentina, Brazil and Costa Rica (ECLAC, 2008; Verberne, 2010).

Table V.2
MAJOR TRANSNATIONAL COMPANIES IN OTHER SECTORS ENGAGED IN SOFTWARE DEVELOPMENT, BY REGION

Sector	United States	Europe	Asia
Conglomerates	General Electric 3M Honeywell	Siemens (Germany) Philips (Netherlands)	
Financial industry	Citigroup J.P. Morgan	Banco Santander (Spain) ING (Netherlands) Allianz (Germany)	
Mass consumption	Procter and Gamble Coca-Cola Colgate-Palmolive	Nestlé (Switzerland) Unilever (United Kingdom) L'Oréal (France)	
Consumer electronics			Samsung (Republic of Korea) Panasonic (Japan) Sony (Japan) LG Electronics (Republic of Korea) Sharp (Japan)
Media	Time Warner News Corporation Walt Disney McGraw-Hill CBS	Pearson (United Kingdom) Vivendi (France)	

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Oliver Wyman, *Communications, Media, and Technology: State of the Industry 2010*; Forbes, "The World's Biggest Public Companies", 2006 [online] h http://www.forbes.com/lists/2006/18/MktVal_1.html.

The third trend involves the transformation of the industry's business model from software as a product to software as a service, or cloud computing, whereby a wide range of services can be provided to users on demand and all of the information and applications are stored on external servers. This generates new markets, with services that are very attractive for customers in terms of range of supply (storage, processing and applications), cost, scalability and flexibility.⁴ Well-known examples include Microsoft, IBM and Hewlett-Packard.

Last, the fourth trend has to do with changing innovation processes as centralized research and development laboratories disappear, new products grow more complex and collaboration becomes necessary to cut development costs and time. The growing importance of the software industry in international collaboration networks is due above all to innovation processes that are increasingly focused on systems design, software architecture and new business models (Amritt Ventures, 2010). Noteworthy examples of this trend in Latin America are Hewlett-Packard, Intel, Motorola, Yahoo and McAfee.

⁴ Cloud computing is emerging as a natural extension and integration of computer science on several fronts: utility computing, distributed computing and Web service and service-oriented architecture. Microsoft has just launched a free-access version of the Office

applications that run on the Windows and Macintosh platforms, through the main Internet browsers — Explorer, Firefox, Safari and Chrome (Motahari-Nezhad, Stephenson and Singhal, 2009; *The Wall Street Journal*, 2010b).

3. Development potential in Latin America

The offshore software industry is transitioning towards consolidation of a global service supply model. Latin America could establish itself as a global software location (as China, India and countries of Eastern Europe have), thanks to the new strategies being pursued by transnational software companies. These strategies consist of combining global operations over different time zones, cost levels and operational risks. The major transnational software companies can thus combine operations in high-cost countries like Canada, the United States and the countries of Western Europe with operations in countries that are relatively lower in cost but pose greater operational risks, such as in Asia and the Pacific, Eastern Europe and Latin America. This global operating model enables companies to better balance customer preferences for nearshore or farshore locations, gain better access to skilled human

resources, manage operational risks better and take advantage of time-zone differences to speed up the project and service cycle.

Evidence on software industry internationalization trends points to relative stability as to the number of new projects developed at offshore locations during the period 2004-2008, with a substantial drop from 2009 in the wake of the international crisis (see table V.3). According to the *Financial Times* fDi Markets online database, 2,749 software industry investment projects were announced between January 2003 and November 2010, located primarily in India (24%), China (10%) and the United States (10%). Latin America's share of the total number of projects announced was 5.7%, compared with 48% for Asia and the Pacific, 21% for Western Europe and 9.5% for Eastern Europe.

Table V.3
SOFTWARE PROJECT DEVELOPMENT WORLDWIDE BY REGION, 2003-2010
(Number of projects)

Region	2003	2004	2005	2006	2007	2008	2009	2010 ^a	Total
Asia and the Pacific	172	226	187	199	134	180	110	92	1 300
Western Europe	34	56	71	80	90	98	81	64	574
North America	11	25	27	13	51	72	65	81	345
Rest of Europe	21	27	34	56	34	36	21	30	259
Latin America and the Caribbean	12	11	12	19	25	22	33	25	159
Middle East	4	3	3	18	4	15	3	8	58
Africa	8	2	8	8	6	13	6	3	54
Total	262	350	342	393	344	436	319	303	2 749

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of fDi Markets [online database], November 2010.

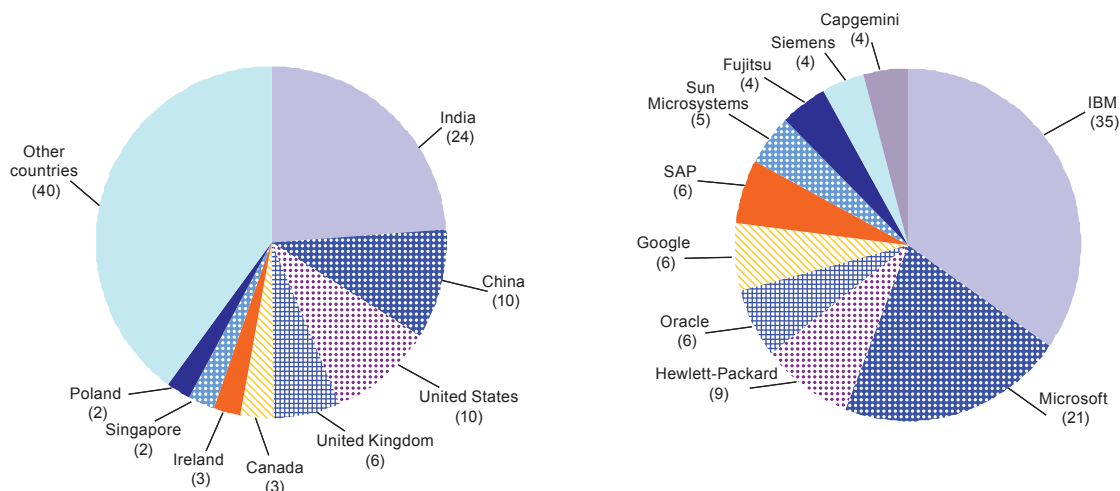
^a Data to November 2010.

The most significant trends include (a) between 2003 and November 2010, Asia and the Pacific was the region that attracted the most projects, followed by Western Europe; (b) after the international crisis, the number of projects fell off in Asia and the Pacific and Eastern Europe; and (c) the number of projects held steady or increased in North America and Latin America.

The 10 principal companies with global software projects were IBM, Microsoft, Hewlett-Packard, Oracle, SAP, Google, Sun Microsystems (subsidiary of Oracle), Fujitsu, Siemens and Capgemini, which together accounted for 22% of the total (see figure V.1).

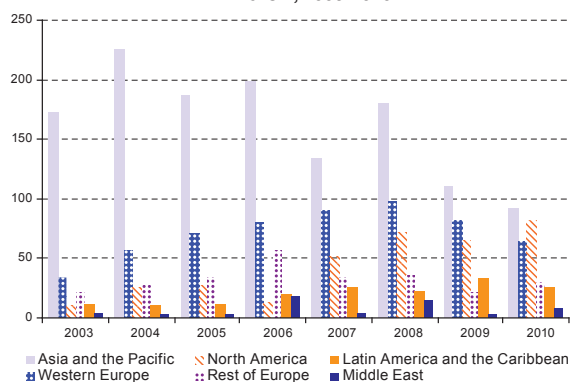
There are three differences between the trend in new project launchings in Latin America and the Caribbean and the worldwide trend for the same period. The first is the growth in the number of projects after the crisis. The second has to do with the growing share of companies from India and Spain. The third concerns the participation of trans-Latin software companies. As figure V.2 shows, between January 2003 and October 2010, 156 software projects were launched in Latin America and the Caribbean and, despite the international industry slowdown, a record number of new projects were launched in the region in 2009.

Figure V.1
ANNOUNCED SOFTWARE PROJECTS BY COUNTRY AND AMONG THE TOP 10 COMPANIES
(Percentage of total number of projects)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of fDi Markets [online database].

Figure V.2
NUMBER OF ANNOUNCED SOFTWARE PROJECTS
BY REGION, 2003-2010



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of fDi Markets [online database].

The three principal countries of origin of the announced projects were the United States (53%), India (15%) and Spain (6%), followed by Brazil and Chile (see table V.4).

Of the 102 companies that have invested in Latin America, IBM is the most active, with 17 new projects announced; it was followed by Microsoft, Tata Consultancy Services, Oracle and Hewlett-Packard, which, together, accounted for 26% of the projects. Trans-Latin companies accounted for 10 projects; a noteworthy example is Sonda in Chile. The principal locations included Brazil, with 36% of the projects; Mexico, with 23%; Argentina, with 16%; and Chile, with 14% (see figure V.3).

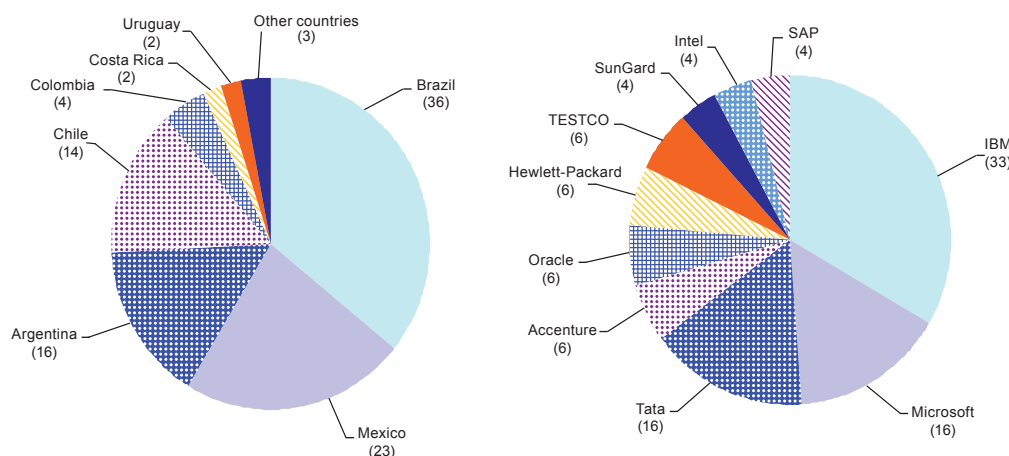
The primary cities where announced projects were located were, in descending order, São Paulo, Buenos Aires, Santiago and Monterrey (see table V.5).

Table V.4
LATIN AMERICA AND THE CARIBBEAN: ANNOUNCED SOFTWARE PROJECTS BY COUNTRY OF ORIGIN OF THE INVESTMENT, 2003-2010
(Number of projects)

	2003	2004	2005	2006	2007	2008	2009	2010	Total
United States	7	4	4	14	8	12	22	11	82
India	1	1	3		7	1	6	5	24
Spain	2	1		1	2	2	1		9
France	1								1
Germany	1			1	1	1		1	5
Chile			1		1			3	5
Brazil	1				1		2	1	5
Bermuda		1	1				1		3

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of fDi Markets [online database].

Figure V.3
LATIN AMERICA AND THE CARIBBEAN: ANNOUNCED SOFTWARE PROJECTS BY COUNTRY AND AMONG THE TOP 10 COMPANIES
(Percentage of total number of projects)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of fDi Markets [online database].

Table V.5
LATIN AMERICA: PRINCIPAL CITIES WITH ANNOUNCED SOFTWARE PROJECTS

	Number of projects	Share of total (percentages)
São Paulo (Brazil)	26	16
Buenos Aires (Argentina)	11	7
Santiago (Chile)	9	6
Monterrey (Mexico)	8	5
Guadalajara (Mexico)	8	5
Bogota (Colombia)	6	4
Mexico City (Mexico)	4	3
Rio de Janeiro (Brazil)	4	3
Curitiba (Brazil)	3	2
Querétaro (Mexico)	3	2
Other cities	77	47
Total	159	100

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of fDi Markets [online database].

C. Business strategies for foreign direct investment in the software industry and their contribution in Latin America

1. The software industry in Latin America

The importance of the software industry in Latin America can be seen in burgeoning sales and exports. Table V.6 provides estimated figures for seven countries of the region, with high rates of growth in all of them. Nevertheless, the ratio of exports to total sales (export ratio) is relatively low

compared with international successes like India and Ireland. Except in Costa Rica and Uruguay, software industries have been primarily oriented towards domestic markets. Nevertheless, in most countries this trend has reversed in recent years, especially in Argentina, Chile and Mexico.

Table V.6
LATIN AMERICA (7 COUNTRIES): ESTIMATED SOFTWARE INDUSTRY SALES AND EXPORTS

Country	Software sales	Software exports	Export ratio (percentages)
	(millions of dollars)		
Argentina			
2003	943	170	18
2009	2 440	547	22
2010	2 834	629	22
Brazil			
2004	9 349	262	3
2006	16 884	885	5
2009 ^a	29 400	2 200	7
Chile			
2008	1 165	270	23
2009	1 219	...	...
Colombia			
2002	614	21	3
2009	1 331	35	3
Costa Rica			
2006	173	80	46
Mexico			
2006	2 400	500	21
2008	4 617	...	...
2009	...	1 400	...
Uruguay			
2004	226	76	34
2008	500	219	44

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Argentinian Chamber of Software and Information Technology Businesses (CESSI), SOFTEX Observatory of Brazil, Brazilian Association of Information and Communications Technology Companies (BRASSCOM), Colombian Software Industry Federation (FEDESOFTE), Chamber of Software Producers of Costa Rica (CAPROSOFT), Chilean Association of Information Technology Companies (ACTI), Mexican Association of the Information Technology Industry (AMITI), Uruguayan Chamber of Information Technologies (CUTI) and International Data Corporation (IDC); Tholons and Clemente Ruiz Durán, "El reto de las tecnologías de la información", Mexico City, National Autonomous University of Mexico (UNAM), 2007.

^a Including hardware.

While these countries vary widely in size and in the degree of development of their software industry, they can be classed in three categories according to industry development patterns. In the first category are countries with large, dynamic markets that have developed an industry oriented towards the domestic market; such is the case with Brazil and Mexico. The second category comprises countries with small markets whose software industry is primarily export-oriented, like Costa Rica and Uruguay. In the third category are countries that combine both features, with middle-sized markets and an industry that is both domestically and export-oriented. Examples are Argentina, Chile and Colombia. The following sections track industry development and service supply and identify the principal transnational software companies in each of these groups (ECLAC, 2009; Gereffi, Castillo and Fernandez-Stark, 2009; Bastos Tigre and Silveira Marques, 2009; Bastos Tigre and others, 2009).

(a) The software industry in Brazil and Mexico

The development of the software industry in Brazil and Mexico and, to a certain extent, in Argentina can be traced back to former industrialization strategies that led to the establishment of a productive manufacturing base and to specialization in information technology and electronics.

Industrialization along these lines also attracted the main hardware manufacturers at the time and led to the transfer of new, ICT-related technologies and the development of specialized human resources. The main difference between Brazil and Mexico is that the former stands out for its attractive domestic market and the latter for its geographical proximity to the United States market.

The economic opening that began in the 1990s coincided with the birth of software company offshoring in Latin America as the hardware and electronics industries shifted to China and other Asian countries. The main hardware companies with a presence in Brazil and Mexico (such as IBM, Hewlett-Packard and Unisys) began to turn their manufacturing plants into service centres, taking advantage of the available infrastructure and skilled human resources. That is why the major software development centres in Latin America are now found in locations that had a robust specialization in electronics, such as São Paulo, Guadalajara and Monterrey.

At the same time, major United States-based suppliers specializing in software began to explore locations close to that market, chiefly in Mexico, setting up basic IT service centres. Among them were EDS (then an affiliate of General Motors) and Affiliated Computer Services. This was followed by the arrival of software suppliers based originally in Europe, like SAP and Siemens, and

a wave of major suppliers based originally in India, such as Tata Consultancy Services, Infosys, Wipro and HCL.

As the electronics industry developed, a local business base materialized in Brazil and Mexico, leading to a range of start-ups. Key local enterprises that have achieved international status include CPM, Politec, Ci&T, TIVIT, TOTVS and Stefanini in Brazil, and Softtek, Neoris and Hildebrando in Mexico.

This development has taken place against a backdrop of public policies aimed at promoting the sector, with differing approaches as to strategies, support programmes and special legislation. Brazil and Mexico, as federal

States, combine international promotion programmes, national incentives and benefits offered by individual states. Promotion and marketing are handled by the Trade and Investment Promotion Agency (APEX) in Brazil and by Banco Nacional de Comercio Exterior in Mexico.

In both countries, the federal states operate with a certain degree of autonomy in promoting investment; they use tax exemptions and special land-use agreements and provide infrastructure and subsidies for training. The most attractive locations in Brazil include Campinas and Greater São Paulo. In Mexico, they are Mexico City, Guadalajara and Monterrey (see box V.5).

Box V.5

EXPORTING SOFTWARE FROM ELECTRONICS CLUSTERS: THE CASE OF MEXICO

Mexico's specialization in the export electronics industry gave rise to highly specialized software centres such as those of Intel, IBM and Hewlett-Packard. Software exports are led by major transnational software companies located in Guadalajara and Monterrey, while Mexico City (where a large part of the population is concentrated) is more specialized in business services. In these cities, the software business built on the reconfigured electronics industry and the availability of professionals specializing in engineering. This process got a boost from cooperation initiatives between businesses, universities and development institutions. The University of Guadalajara and the Monterrey Institute of Advanced Technological Studies have played a key role in training qualified engineers, supporting business initiatives and conducting research.

In the 2000s, service outsourcing companies from Europe, India and the United States began to open information technology (IT) and business process outsourcing (BPO) service centres as a nearshoring option to serve the United

States market. The arrival of companies from India was spearheaded by Tata Consultancy Services (TCS), which established its second centre in the region in 2003 (the first was in Uruguay). Infosys followed suit in 2008. Guadalajara became a hub for developing software specialized in niche services, such as the design of semiconductors, integrated software and multimedia products. Monterrey has benefited from a dynamic business environment that has fed a larger number of local IT companies, such as Softtek and Neoris, which have grown and are competing internationally.

The case of Guadalajara

With a population of nearly 7.3 million, Jalisco is the fourth largest state in Mexico. Its capital, Guadalajara, with 4.3 million inhabitants, has become one of the most attractive destinations for IT companies seeking to establish global centres with time-zone and geographical proximity to the United States market. Companies like Intel and Texas Instruments in the hardware segment and IBM, Hewlett-Packard and

TCS in the service segment have set up service and development centres in Guadalajara that provide international coverage. Guadalajara has emerged as a software development hub thanks to readily available human resources, industry promotion policies put in place by the state government and partnerships forged between businesses, universities and the government. The universities have played a key role by improving the supply of professionals in the areas of electronics, semiconductors and information technology and by linking with international companies to keep course content up to date and to partner in research and development.

Among the promotion policies put in place by the State of Jalisco are programmes providing incentives for the electronics and software industry in the form of tax breaks and subsidies for companies. Noteworthy infrastructure development initiatives launched in close cooperation with other private institutions include software development centres in Plaza del Ángel, Ciudad Guzmán and Chapala.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of interviews; P. Mochi and A. Hualde, "México: producción interna e integración mundial", *Desafíos y oportunidades de la industria del software en América Latina*, P. Bastos Tigre and Felipe Silveira Marques (eds.), Bogota, Economic Commission for Latin America and the Caribbean (ECLAC)/May 2009; *Business News Americas*, "Jalisco, el Silicon Valley de Latinoamérica", 2008 [online] http://www.bnamericas.com/news/tecnologia/ANALISIS:_Jalisco,_el_Silicon_Valley_de_Latinoamerica.

The main incentives provided in Brazil are tax incentives for investment and for research and development, in addition to preferential conditions for setting up businesses in technology parks. In Mexico, the legislation governing the promotion and operation of the maquila industry was expanded in 2006, thus benefiting the software industry.

Brazil, along with Argentina, has the most highly developed software industry promotion policy in the region. Support for the industry is based on the Information Technology Act passed in 1991 and the 2003 industrial policy guidelines, which were deepened in 2008. Although

the original purpose of the Act was to support the hardware industry by offering tax exemptions to equipment manufacturers investing in research and development, it ended up also benefiting software companies involved in the production of hardware.

In 2003, software was included in the four strategic areas covered by Brazil's industrial, technological and foreign trade policy guidelines, enabling the industry to tap support mechanisms such as financing lines (National Bank for Economic and Social Development (BNDES)) programme for developing the domestic software and IT

services industry (BNDES-Prosoft)), support for research and development, venture capital (Studies and Projects Financing Entity (FINEP)), support from APEX for exports under the SOFTEX programmes and tax benefits for technology service export platforms.

In May 2008, Brazil launched a new policy for productive development, with a focus on promoting the software and IT service industry as one of the six programmes driving the policy. This programme—which pursues a strategy of targeting and winning markets under the coordination of the Ministry of Science and Technology and the Ministry of Development, Industry and Foreign Trade—sought to position the country as an important producer and exporter of software and IT services. It set export targets (US\$ 3.5 billion in 2010), created 100,000 formal jobs and consolidated two domestic technology groups or companies with sales in excess of 1 billion reais (some US\$ 700 million). The main challenges were seen as achieving international insertion of the industry, stepping up investment in technology training, strengthening domestic-technology Brazilian companies by supporting their consolidation and developing the “Brazil IT” brand. The programme to promote the software industry meshed with three other programmes focused on microelectronics, infrastructure

for digital inclusion and production of display devices. These four programmes were expected to boost production chain density and win domestic and external markets (BNDES, 2008).

Mexico, in addition to its programmes for maquila production of services and support for innovation and competitiveness, launched in 2002 the Software Industry Development Programme (PROSOFT) under the coordination of the Secretariat for Economic Affairs. There has also been a policy focus on encouraging the creation of public-private partnerships for developing the sector. Among the principal support programmes are financing lines (Nacional Financiera); programmes for training human resources, promoting exports and attracting investments (MexicoIT); and the development of technology clusters.

Development of the industry in Brazil and Mexico has been spurred by a growing alliance of public and private players at the federal and state levels. The increased capacity of the software industry can be seen in the degree of territorial specialization, with different public-private partnership arrangements tapping national government support programmes, developing software all along the value chain and generating externalities in the training of human resources and in technology transfer and development (see table V.7).

Table V.7

BRAZIL AND MEXICO: PRINCIPAL TERRITORIAL SPECIALIZATION CAPACITIES IN THE SOFTWARE INDUSTRY

Ubicación	Major university/institute	Anchor companies	Technology parks	Public-private partnerships
Brazil				
São Paulo	University of São Paulo (USP)	IBM	Tech Town Condominium	SOFTEX Brazilian Association for the Promotion of Software Exports
Rio de Janeiro	Pontifical Catholic University of Rio de Janeiro			
Campinas	State University of Campinas	IBM and Dell		
Porto Alegre	Pontifical Catholic University of Rio Grande do Sul	Dell and HP	Tecnopuc	
Recife	Federal University of Pernambuco	Nokia and Sony/Ericsson	Porto Digital	
Mexico				
Mexico City	National Autonomous University of Mexico			PROSOFT MexicoIT
Guadalajara	University of Guadalajara	IBM, Intel and HP	Plaza del Ángel Ciudad Guzmán Chapala	
Monterrey	Monterrey Institute of Advanced Technological Studies (ITESM)			

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of interviews; Paulo Bastos Tigre and others, “Desafíos y oportunidades para la industria del software y servicios en Argentina y Brasil: un estudio de cluster”, Knowledge Economy in Latin America and the Caribbean project, International Development Research Center (IDRC)/Latin American Faculty of Social Sciences (FLACSO), 2009.

According to background data for Brazil and Mexico, prospects for software industry growth are good. But there are significant challenges to face. The industry’s

competitive advantages lie in a dynamic, diversified domestic market specializing in IT applications with a relevant mix of vertical industries (financial, manufacturing, retail,

transport, logistics and energy); international certifications; and knowledge of applications on diverse platforms like Oracle, SAP, CRM, Unix and Linux. In this context, the main challenges have to do with increasing productivity in order to offset the rising cost of operating the centres, increasing the number of graduates in ICT-associated fields and boosting the export capacity of local companies.

(b) The software industry in Argentina, Chile and Colombia

Software offshoring to Argentina, Chile and Colombia began to develop in the 2000s, with varying paces and areas of growth. Of the 159 new software projects recorded as FDI in Latin America over the past eight years, 35% were set up in these three countries (25 centres established in Argentina, 23 in Chile and 7 in Colombia). This recent development is due to the fact that these countries have also been able to capitalize on their relative proximity to the United States market, and they have placed their skilled human resources on the international market at a competitive cost.

Argentina has led the software offshoring industry in South America thanks to its extensive network of higher education institutions that are capable of providing a constant flow of graduates in cities like Buenos Aires, Córdoba and Rosario. After the peso devaluation in 2002, Argentina became a very cost-attractive location; this favoured the installation of new centres and the expansion of existing ones, such as those of IBM, Motorola, Intel, Tata Consultancy Services and Hewlett-Packard/EDS (ECLAC, 2009).

Argentina has a set of policies aimed at promoting the software industry, mainly through tax incentives. At the provincial level, tax exemption, infrastructure subsidy and public service programmes have been instrumental in supporting the industry in Buenos Aires, Córdoba and Rosario. The principal instruments for support are the software promotion regime adopted in 2004, which grants payroll and profit tax relief, and the Trust Fund for the Promotion of the Software Industry (FONSOFT), which provides financing for research and development projects, human resources training, process improvements and start-ups (see box V.6).

Box V.6

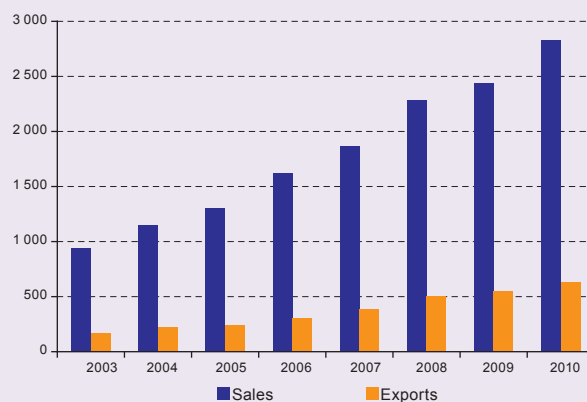
THE SOFTWARE INDUSTRY IN ARGENTINA

The software industry in Argentina has performed spectacularly, tripling its sales during the period 2003-2010. Among the reasons for such growth are the recovery of the domestic market after the 2001-2002 crisis and the substantial increase in exports

(Bastos Tigre and others, 2009). Exports nearly quadrupled during the same period, thanks to the industry's cost advantages in Argentina following the currency devaluation in early 2002, the availability of skilled human resources and business export strategies.

Public policies put in place over the past few years have significantly benefited small and medium-sized enterprises, contributing to their growth and modernization.

ARGENTINA: SOFTWARE INDUSTRY SALES AND EXPORTS
(Millions of dollars)



Box V.6 (concluded)

ARGENTINA: POLICY INCENTIVES FOR THE SOFTWARE INDUSTRY

Policy area or instrument	Public and private programmes	Subsidies and financing	Special legislation	Regional development
Human resources	Information and communications technology scholarships and support for technical degree courses	Training		
Attracting investments	International promotion			
Development of local industry	Digital agenda and State procurement	Research and development programmes; certification and exports; financing	Payroll tax credit of 70% and 60% profit tax reduction	Local productive systems in Rosario, Mendoza, Neuquén, Chaco, Corrientes, Tucumán and Mar del Plata
Regulatory framework	Software industry		legislation (2004)	Provincial accession legislation
Public-private partnerships				Cluster initiatives: Córdoba and Rosario

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Secretariat of Industry, Trade and Small and Medium-sized Enterprises, Software and Information Technology Services Sector, Ministry of Production, Government of Argentina, June 2010; Argentinian Chamber of Software and Information Technology Businesses (CESSI); "Industria argentina de software y servicios informáticos", 2010; Paulo Bastos Tigre and others, "Desafíos y oportunidades para la industria del software y servicios en Argentina y Brasil: un estudio de cluster", Knowledge Economy in Latin America and the Caribbean project, International Development Research Center (IDRC)/Latin American Faculty of Social Sciences (FLACSO), 2009.

The industry developed more recently in Chile and Colombia than in Argentina, but it grew quickly during the second half of the decade. In both countries, the industry developed over a period of no more than five years.

Chile designed an active policy for attracting investments through its Economic Development Agency (CORFO), encouraging the installation of applications centres and, more recently, higher-value-added software engineering centres. This is an example of balanced

development, combining capacities across segments of the value chain, where the competitive advantages lie in the combination of economic stability, human resources quality and costs. Chile does not offer tax exemptions but rather direct incentives for training, technology infrastructure co-financing and long-term leases. These incentives are complemented by training programmes in English for technicians and engineers and by the strengthening of institutions for advanced training (see box V.7).

Box V.7

CHILE: TOWARDS A GLOBAL SERVICES PLATFORM

In 2000, the Chilean Economic Development Agency (CORFO) began to take steps towards developing the global services industry. It started by setting up programmes to attract FDI in information and communications technologies (ICTs), based on experiences in Costa Rica and Ireland aimed at promoting global services centres (software development, ICT services and business process outsourcing). Financial incentives were established, international promotion programmes were launched and other initiatives were rolled out for meeting the needs of international companies in terms of human resources, infrastructure and regulations in the areas of service exports and immigration procedures.

With the establishment of the National Council on Innovation for Competitiveness

in 2007 came a long-term strategy for the industry and the creation of a public-private coalition that would turn Chile into a world-class global services platform and create a new export sector with service exports of at least US\$ 1 billion by 2010. This public-private coalition—made up of governmental and private agencies working on innovation, business associations, senior managers of transnational companies established in the country and representatives from universities and technical training institutions—coordinated a plan of action with initiatives in human resources training, international investment promotion and attraction, and local industry development and regulation.

Chile's strategy succeeded in positioning the country internationally and

in increasing its exports of global services. Its position among leading countries in Latin America has been highlighted by various international ratings, such as the A.T. Kearney Global Services Location Index, Global Services Ranking, Black Book of Outsourcing, KPMG Global Outsourcing Destination and Gartner Country Destination for Offshore Services.

Chile now exports global services through more than 60 global services centres. Most of the exports are engineering services, software development and ICT services. Noteworthy among the software development and ICT services companies installed in Chile are Capgemini, Oracle, Accenture, Everis, Banco Santander, J.P. Morgan, Citibank, Experian, Equifax, Yahoo, Synopsys and McAfee.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Boston Consulting Group, "Estudios de competitividad en clusters de la economía chilena. Informe final" [online] http://www.economia.cl/1540/articles-187159_recurso_1.pdf, 2007; Mario Castillo, "La industria global de servicios. Oportunidades para Chile", *Globalización económica: oportunidades y desafíos para Chile*, Jorge Leiva and Mario Castillo (eds.), Santiago, Chile21/CORFO, 1998; Economic Development Agency (CORFO), "El nacimiento de una nueva industria. Servicios globales", Cluster de Servicios Globales, Santiago, Chile, March 2010.

Colombia recently began to develop the area of business services and is gradually moving towards greater-value-added areas associated with information technologies. Among the major providers of global services located in Colombia are business process outsourcing (BPO) centres, such as Convergys, SITEL, Atento, Digitex and Hewlett-Packard/EDS, and software centres for companies such as Hewlett-Packard, Indra, SAP and IBM. Colombia has also launched initiatives for supporting the sector, such as the National ICT Plan and tax exemptions for companies engaging in research and development. In addition, there is an industrial park programme that operates like a free zone, complemented by tax exemptions for companies locating anywhere in the country and by English-language training programmes for professionals.

(c) **The software industry in Costa Rica and Uruguay**

In Central America and the Caribbean there is a wide range of experiences in developing the business services industry. A good example is Costa Rica, which during the 1990s launched a strategy for attracting major international software centres. Other examples include the installation of an Intel plant in 1998, the opening of the Procter and Gamble shared services centre in 1999 and, starting in 2000, centres for companies like Western Union, Hewlett-Packard and IBM. Costa Rica's unique model is built on its successful strategy for attracting foreign investment, shepherded by the Costa Rican Investment Promotion Agency (CINDE). While CINDE is private, it operates with support from—and coordinates with—public institutions within the framework of the Science and Technology Promotion Act.

Costa Rica, a small market with a small population, chose to specialize in high-value-added services in which software development has played a significant role. There are several global software centres that have achieved international excellence, such as Intel and Hewlett-Packard in developing corporate software; Ridge Run in embedded software; Avionyx in software for the aviation industry; VIA Information Tools for the automobile industry; Slim Soft in the manufacturing industry; Fiserv, Sistemas Galileo and Global Insurance Technology in the financial industry; Schematic in the media industry; and Simple Software Solutions in business management systems. Noteworthy local companies developing software at the international level include ArtinSoft, which specializes in automated migration of systems and database solutions for the European and United States markets.

Uruguay is a special case in that it began to develop its software export industry in the 1990s and has since posted the fastest growth in the region and the best export performance. Initially, Uruguay developed an export-oriented local software industry while creating an environment for attracting international centres such as those of Tata Consultancy Services, Sabre, Trintech, IBM and Microsoft. In 2008 the country was home to more than 250 software development and integration companies and some 80 Internet service companies, with nearly US\$ 219 million in exports to markets in Latin America, North America and Europe. The policy measures put in place to support the sector included declaring the software industry to be of national interest, thus exempting export activities from income tax. Other measures included the establishment of free economic zones (Zonamerica), more flexible labour agreements, financing for research and development projects and support for sector competitiveness projects (CUTI, 2011).

2. **Transnational software company business strategies and their contribution to the economy**

Latin America has become a strategic location for most transnational software companies that have implemented successful internationalization strategies and established themselves as leaders, both regionally and internationally. Table V.8 shows the major transnational software companies that have consolidated their operations in the region and are taking on a key role in the transfer of new technologies, the training of human resources and export supply development.

The cases discussed in this section concern the best-known transnational software company experiences

in software applications, services and engineering. For each category, the most representative companies, by ownership origin, were examined. They were IBM, Hewlett-Packard, Dell, Intel and Motorola, among the United States companies; SAP, Capgemini and Indra, among the European companies; Tata Consultancy Services, Infosys, Wipro and HCL, among companies from India; and Globant, TOTVS and Sonda, among the trans-Latin companies.

Table V.8
PRINCIPAL TRANSNATIONAL SOFTWARE COMPANIES OPERATING IN LATIN AMERICA

Segment	Global transnational software companies			Latin American transnational software companies			
	United States	Europe	India	Argentina	Brazil	Chile	Mexico
Software applications	Microsoft Oracle IBM Hewlett-Packard	SAP Indra		Globant	TOTVS		
Software services	IBM Hewlett-Packard/ EDS Accenture Xerox	Capgemini Indra	Tata Consultancy Services Infosys HCL Wipro	G&L Assa	TOTVS CPM Stefanini Politec	Sonda Quintec Adexus Coasin	Softtek Neoris Hildebrando
Software engineering	Hewlett-Packard Google Dell Yahoo Intel Motorola Synopsis McAfee	SAP					

Source: Economic Commission for Latin America and the Caribbean (ECLAC), based on interviews.

(a) United States-based transnational software companies in Latin America

United States-based transnational software companies have been growing in Latin America (see box V.8). They may be divided into two groups, according to corporate strategy. The first group comprises companies with strategies for consolidating their global IT service centres, such as IBM and Hewlett-Packard. The other is made up of companies with strategies for consolidating their software engineering centres, such as Dell, Intel and Motorola (ECLAC, 2009; Bastos Tigre and others, 2009).

In the cases examined, there is evidence of technology transfer spurred by the offshoring of service and

engineering centres. In each location in Latin America where these companies have global operations, the technology content of these services has evolved and programmes have sprung up for collaborating with universities, business associations and local governments in human resources training, infrastructure and technology transfer. Examples of relevant initiatives associated with technology campuses of companies in Argentina, Brazil, Costa Rica and Mexico are partnerships with major engineering schools and with local governments for developing human resources and infrastructure; the development of new patents; and the use of venture capital funds (like Intel Capital and Motorola Ventures) for supporting technology start-ups.

Box V.8
PRINCIPAL UNITED STATES-BASED TRANSNATIONAL SOFTWARE COMPANIES OPERATING IN LATIN AMERICA

Transnational software companies have different mixes of software services that combine applications development, services, engineering and, in some cases, hardware products. The integration of software and hardware services is one of the principal

characteristics of United States-based transnational software companies operating in Latin America. These large companies have three things in common: strong leadership position in their respective business segments, with a high level of investment in

research and development; global service strategy based on operating multiple centres around the world; and a significant presence in Latin America. For these companies, the region has been key to their strategy for consolidating their global service centres.

Company	Worldwide sales in 2010 (millions of dollars)	Investment in research and development in 2009 (millions of dollars)	Number of employees worldwide in 2010
IBM (United States)	103 150	4 790	399 000
Hewlett-Packard/EDS (United States)	133 970	2 730	325 000
Dell (United States)	53 059	604	96 000
Intel (United States)	45 240	5 480	79 800
Motorola Mobility (United States)	13 295	3 080	20 000

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Thomson Reuters [online] <https://www.thomsonone.com>; European Commission, *The 2010 EU Industrial R&D Investment Scoreboard*, 2010.

(i) *Strategies for consolidating global service centres: the cases of IBM and Hewlett-Packard*

• IBM

IBM is one of the highest-market-value, largest IT companies in the world. It is also one of the most globalized and influential across the industry, with the sole exception of mobile technologies (see box V.9). IBM shifted sharply towards the services industry when it acquired PwC Consulting in 2002 and sold

the IBM personal computer manufacturing division to Lenovo in 2004. IBM's strategy has been to become more competitive and to scale up its operations through service integration and specialization and by adopting an active acquisitions stance and creating a network of global services centres. IBM stands out for its integrated portfolio of services in strategic business areas, such as systems optimization and smart applications, achieved by acquiring firms such as Clarity Systems, PSS Systems and Blade Network Technologies, among the most recent ones.

Box V.9

IBM RESEARCH AND DEVELOPMENT IN LATIN AMERICA

IBM has nearly 3,000 researchers across the globe, and it invests almost US\$ 4.79 billion yearly in research and development. It has nine research labs in seven countries (see table), including the facilities opened in June 2010 in

São Paulo and Rio de Janeiro to specialize in natural resource management, new device development, smart human systems building on the industry's latest advances in systems optimization, mobile technologies and

semiconductors. These centres are expected to hire some 100 researchers and enter into cooperation agreements with universities, research centres and businesses in Brazil and in the rest of Latin America.

IBM'S GLOBAL NETWORK OF RESEARCH AND DEVELOPMENT CENTRES

Country	Year opened	Location
United States	1955	San José, California (Almaden)
Switzerland	1956	Zurich
United States	1961	New York and Massachusetts (Thomas J. Watson)
Israel	1972	Haifa
Japan	1982	Yamato and Tokyo
China	1995	Beijing and Shanghai
United States	1995	Austin, Texas
India	1998	New Delhi and Bangalore
Brazil	2010	São Paulo and Rio de Janeiro

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from IBM Research Labs [online] <http://www.research.ibm.com/>.

IBM's longstanding presence in Latin America dates back to its office equipment and, subsequently, hardware manufacturing operations in Argentina, Brazil and Mexico. During the 1990s it began to change its facilities over from manufacturing equipment to increasingly value-added IT services. IBM's operations in the region have been oriented not only towards serving local markets, but also towards establishing global and regional centres that operate on an international scale and are highly specialized in IT services, software development and research. IBM's main global operations in the region break down into three broad types of centre. They are:

- Global centres in Argentina and Brazil, operating in an international network with similar centres in China, Egypt, India, the Philippines, Romania and Viet Nam. These centres provide IT support, processing, remote monitoring of complex systems and software development services. Some 900 professionals work at the centre in Buenos Aires; the Hortolândia facility in São Paulo has about 3,000 employees;

- The regional software development centres in Brazil and Mexico, with their software laboratories geared towards demand solutions, testing and development of applications for vertical industries. Nearly 700 software development engineers work at the technology campus in Guadalajara, while some 100 professionals work at the software laboratory in Mexico City;
- The Research and Development Centre in Brazil, which is part of an international network of nine research laboratories located in seven countries.

• Hewlett-Packard

Hewlett-Packard (HP) is one of the largest and most diversified companies in the IT industry. Like the top companies in the industry, it has followed a clear strategy of moving out of hardware components and maximizing its software and services operations by means of acquisitions. The historic acquisition of EDS in 2008 was followed by

operations involving networks, mobile technology, software, warehousing and security firms —most recently 3Com, Palm, Fortify Software, 3PAR and ArcSight.

HP's presence in the software industry in Latin America has been shaped by two factors: historical location patterns for HP hardware manufacturing plants (HP service centres) and General Motors automotive plants (EDS service centres); and, recently, strategies for providing global services for in-house applications and for external clients. HP has thus developed a BPO services platform and has phased in software development and research and development operations. Among its major global centres in the region are those located in San José, Costa Rica (6,500 employees), Guadalajara, Mexico (5,000 employees) and Córdoba, Argentina (1,000 employees), encompassing global BPO services, IT infrastructure support and software development.

HP has sought to place its new centres elsewhere than in capital cities, in locations with good universities, qualified human resources and suitable infrastructure. In addition to its existing global operations in San José, Córdoba and Guadalajara, it has announced others in Porto Alegre (Brazil), Ciudad Juárez (Mexico) and, recently, Medellín (Colombia).

HP is increasingly focusing on software development, combining global services centres with smaller, more specialized operations. Some noteworthy examples associated with software development are listed below:

- At the global services centre in Guadalajara, in addition to providing BPO services for the company's management processes worldwide, there is a team of nearly 500 professionals specializing in IT infrastructure support, software development and research and development;
- The Porto Alegre Software Development Centre, located in the Pontifical Catholic University of Rio Grande do Sul technology park (Tecnopuc), employs some 400 professionals who are partnering with several universities as they work on digital printing, software algorithms and high-performance computing;
- The global services centre in Córdoba, besides providing BPO services, has a software applications development unit with 400 professionals and an infrastructure and database management unit with the same number of staff. Both units are expanding;
- Separate from the global BPO centre in San José, in 2008 HP set up a research and development centre to design software for wireless networks and highly complex microprocessors. This centre is operating in the Ultrapark free economic zone in Heredia, with nearly 110 engineers who are highly skilled in designing integrated circuits and embedded software and in testing complex applications.

(ii) *Strategies for consolidating software engineering centres: the cases of Dell, Intel and Motorola*

Dell, Intel and Motorola have all set up software engineering centres in the region, associated with the production of hardware components and support for in-house activities. These development centres, located in Argentina, Brazil, Costa Rica and Mexico, have given rise to groups of highly specialized, internationally certified professionals working at the industry's technology frontier.

- Dell Computer

Dell Computer offers a wide range of products, including mobile devices, computers, software, peripherals, servers, data warehouse appliances and networks, plus ICT services and business processes. This company, which revolutionized the Web-based ICT business, has maintained its leadership in the integration and optimization of complex systems and stands out for developing a new generation of servers and data centres that operate the highest-capacity and highest-speed websites in the world. It has rolled out a diversification strategy geared towards ICT services, acquiring Perot Systems Corporation for about US\$ 3.5 billion in 2009. This acquisition brought services into Dell's business areas, including applications development, technology, business processes and consulting.

Dell has had a presence in Latin America since 1999, when it invested US\$ 108 million in its first manufacturing plant in the region, in Eldorado do Sul in the State of Rio Grande do Sul, Brazil. It added a technical support centre at this facility and later set up a second hardware plant in Hortolândia, São Paulo (Nelson, 2009). Another major Dell initiative was to set up a corporate software development centre in partnership with the Pontifical Catholic University of Rio Grande do Sul in Porto Alegre. The centre employs more than 200 professionals and is part of a network of Dell centres in Austin (United States), Bangalore (India) and Saint Petersburg (Russian Federation).

Through the Perot Systems operation, Dell has a service outsourcing centre in Guadalajara, Mexico, with a staff of nearly 400 professionals, providing ICT infrastructure services to customers in the United States and Latin America. This centre is part of Dell's global network of centres in China, Germany, India, Ireland, the Netherlands, Romania and the United Kingdom.

- Intel Corporation

Intel Corporation is a leading company in the semiconductor industry, designing and producing ICT components such as microprocessors, motherboards, network components and other hardware platforms.

Like other leading corporations, Intel is developing new hardware and software architectures to address the challenges associated with broadband connectivity, mobile technologies, virtualization and cloud computing, collaborative networks, security and energy efficiency. Over the past few years, Intel has acquired technology companies in the areas of embedded software for mobile systems, new memory and warehousing technologies, image processing and security software, notably Wind River Systems, Micron Technology, Numonyx, CognoVision and McAfee.

Intel has a significant technology innovation presence in Latin America (see box V.10). A good example is its production plant in Costa Rica, which is part of the global network of microprocessor assembly and validation plants located in China, Malaysia, the Philippines and Viet Nam. It has software research and development capabilities in Argentina, Costa Rica, Mexico and, recently, Chile (through McAfee), as described below:

- In Argentina, Intel installed in 2006 what was at the time the company's fourth software laboratory in world, after those in China, the Russian Federation and the United States. This centre, which is located

in Córdoba and employs 200 professionals, is specialized in software infrastructure development, new architecture optimization and IT security;

- In Costa Rica, in addition to a microprocessor assembly and validation plant, Intel has a software development centre that covers a range of the company's needs, particularly in the areas of high-volume assembly and test technology development, financial processes and human resources. This centre, located in San José, employs nearly 350 professionals;
- In Mexico, Intel has had a software engineering plant in Guadalajara for 10 years. With a staff of 400 professionals, the centre is specialized in designing, testing and validating integrated circuits and is ramping up to a staff of 800 professionals over a three-year period;
- In Chile, McAfee (a leader in security software) is installing its first research laboratory in Latin America. This is in addition to three others located in global centres in Santa Clara (United States), Bangalore (India) and London. This laboratory will employ some 60 professionals.

Box V.10

INTEL RESEARCH AND DEVELOPMENT IN GUADALAJARA

With a network of more than 30 research laboratories around the globe, Intel is one of the companies investing the most in research and development (more than US\$ 5.4 billion yearly). Among its principal centres in Latin America is the research and development facility in Guadalajara, Mexico, with a professional staff of some 400. Lines of research at

this centre include optimization technology design for Intel's new platforms, digital prototype design and validation, circuit design and processor microarchitecture. Research is conducted under an ongoing partnership with major universities and research centres, such as the National Autonomous University of Mexico (UNAM), the Western Institute of Technology and

Higher Education (ITESO), the National Institute of Astrophysics, Optics and Electronics (INAOE) and the Research and Advanced Studies Center (CINVESTAV). The Guadalajara facility has performed so well that the company will invest some US\$ 177 million over the next few years to double the size of the centre.

INTEL'S GLOBAL NETWORK OF RESEARCH AND DEVELOPMENT CENTRES

Country	Location
Argentina	Córdoba
Belgium	Leuven and Kontich
China	Beijing
France	Paris and Sophia Antipolis
Germany	Julich, Ulm, Braunschweig, Munich and Saarbrücken
India	Bangalore
Ireland	Dublin, Leixlip (2), Shannon and Maynooth
Mexico	Guadalajara
Poland	Gdansk
Russian Federation	Saint Petersburg
Spain	Barcelona
Switzerland	Geneva
United Kingdom	Winnersh (England) and Belfast (Northern Ireland)
United States	Santa Clara, Berkeley (2), Pittsburgh (2), Seattle, University of Illinois and Hillsboro (Oregon)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of interviews; INTEL WorldWide Research Sites [online] <http://techresearch.intel.com/worldwidesites.aspx>; Business News Americas, "Intel acelerará gastos en innovación", 2011 [online] <http://www.bnamericas.com/news/tecnologia/intel-acelerara-gastos-en-innovacion>.

- Motorola Mobility

Motorola Mobility is a leader in communications infrastructure, mobile technology and wireless devices, integrating products and platforms to deliver multimedia services such as video, voice, messaging and Internet-based applications. It employs some 20,000 professionals worldwide, has development centres in Australia, India and the Russian Federation and has generated more than 24,500 patents. Among its principal digital products are smart mobile devices, wireless accessories, video systems and broadband infrastructure. In 2010 it acquired SecureMedia and BitBand to enhance its technology capabilities for video content development and management. In early 2011, Motorola Mobility completed its spin-off from Motorola Inc. in order to specialize in media, mobility, computing and Internet technology convergence.

Latin America is an important market for Motorola, accounting for nearly 24% of its mobile device sales. The company has led the deployment of broadband communications, telecommunications and public safety infrastructure, offering business mobility solutions, high-definition video and mobile devices. Among Motorola's

software development centres are its facilities in Argentina, Brazil and Mexico. In late 2001, Motorola opened a software development centre in Córdoba (Argentina), which employs nearly 250 highly qualified professionals. This centre has developed software solutions that are used in Motorola products and by Motorola customers in wireless communications, telecommunications infrastructure and software engineering tool design. The company has software engineering and design centres in São Paulo (Brazil) and Monterrey (Mexico) and a manufacturing plant in Reynosa (Mexico).

(b) Europe-based transnational software companies in Latin America: the cases of SAP, Capgemini and Indra

The strategies that a number of Europe-based transnational software companies have pursued for expanding into the Latin American market have led them to outsource some medium-sophistication technology operations by installing software development centres (see box V.11). The following sections describe the various experiences with technology transfer in working with local universities and authorities.

Box V.11

PRINCIPAL EUROPEAN TRANSNATIONAL SOFTWARE COMPANIES OPERATING IN LATIN AMERICA

SAP, Capgemini and Indra are among the European transnational software companies with a presence in Latin America. They combine software development services with business processing and information and communications technology consulting services. For these companies, the region has been a key part of their market expansion strategies and, to a lesser degree, for consolidating their global services centres.

Company	Estimated sales in 2010 (millions of dollars)	Investment in research and development in 2009 (millions of dollars)	Number of employees worldwide in 2010
SAP (Germany)	18 348	2 144	105 000
Capgemini (France)	11 326	8	100 000
Indra (Spain)	3 383	243	25 000

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Thomson Reuters [online] <https://www.thomsonone.com/>; European Commission (2010), *The 2010 EU Industrial R&D Investment Scoreboard*, 2010.

- SAP

Germany's SAP is a global leader in business management software, offering applications and services that enable companies across a wide range of industries to manage their business processes more efficiently. With some 100,000 clients worldwide, it is a trendsetter in new software development. Over the past few years SAP has consistently grown its client base, increasing its share of the global market while the combined share of its competitors has gone down.

The Latin American market is increasingly important for SAP, as seen in the 37% rise in sales in the third quarter of 2010. The growth in Brazil, Chile, Colombia, Mexico and Peru was especially noteworthy, although Brazil was

the only country where the company had installed new development capacity.

In 2006, SAP opened its first software development centre in Latin America, in São Leopoldo, Rio Grande do Sul (Brazil), to secure access to the Latin American market, time-zone proximity to the United States market and the availability of IT human resources with language capabilities in Portuguese, Spanish, English and German (see box V.12). This centre employs nearly 400 professionals and focuses on software development for Latin America, product support for the United States market and training and technical assistance services for SAP partners in the region. The centre was set up with support from the University of the Sinos Valley in the São Leopoldo technological park.

Box V.12

GLOBAL NETWORK OF SAP SOFTWARE DEVELOPMENT CENTRES

SAP's research and development network comprises research centres, development centres and co-innovation laboratories. SAP software development centres work on all of the company's product lines and provide global services and technical

support for customers. The development centres employ some 15,000 professionals in 11 countries, principally in Walldorf (Germany), followed by Bangalore (India) and Palo Alto (United States). The acquisition of SAP BusinessObjects gave

SAP new centres in Vancouver (Canada), Dublin and Paris. SAP's development centre in São Leopoldo in Brazil is its first in Latin America; the centre's operations are integrated with those of the international network.

Region	Location
North America	Canada (Montreal, Toronto and Vancouver) and United States (Palo Alto)
Latin America	Brazil (São Leopoldo)
Europe	Bulgaria (Sofía), France (Paris and Sophia Antipolis), Germany (Walldorf), Hungary and Ireland (Galway and Dublin)
Asia and Middle East	China (Shanghai and Chengdu), India (Bangalore and Gurgaon) and Israel (Ra'anana and Karmiel)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of SAP Lab [online] <http://www.sap.com/about/company/saplabs/index.epx>; "SAP Annual Report 2009" [online] http://www.sap.com/about/investor/reports/annualreport/2009/pdf/SAP_2009_Annual_Report.pdf.

- Capgemini

France's Capgemini is a leader in systems integration and consulting services, with operations in more than 30 countries. It provides a wide range of BPO services in customer, financial, human resources and supply chain management, among others. In recent years it has established or acquired service and software development centres in the region as follows:

- In Chile, Capgemini acquired in 2008 Unilever's regional service centre in Santiago and, later, expanded the facility and installed an ICT support centre with some 200 professionals;
- In Argentina, the company installed a software centre in the city of San Martín (Buenos Aires);
- In Brazil, Capgemini acquired in 2010 a 55% stake in the service company CPM Braxis for US\$ 307 million, bringing the staff up to 6,500 people. It later acquired a second BPO service centre from Sonda Procwork in Santa Catarina. These new centres put Brazil in sixth place among ICT service locations for the domestic and international market.

- Indra

Spain's Indra is a global technology company that creates ICT solutions and provides consulting services. Its focus is on systems development, integration and maintenance, as well as BPO services. The company provides services and products for vertical industries such as telecommunications, transport, manufacturing, energy, finance and government. Indra operates in more than 100 countries, employs some 25,000 professionals worldwide and invests significantly in research and development.

Indra's software engineering centres are integrated in its network of 20 facilities in Europe (Republic of Moldova, Slovakia and Spain) and Asia (Philippines) and employ

some 2,000 professionals. In Latin America, the company has operations in Argentina, the Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Guatemala, Mexico, Panama and Uruguay, including the following:

- Indra has three software development centres in Argentina—in Buenos Aires, Córdoba and San Luis. Together, they employ nearly 450 professionals specialized in corporate applications maintenance and in developing niche applications for the transport industry (particularly, software for air navigation, radar equipment and flight simulators);
- In Panama, Indra has a development centre focused on electrical interconnection systems for the countries of Central America. It produces applications for managing electricity transactions and power generation projects;
- In Mexico, the company has a test laboratory serving the North American and European markets, with a staff of some 50 professionals. In Brazil and Colombia, Indra has units specializing in telecommunications, energy and the government sector.

(c) India-based transnational software companies in Latin America: TCS, Infosys, Wipro and HCL

India-based transnational software companies can be expected to maintain their competitive advantages in the IT service market because their service centres adhere to high standards of productivity and quality and can draw on a pool of skilled human resources at a competitive cost. However, they will have to operate in increasingly open markets and compete with a wide range of companies in the areas of consulting (Accenture, Atos, Capgemini), multinational technology firms (Oracle, HP and IBM), captive ICT centres for large corporations and other IT service outsourcing firms (CSC Keane and Dell Perot).

Box V.13

PRINCIPAL INDIAN TRANSNATIONAL SOFTWARE COMPANIES OPERATING IN LATIN AMERICA

Latin America has become a strategic location for Indian companies that provide services to customers in the United States, thanks to time-zone proximity and competitive costs. Indian transnational software companies arrived in Latin

America in the 2000s (later than companies from the United States did), seeking to gain a foothold in the regional market while serving the United States market. Tata Consultancy Services (TCS) was at the forefront of this process, opening its

global services centre in Zonamerica in Montevideo in 2002. Infosys, Wipro and HCL subsequently followed suit. In 2009, these four companies accounted for 55% of the Indian software industry's total exports of US\$ 34.2 billion.

Company	Worldwide sales in 2010 (millions of dollars)	Global centres in Latin America	Number of employees worldwide in 2010
TCS	7 658	Mexico and Uruguay	160 500
Infosys	5 513	Brazil and Mexico	113 800
Wipro	6 520	Brazil and Mexico	108 000
HCL	2 661	Brazil	64 400

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Thomson Reuters [online] <https://www.thomsonone.com>; Tholons, *Chile Outsourcing: Optimizing Opportunities in Services Globalization*, March 2010.

In the fast-growing IT service market, the challenge will be to mesh current operations in India with new centres in other regions that can narrow the time-zone gap with the major United States and European markets, focusing on offshoring opportunities in the countries of Eastern Europe and Latin America.

The four Indian companies chosen here as case studies are the world's largest IT service outsourcers; their global centre offshoring strategies are contributing to the development of this industry in Latin America. These services centres have enabled the region to access the international market for IT services more quickly thanks to the transfer of new business models, the implementation of new management processes for large-scale provision of services and the development of specialized human resources (see box V.13).

- Tata Consultancy Services

Tata Consultancy Services (TCS), part of the Tata Group, is a world-class IT service outsourcer whose customer portfolio includes the major international corporations. TCS provides a wide range of IT services, such as infrastructure, BPO and engineering services for banks, financial services, manufacturing, commerce and telecommunications. To this end, it has acquired several companies; among the most recent are Citigroup Global Services and Unisys Insurance Services.

TCS has been one of the pioneers in developing and implementing the global network delivery model, which enables it to service customers from multiple locations in China, Europe, India, Latin America and North America. This organization model allows global delivery centres to collaborate on projects and leverage resources to ensure a consistent standard of service worldwide.

TCS has operations in most of the countries of Latin America and employs some 9,000 professionals.

Its business approach in the region combines domestic market development in Argentina, Brazil, Chile, Colombia, Ecuador, Mexico and Peru with global development centres in Mexico and Uruguay.

Uruguay has been unique in that it was, in 2002, the first centre that TCS established in Latin America. TCS's decision was based above all on the educational level of the population, the favourable business environment for Indian companies and public policy aimed at promoting software exports that granted tax-free status to a trade zone (Zonamerica) (Chu and Herrero, 2005). The Montevideo global development centre now employs about 900 professionals; 85% of them serve customers in the United States and 15% tend to customers in the region. They specialize in BPO services (approximately 400 professionals) and software development and IT services (about 400 professionals).

The company has three global development centres in Mexico that employ some 1,500 professionals focusing on the local market and the United States market. TCS inaugurated its first centre in Guadalajara in 2007. Two new centres were established later, one in Mexico City and the other in Querétaro. These centres offer IT, software testing, BPO and consulting services.

- Infosys Technologies Limited

Infosys Technologies Limited (Infosys) is a global technology services company that offers business solutions, software services and BPO. Like the other companies, one of its strategic priorities is to implement the global delivery model that will enable it to operate with large groups of highly qualified professionals 24 hours a day across time zones. The company has service and development centres in Australia, Canada, China, the Czech Republic, India, the Philippines, Poland, Thailand and, recently, Brazil and Mexico.

Infosys launched its Latin American operations in 2007, when it opened an IT development and BPO service centre in Monterrey, Mexico, that employs some 400 professionals and serves major financial institutions in Mexico, Spain and the United States. Infosys's second centre in Latin America is in Belo Horizonte, Brazil; it provides services to clients in a range of industries that include banking, financial services, insurance, manufacturing, commerce, telecommunications and energy.

- Wipro Limited

Wipro Limited (Wipro) is a global company providing IT, BPO and consulting services, such as software development services, systems integration, infrastructure management, applications design, BPO and research and development services oriented towards cloud computing, green technologies, mobile applications, social networks and security.

In keeping with its strategy for opening global centres, Wipro has established a network of centres close to its main customers on several continents. In Europe, Asia and Oceania it has centres in Reading in the United Kingdom, Kiel in Germany, Bucharest in Romania, Shanghai and Chengdu in China, Cebu in the Philippines, and Sydney, Adelaide and Melbourne in Australia. The company has major centres in Atlanta and Nashville in the United States and, in Latin America, in Curitiba in Brazil and Monterrey in Mexico.

In Mexico, Wipro's facility in Monterrey opened its doors in 2007; some 100 professionals serve customers in

Europe, Latin America and the United States. In Brazil, Wipro set up in 2008 a BPO services centre to handle finances, order management, customer service and human resources for local clients in Curitiba. A 2010 expansion brought in an IT service centre to serve local and international clients, and 350 professionals were hired.

- HCL

HCL is another leading Indian company that provides engineering, BPO, ICT infrastructure, systems integration and software design and implementation services to vertical industries like telecommunications, aviation and defence, financial services, media, transport and the automotive industry. It has more than 60,000 employees worldwide in 19 countries. HCL's presence in Latin America is still incipient: the IT applications development centre in São Leopoldo, Brazil, was inaugurated in 2009.

(d) The trans-Latin software companies: Softtek, Sonda, Globant and TOTVS

Latin America has seen the emergence of many local companies engaged in global IT services. These trans-Latin software companies are pursuing internationalization strategies to gain a share of regional and international markets. Notable among them are Mexico's pioneering Softtek, Sonda in Chile as it consolidates regionally, Argentina's emerging Globant and Brazil's TOTVS as it specializes in the region.

Table V.9
PRINCIPAL TRANS-LATIN SOFTWARE COMPANIES

Company	Headquarters country	Estimated revenue (millions of dollars)	Estimated number of employees
Globant	Argentina	65 (2009)	2 000
Softtek	Mexico	234 (2007)	6 000
Sonda	Chile	952 (2010)	10 000
TOTVS	Brazil	682 (2010)	15 000

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of interviews and information provided by the companies [online]; <http://www.softtek.com/>; <http://www.sonda.cl/>; <http://www.globant.com/>; <http://www.totvs.com/>.

- Softtek

Softtek, founded in 1983 by Grupo Alfa employees in Mexico, is a pioneering Latin American company that began by developing services for the local market and then rolled out an internationalization strategy for entering the United States market, thus kicking off the expansion of software trans-Latins.

Softtek is a global provider of IT services and business process solutions. It has more than 6,000 employees and a sales volume estimated at US\$ 234 million in 2007, of which exports accounted for a significant share. The

company invests heavily in training and certification, and it partners with teaching and technology research institutions, in particular with the Monterrey Institute of Advanced Technological Studies (ITESM).

In line with its strategy for internationalization, the company has 30 global offices in Asia, Europe, Latin America and North America, plus nine global delivery centres. The latter are in Argentina (La Plata), Brazil (São Paulo), China (Beijing and Wuxi), Mexico (Mexico City, Aguascalientes, Ensenada and Monterrey) and Spain (La Coruña). This network of global delivery centres enables Softtek to offer applications development, software testing, applications

security, end-user support and BPO services. The company also specializes in support and maintenance for customers' in-house software and for solutions delivered by other firms (such as SAP) and other corporate software solutions. Softtek began to internationalize when the North American Free Trade Agreement (NAFTA) took effect, enabling the company to capitalize on its nearshore advantages vis-à-vis its customers in the United States (ECLAC, 2009). Its progress as an international provider can be divided into two stages:

- In 1997 Softtek introduced the nearshore service model, creating its global delivery centre in Monterrey. From 1997 to 2003, the company operated exclusively from its sites in Mexico, serving the United States market as an alternative to locations in China and India. In late 2003, the company acquired GE's global development centre in Mexico, which employed 1,000 engineers, and thus became the main nearshore provider of IT solutions for GE;
- The second stage, under the global nearshore model, began in 2004 with the opening of centres in Brazil and Spain and continued with the acquisition of farshoring centres like IT United, an offshore software development and services provider in China, in 2007.

- Sonda

Sonda, founded in Chile in 1974, is a trans-Latin whose consistent internationalization on a regional scale has made it the principal ICT systems integrator in Latin America and one of the region's four main ICT service companies, along with IBM, HP and Accenture.

Through its subsidiaries and affiliates, Sonda has operations in Argentina, Brazil, Colombia, Costa Rica,

Ecuador, Mexico, Peru and Uruguay. It employs some 10,000 professionals, 60% of whom are in Brazil. Revenue for 2010 came to US\$ 952 million, of which US\$ 526 million was outside Chile: US\$ 351 million in Brazil and US\$ 81 million in Mexico. The principal services provided by Sonda include software development, systems integration, ICT service outsourcing and implementation capacities in business intelligence, mobility, security and traceability.

Sonda began to expand in Latin America during the 1980s, moving into nearby markets: Peru in 1984 and Argentina in 1986. It stepped up internationalization later, in two broad stages:

- In the period 1990-2000, Sonda expanded to the other countries of South America with relatively small markets but high growth potential, such as Ecuador (1990), Uruguay (1994) and Colombia (2000);
- In the period 2001-2010, the company consolidated its internationalization in Latin America, strengthening its market in Colombia and launching into larger, more distant markets. During this period, Sonda acquired companies in Brazil, Costa Rica and Mexico.

Sonda's expansion milestones have been associated with its acquisitions programme in recent years (see table V.10). In 2007 it bought one of Brazil's five largest software development and IT services firms (Procwork) under an agreement valued at US\$ 118 million. In 2008 it expanded its operations in Colombia, buying local service provider TI Red Colombia for US\$ 14 million. In 2010 it completed the acquisition of four leading Brazilian data warehousing, virtualization and processing companies, plus a firm in Argentina and another in Mexico, for a total in the area of US\$ 100 million.

Table V.10
SONDA: RECENT ACQUISITIONS

Transaction year	Acquiree	Acquirer	Acquisition price (millions of dollars)
2010	CEITECH S.A. (Argentina)	Sonda, S.A.	6.30
2010	Sonda Procwork SA-Business (Brazil)	Capgemini, S.A.	...
2010	Kaizen Consultoria e Serviços em Informática, Ltda. (Brazil)	Sonda Procwork, S.A.	6.70
2010	NextiraOne México, S.A. de C.V.	Sonda México, S.A. de C.V.	29.00
2010	Soft Team Consultoria (Brazil)	Sonda Procwork, S.A.	8.64
2010	Soft Team Sistemas (Brazil)	Sonda, S.A.	8.68
2010	Telsinc Informática, S.A. (Brazil)	Sonda, S.A.	37.58
2008	Red Colombia, S.A.	Sonda de Colombia, S.A.	13.60
2007	Procwork (Brazil)	Sonda, S.A.	118.10
2006	Qualita-Technical Support (Mexico)	Sonda, S.A.	...

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Thomson Reuters [online] <https://www.thomsonone.com>.

- Globant

Globant, founded in Argentina in 2003 by a group of entrepreneurs and supported by Fundación Endeavor, is a successful, emerging firm specializing in global IT services outsourcing. It provides a wide variety of IT offshoring services ranging from software development and infrastructure management to creative services that include portals, mobile applications and content management. Globant is headquartered in Buenos Aires and has sales offices in the United States (Boston and San José) and Europe (London). There are services centres in several cities in Argentina, as well as in Colombia and Uruguay. Globant's principal service delivery centres are located in Tandil, La Plata, Córdoba, Rosario and Resistencia—in Argentina—and in Bogota and Montevideo.

Globant posted robust growth during the period 2007-2010, increasing sales from US\$ 19 million to US\$ 56 million and boosting the payroll from 750 professionals to 2,000. Projects outside Latin America accounted for nearly 90% of revenue. Among the drivers of this growth was the acquisition of Openware in 2008. On the strength of successful project execution with international customers such as Google, Sabre Holdings, Lastminute, Travelocity and Sun Microsystems, Globant has positioned itself well internationally in a relatively short period of time; this position has been recognized by international consulting firms like Gartner, Global Services and Black Book of Outsourcing.

- TOTVS

Brazil's TOTVS, founded in 1983 as Microsiga, is a trans-Latin software firm that successfully competes

with world-class companies in the business applications market in Latin America. As a provider of specialized enterprise resource planning (ERP) software for the small and medium-sized enterprise market, TOTVS has become the seventh largest ERP provider in the world in terms of market share. It is the leader in Brazil and Latin America, ahead of transnationals such as SAP and Oracle. TOTVS offers customer relationship management, business intelligence and supply chain management software, in addition to consulting, management process outsourcing, infrastructure and distance learning services.

TOTVS operates in Brazil and, through subsidiaries, in the rest of Latin America. It has more than 15,000 employees in some 40 offices in Argentina, Brazil, Chile, Mexico, Paraguay and Uruguay. In 1997 it opened its first representative office in another country (Argentina), followed by one in Mexico in 2003 and then in Portugal in 2007. The company now has software development centres in Belo Horizonte, Joinville, Porto Alegre, Rio de Janeiro and São Paulo, in Brazil; and in Buenos Aires (120 people), Mexico City (100 people) and Lisbon. In the other countries it operates on a franchise basis with local partners.

TOTVS's successful positioning and specialization strategy, chiefly in the Brazilian market, is built on developing new products based on cloud computing technologies and software as a service. To this end it has, in recent years, sought strategic acquisitions that have enabled it to develop new product lines and distribution channels. One of its major purchases was Datasul, its main rival in Brazil, for US\$ 375 million (see table V.11).

Table V.11
TOTVS: RECENT ACQUISITIONS

Transaction year	Acquiree	Acquirer	Acquisition price (millions of dollars)
2010	Soft Team Consultoria	Sonda Procwork	8.64
2010	Soft Team Sistemas	Sonda, S.A.	8.68
2010	Midbyte Informática, S.A.	TOTVS, S.A.	...
2009	Hery Software, Ltda.	TOTVS, S.A.	7.06
2009	Tools Arquitetura Financeira	TOTVS, S.A.	0.80
2009	YMF Arquitetura Financeira	TOTVS, S.A.	10.22
2009	RO Resultados em Outsourcing	TOTVS, S.A.	1.69
2008	Datasul, S.A.	TOTVS, S.A.	375.47
2008	Setware Informática, Ltda.	TOTVS, S.A.	2.00
2007	BCS Engenheiros Associados	TOTVS, S.A.	...
2007	HBA Informática, Ltda.	TOTVS, S.A.	...
2007	BCS Flex Comércio e Serviços	TOTVS, S.A.	...
2007	Bcs Comércio e Serviços	TOTVS, S.A.	27.27
2007	TQTVD Software, Ltda.	TOTVS, S.A.	...
2007	Inteligência Organizacional	TOTVS, S.A.	1.96
2007	Midbyte Informática, S.A.	TOTVS, S.A.	3.29
2007	TOTVS BMI Consultoria, S.A.	TOTVS, S.A.	...

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Thomson Reuters [online] <https://www.thomsonone.com>.

D. Market opportunities and policies for developing the software industry in Latin America

1. Market opportunities and software industry competitiveness in Latin America

Changes in how the software industry is organized, plus evolving business strategies for FDI in the software sector, are giving rise to a new environment for the software market that has made Latin America a major player alongside India, China and Eastern Europe. The region has gained space as a provider of software for the United States and part of Europe, participating in a global network of operations with locations that cross time zones and enjoy customer proximity. India's leadership is facing significant challenges arising from the saturation of certain production zones, higher country risk, high staff turnover and permanent wage inflation. Eastern Europe, which in recent years had become an alternate location to India, especially for the European market, has also begun to show signs of stagnation.

The regional software industry has developed as international recognition has grown on the strength of

favourable factors such as macroeconomic growth and stability, business environment, operating costs, availability of qualified human resources and government policies supporting the industry (see table V.12).

The case studies set out in this chapter show that Latin America is an attractive value proposal for transnational software companies and trans-Latin software companies who are expanding their global operations, thanks to the availability of skilled human resources, competitive costs and geographical proximity to and cultural affinity with the markets of the region, the United States and part of Europe. However, the main challenge lies in the ability of the countries of the region to turn out a sustainable supply of human resources with IT competencies.

Table V.12

LATIN AMERICA (7 COUNTRIES): RANKINGS BY THE PRINCIPAL OFFSHORE SERVICE PROVIDER INDEXES

	New software projects (2003-2010)	Ranking by A.T. Kearney in 2009	Ranking by Gartner in 2009	Consolidated locations	Emerging locations
Argentina	25	Top 30	Leader	Buenos Aires and Córdoba	Rosario
Brazil	57	Top 15	Leader	São Paulo and Rio de Janeiro	Porto Alegre and Recife
Chile	23	Top 10	Leader	Santiago	Valparaíso
Colombia	7	New actor	To be watched	Bogota	Medellín
Costa Rica	3	Top 25	Leader	San José	
Mexico	36	Top 15	Leader	Mexico City, Guadalajara and Monterrey	Querétaro
Uruguay	3	Top 40	To be watched	Montevideo	

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of fDi Markets [online database], A.T. Kearney, Gartner and Global Services.

2. National public policy challenges

Most of the countries of Latin America have defined and implemented, with varying degrees of intensity, policies and programmes for supporting the software industry and for promoting and attracting FDI. Programmes adopted in this environment combine special laws, regimes and promotion activities with incentives that directly or indirectly favour foreign investment in the sector. Most of the countries have

investment promotion agencies, such as APEX in Brazil, CORFO in Chile, Proexport in Colombia and CINDE in Costa Rica, in addition to ProMéxico and Uruguay XXI.

The various public programmes for supporting the software industry examined herein combine initiatives on four fronts: incentive programmes for the hardware industry that have been refitted for the software industry;

programmes with legislative measures for supporting the local industry and developing software industry exports; programmes for attracting FDI in the software sector that stress international promotion and incentives; and technology innovation programmes that address critical factors for the industry, chiefly human capital training and research and development capacity-building. The countries that have long-term policies for supporting the industry have a foundation of complementarities in higher education, research and development, legal frameworks and local productive structures that have enabled FDI in the software sector to have a substantial impact on human resources training, technology transfer and export growth.

In view of the major software development centres established in the region, the new public policy challenges lie not only in finding the best way to facilitate and promote FDI in the software sector and the local software industry, but also in determining how to maximize the

positive impacts on productivity, human resources training and technology transfer and innovation. This calls for new policies integrating software industry development with national innovation systems in order to address the following three gaps (ECLAC, 2010):

- Gaps in innovation policy: associated with the need to integrate the software industry and software companies with national and local strategies for innovation, covering such issues as human resources development, technology innovation and promotion of entrepreneurship;
- Institutional gaps: related to the public-private institutional modality for designing and implementing industry development programmes involving key players;
- Programme gaps: referring to putting in place more effective programmes and incentives with a positive impact on the development of the sector, as well as the requisite budgetary resources.

3. Proposed national and regional initiatives for the software industry

There are three high-impact lines of action for capitalizing on offshoring opportunities in the software industry: developing human capital, promoting strategic partnerships between companies and institutions and improving the regulatory framework. In each of them there is significant space for creating mechanisms for cooperation among the countries of the region, because these are recurrent themes in national projects for supporting software industry competitiveness (Gereffi, Castillo and Fernandez-Stark, 2009).

(a) Human capital

The first initiative for developing human capital is to speed up the integration of the region's labour markets, achieving greater mobility for highly qualified human capital and talent and establishing communications technology platforms. This will require consolidating regional demand for the software industry professionals that businesses need, improving the regulatory framework for the migration of professionals, relaxing the limits on hiring foreign nationals and making hiring and visa processes easier. In this regard, it would be useful to examine the experience of programmes and policies for attracting, retaining and moving talent among the countries of the region and elsewhere.

Another human capital initiative involves increasing the number of graduates in software-related disciplines. The goal is to disseminate good regional and international

practices for encouraging registration in critical degree programmes and raising the student retention rate. There are relevant experiences with awareness campaigns highlighting opportunities in the software industry, with identifying target audiences and critical factors that influence career selection and with designing strategies for retaining students by means of levelling courses, modular courses of study with intermediate certifications, and financing facilities.

The third measure is to improve the quality of the supply of graduates in software disciplines. To do so, training programmes must be brought into line with industry needs by building up relationships between institutions of higher learning and the industry, especially transnational companies. This requires institutional capacity-building, pinpointing graduate competency gaps vis-à-vis industry needs and matching programmes and curriculum grids. Because one of the most significant competency gaps is fluency in English, one area for regional collaboration would be to set up intensive English-language programmes.

(b) Strategic partnerships between businesses and institutions

Several countries have promoted partnerships between companies as an efficient tool for making local software companies —particularly the smaller ones— more competitive. One possibility would be to identify the

best regional and international practices linking supplier programmes with transnational companies, and to promote partnerships between regional enterprises seeking entry into international markets. Programmes that could be regional in scope include supplier development programmes, services export partnership programmes, technical assistance programmes for obtaining international certification, programmes for strategic alliances with complementary providers and foreign business platform development.

(c) Improving the regulatory framework

In addition to the proposals related to the immigration of foreign professionals, one objective should be to improve the regulatory framework in keeping with the non-traditional needs of software companies. Improving the regulatory framework means, among other things, allowing flexible work schedules, recognizing the software industry as a service export industry, optimizing the tax framework, enhancing personal data protection laws and promoting universal broadband access.

(d) Alternatives for regional coordination

It is proposed that the strategy for positioning Latin America as a software industry destination be led by public-private coalitions involving the region's leading investment promotion agencies, software business associations, research and development centres and institutions of higher education, among others. Examples of initiatives that have taken on the challenges that the region's software industry is facing include, for the private sector, the Federation of Latin American, Caribbean and Spanish Information Technology Entities (ALETI), which groups the ICT industry across 17 countries, and, for the public sector, the investment promotion agencies of Latin America operating under the umbrella of the World Association of Investment Promotion Agencies (WAIPA). The purpose of a public-private coalition would be to promote the development of the software industry in the region by partnering with governments for policymaking, to boost the supply of specialized services between countries, to foster regulatory improvements and to generate and disseminate useful information for the industry.

E. Conclusions

ICTs are generating job opportunities and new business around the world, especially in developing countries. Latin America has become known not only for its potential as a destination for offshoring software operations but also as an emerging force in the industry. The region is thus already part of the global software industry, and it has begun to attract FDI in this area. The significance of this FDI lies in the fact that it represents investment in a non-traditional, high-growth and high-technology-content sector that makes intensive use of qualified human resources and holds positive externalities for the economy. Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico and Uruguay are increasingly participating in the global software industry, joining production networks in China, India, the United States and Europe. Software centres are concentrating in locations that have qualified human resources and have implemented development and production innovation programmes with the active involvement of businesses, universities, institutions and the government.

The cases examined show that Latin America is a strategic location for leading software companies. These companies have established many global IT services and research and development centres in the region, operating under international standards for quality and efficiency.

The new corporate strategies for FDI in the software sector see the region as a complementary location for operations in China, India and Eastern Europe. And trans-Latin software companies have also emerged, with a high potential for development and a focus on the regional and the international market alike.

There are still new opportunities for software industry growth. But taking advantage of them calls for proactive and long-term public policies. There is space for growth in inserting Latin America in this industry, which can benefit new locations and countries in the region, with magnitudes comparable to those attained by Eastern Europe. It is clear that this development will not happen on its own; rather, it will require a set of public policy components with an integrated approach to attracting FDI and developing local industry while spurring the participation of companies in local and national innovation systems. Noteworthy among the principal policy initiatives identified are programmes for developing human capital, supporting research and development, encouraging strategic alliances between businesses and institutions and improving the regulatory framework. On all these fronts, the mechanisms for collaboration among countries and locations both can and should be strengthened.

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