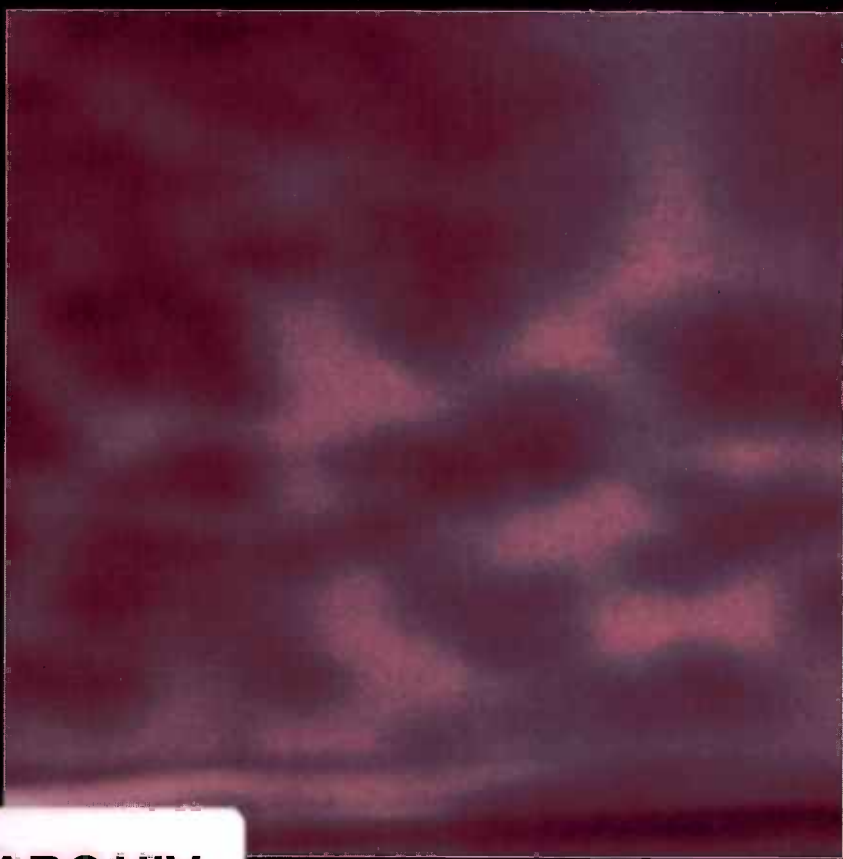


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# Globalization, Growth and Marginalization

Edited by

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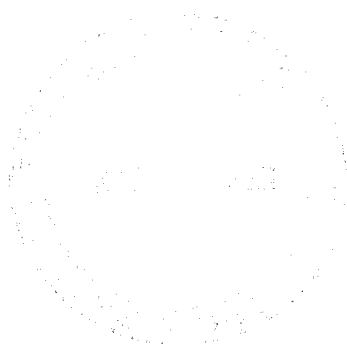
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# **3 The Impact of Globalization and the Information Revolution on Latin America**

Albert Berry

Two of the outstanding phenomena of the last couple of decades are 'globalization' and the 'information revolution' upon which the so-called 'information highway' has been built. The current information revolution, like its predecessor, has created many jobs while destroying many others, thus leading to change and uncertainty in both the labour market and society. The same may be said of globalization. It remains to be seen what their longer-term impact on average incomes, income distribution, poverty and marginalization will be; and until this becomes clearer it is natural that many fears and uncertainties will accompany the hopes and expectations these phenomena create. Given the turbulent economic trends in Latin America over the last two decades, it is natural that such mixed feelings are common in that region.

## **DEFINITIONS, APPROACHES AND BACKGROUND**

Concern about globalization is partly based on the idea that the gains in national income it may produce are closely connected to cost cutting via employment reductions ('downsizing'), streamlining government in order not to hamstring firms by high taxation, vigorous pressure to raise worker productivity, and pushing down wages or slowing their increase. Such fears are heightened by the doubts that developing countries often harbour about their ability to compete in open markets, in which case they worry that the pain will yield little gain. Ironically and unfortunately, the focus on national competitiveness via productivity and cost cutting (each of which does or can bring benefits of its own) is somewhat misguided. In implicitly rejecting the theory of comparative advantage it reflects a basic misunderstanding of how a country benefits from international trade (Berry, 1997c).

An important aspect of the background to these issues in Latin America is the high level of inequality, currently closely related to the unequal distribution of education or more generally of human capital, and historically to the concentration of land. These and other determinants of inequality and hence

of poverty must be borne in mind, both when assessing the mechanisms linking globalization and information technology (IT) to poverty (whether positively or negatively) and when considering how policy may improve those effects.

Globalization and the information revolution are linked in various ways, as discussed by Streeten in Chapter 1. The focus of this chapter is the way in which these two phenomena, separately and together, are affecting and will affect the social and economic evolution of the countries of Latin America, in particular the levels of poverty and marginalization in that part of the world.<sup>1</sup> Much of the extensive literature on marginalization in Latin America has pointed to economic processes that bring benefits to some groups but leave others behind. In varying degrees the concept can refer to countries, regions, occupational categories and individuals.

### Exports

In Latin America and the Caribbean the ratio of exports to GDP (measured in constant 1980 prices) averaged around 14 per cent in the 1970s; since then it has shown a continuous upward drift to over 23 per cent in 1994 (Table 3.1). In current price terms,<sup>2</sup> however, the story is quite different. World Bank (1996a, p. 213) figures indicate that the ratio fell from 16 per cent in 1980 to 15 per cent in 1994. The difference between these two patterns reflects the large negative terms of trade effect estimated by UNECLAC (1995a), equal to 5.7 per cent of GDP in 1994 (*vis-à-vis* 1980) or about 30 per cent of the value of imports in that year. The ratio of imports to GDP (again using constant 1980 prices) averaged around 14 per cent during the 1970s, peaked at around 16 per cent in 1980–81, and fell to a low of less than 11 per cent in 1984–85, since which time it has risen systematically. Because, by the early 1990s, the terms of trade effect had grown to a large negative number of around 6 per cent of GDP, it was only in 1992 that the constant price import ratio surpassed that of 1980–81.

Between 1980 and 1994 the share of manufactures in the region's merchandise exports rose from 17.4 per cent to about 50 per cent (Table 3.2), partly, it should be noted, as a result of the falling prices of primary exports. The share of manufactures in total exports rose for all groups of trading partners (Table 3.3), and most notably for the industrialized countries, where the figure was still low in 1980 (7.7 per cent) but then rose sharply to nearly 27 per cent by 1991 and has presumably risen further since then.

### Capital Inflows

The net inflow of capital, which was low throughout the 1980s except for 1980–81 (it peaked at \$40.1 billion in 1981), rose sharply in 1991–92 and exceeded \$60 billion in 1992 and 1993 (Table 3.4). As a result the net resource transfer (which also includes the net current payments to factors of production),

Table 3.1 Relative shares of the components of GDP and gross national income: Latin America and the Caribbean (at market prices<sup>1</sup>, GDP = 100)

	Total final consumption expenditure <sup>2</sup>	Gross fixed capital formation	Domestic demand	Exports of goods and services	Imports of goods and services	Terms-of- trade effect	Net factor payments to rest of world	Real gross national income
1980	78.2	23.5	101.7	14.1	15.8	—	2.6	97.6
1981	77.9	23.3	101.2	15.0	16.2	-0.8	3.7	95.7
1982	77.2	20.7	97.9	15.5	13.3	-2.4	5.1	92.7
1983	76.2	17.2	93.4	17.1	10.5	-2.7	4.9	92.6
1984	76.3	16.6	92.9	17.9	10.8	-2.3	5.2	92.8
1985	76.3	16.6	93.0	17.6	10.6	-3.0	4.9	92.5
1986	76.9	17.2	94.1	16.8	11.0	-4.1	4.5	91.8
1987	76.4	17.2	93.6	17.5	11.2	-4.2	3.9	92.3
1988	76.2	17.0	93.2	18.9	12.1	-4.4	4.1	91.9
1989	76.1	16.3	92.4	19.8	12.2	-4.7	4.3	91.5
1990	76.6	15.9	92.5	20.7	13.2	-5.0	3.7	92.0
1991	77.4	16.4	93.8	20.9	14.7	-5.5	3.4	91.9
1992	78.0	17.5	95.5	21.6	17.1	-5.6	3.1	92.2
1993	77.6	18.1	95.7	22.4	18.1	-6.0	3.2	91.5
1994 <sup>3</sup>	77.2	19.0	96.1	23.2	19.3	-5.7	3.1	92.1

Notes:

1. Official figures converted into dollars at constant 1980 prices. Nineteen countries.
2. Includes variation in stocks.
3. Preliminary figures.

Source: UNECLAC (1995b, p. 62).

Table 3.2 Exports of manufactured products from Latin America, by country (percentages)

	1970	1980	1985	1990	1991	1992	1993	1994
Argentina	13.9	23.1	20.8	29.1	28.2	26.3	31.9	32.7
Barbados	25.3	52.5	83.8	43.3	58.7	54.7	61.7	n.a.
Belize	n.a.	17.6	24.9	15.4	n.a.	18.2	20.6	17.0
Bolivia	3.2	2.9	0.4	4.7	3.8	12.5	17.0	22.2
Brazil	13.4	37.1	43.7	51.9	54.8	56.9	58.8	54.8
Chile	4.8	11.3	6.7	10.9	12.7	13.2	16.1	16.4
Colombia	9.0	19.7	16.9	25.1	33.3	31.8	39.9	36.9
Costa Rica	18.7	29.8	22.3	27.4	24.5	25.6	n.a.	n.a.
Ecuador	1.8	3.0	0.8	2.3	2.4	4.0	7.1	7.4
El Salvador	28.7	35.4	25.7	35.5	40.6	47.8	46.1	44.7
Guatemala	28.1	24.4	20.2	24.5	27.9	29.9	30.7	31.3
Honduras	8.2	12.8	4.0	9.5	11.6	12.9	12.8	15.0
Mexico	33.3	12.1	20.6	43.3 <sup>1</sup>	50.8 <sup>1</sup>	71.1 <sup>2</sup>	74.6 <sup>2</sup>	77.4 <sup>2</sup>
Nicaragua	17.8	18.1	8.9	8.2	9.1	7.0	9.4	13.1
Panama	3.5 <sup>3</sup>	8.9	12.8	17.0	20.8	16.7	16.4	17.7
Paraguay	9.0	11.8	5.5	9.9	11.3	15.2	16.7	21.3
Peru	1.8	16.9	11.8	18.4	22.6	16.7 <sup>1</sup>	15.8	13.9
Trinidad & Tobago	12.8	5.0	18.2	26.7	28.5	29.9	34.2	42.5
Uruguay	17.6	38.2	35.0	38.5	40.1	40.8	42.2	42.9
Venezuela	1.0	1.5	10.0	10.9	9.6	11.0	13.3	13.8
Regional Total	10.8 <sup>4</sup>	17.4	23.4	32.8	36.4 <sup>4</sup>	45.8	50.1 <sup>5</sup>	50.0 <sup>6</sup>

*Notes:*

1. Preliminary figure.
2. Includes goods for processing (*maquila*).
3. Does not include the canal zone.
4. Does not include Belize.
5. Does not include Costa Rica.
6. Does not include Barbados and Costa Rica.

Source: UNECLAC (1995a), p.111.

which had been negative over the period 1982–90, became positive and was around 20 per cent of the value of exports in 1992 and 1993, around the level of 1980–81. This transfer was, however, small again in 1994 (Table 3.2). Foreign direct investment (FDI) also jumped in the early 1990s, from \$6–7 billion a year in 1989–90 to an estimated \$18 billion in 1994 (Table 3.5).

### Information Technology

The impact of the information technology revolution and of increased integration into the world economy began to be felt in Latin America at a time

Table 3.3 Direction and composition of trade of Latin American countries

	World	Developed <sup>1</sup>	Developing	Latin America <sup>2</sup>	Other developing
<i>Absolute values in \$ billion:</i>					
1970	17.5	14.1	3.4	3.0	0.4
1980	107.9	79.0	28.9	23.0	5.9
1991	136.6	103.7	32.9	23.1	9.8
<i>Percentages:</i>					
1970	1.86	1.04	0.82	0.76	0.06
1980	15.86	7.68	8.18	6.98	1.20
1991	42.63	26.94	15.69	11.60	4.09

*Notes:*

1. Including the countries of Eastern Europe and the communist countries of Asia (the latter of which do very little trade with Latin America).
2. Includes exports from each country of Latin America to the other countries of the region.

Source: UNCTAD (1993).

when most of these countries were in the throes of, or just emerging from, the macroeconomic downturn of the 1980s, brought on by the debt crisis. In the wake of that crisis most countries adopted a market-friendly set of policies that represented a marked change from the past, and they have now integrated or are integrating rapidly into the world economy. The absolute levels of trade, capital flows and foreign direct investment have all increased sharply over the last decade, the combined result of recovery from the depths of the recession induced by the debt crisis, of policy liberalization and of the more general process of globalization, with the associated decline in transport and communications costs, the formation of trade blocs and the reduction of tariffs via the Uruguay round of the GATT negotiations.

The extent of diffusion and use of IT in Latin America is harder to assess quantitatively. The telecommunications networks in this region have lost ground relative to many parts of the world over the last couple of decades due to the slow economic growth associated with the debt crisis. In countries such as Argentina and Venezuela extremely inefficient public sector enterprises have also accounted for part of the lag. Mexico, Brazil and Argentina participate as exporters of electronics items, with Mexico in particular showing dynamism during the 1990s, largely through the *maquiladores*, one presumes. Independent technological capacity has been limited by the fact that the region's expenditure on R&D as a share of GDP has remained low, having fallen further behind the LDC average since 1970, when the two figures were about equal at 0.3 (see Chapter 7, Table 7.9).



Table 3.4 Net capital inflows and resource transfers: Latin America and the Caribbean (\$ billions and percentages)<sup>1</sup>

Effective net inflow of capital <sup>2</sup> (1)	Unregistered transactions <sup>3</sup> (2)	Net inflow of capital (1 + 2) (3)		Net payments of profits and interest (5)		Resource transfers (1 - 5) (6)		Export of services (7) (8)		6/8 (9)	7/8 (10)
		(\$ billions)	(%)	(%)	(\$ billions)	(\$ billions)	(%)	(%)	(%)	(%)	(%)
1980	33.6	-2.3	31.3	-6.8	18.8	14.8	12.5	101.6	14.6	12.3	
1981	51.8	-11.7	40.1	-22.6	28.9	22.9	11.2	109.6	20.9	10.2	
1982	32.7	-13.1	19.6	-40.1	38.8	-6.1	-19.2	99.6	-6.1	-19.3	
1983	6.8	-4.1	2.7	-60.3	34.8	-28.0	-32.1	99.5	-28.1	-32.2	
1984	13.6	-3.1	10.5	-22.8	37.5	-23.9	-27.0	110.8	-21.6	-24.4	
1985	8.5	-4.9	3.6	-57.0	35.7	-27.2	-32.1	105.6	-25.8	-30.4	
1986	11.0	-1.3	9.7	-11.8	32.4	-21.4	-22.7	91.3	-23.4	-24.9	
1987	13.6	1.6	15.2	11.8	31.1	-17.5	-15.9	104.1	-16.8	-15.3	
1988	7.9	-2.0	5.9	-25.3	34.3	-26.4	-28.4	119.4	-22.1	-23.8	
1989	7.6	4.5	12.1	60.0	38.3	-30.7	-26.2	132.7	-23.1	-19.7	
1990	17.8	0.1	17.9	0.6	33.8	-16.0	-15.9	146.0	-11.0	-	
1991	37.0	0.4	37.4	1.1	31.0	6.0	6.4	146.0	4.1	4.4	
1992	59.8	1.5	61.3	2.5	30.9	28.9	30.4	154.5	18.7	19.7	
1993	66.5	0.2	66.7	0.3	33.0	33.5	33.7	164.9	20.3	20.4	
1994 <sup>4</sup>	43.3	-	-	-	34.2	9.1	-	189.2	4.8	-	

## Notes:

1. Covers 16 Spanish-speaking countries (Cuba and Panama are not included), plus Brazil and Haiti.

2. Equal to net inflow of capital minus unregistered transactions.

3. Corresponds to the errors and omissions entry on the balance of payments.

4. Preliminary estimates.

Source: UNECLAC (1995b), p. 106.

*Table 3.5 Sources of external financing: Latin America and the Caribbean (\$ million)*

	1989	1990	1991	1992	1993	1994 <sup>1</sup>
<i>Debt:</i>						
Bonds <sup>2</sup>	833	2 760	7 242	14 018	24 404	19 866
Banks <sup>3</sup>	-6 497	5 559	6 800	10 943	1 636	3 200
Commercial paper	127	-	1 212	840	315	400
Certificates of deposit	-	-	670	1 100	65	-
<i>Investment:</i>						
Direct <sup>4</sup>	6 134	6 728	10 830	12 727	13 805	18 057
ADR/GDR <sup>5</sup>	-	98	4 120	4 063	5 726	4 689
External funds <sup>6</sup>	416	575	727	293	10	565 <sup>7</sup>

*Notes:*

1. Preliminary estimates.
2. Gross value.
3. Net, short- and medium-term.
4. Includes reinvestment of profits.
5. ADR – American depository receipts; GDR = global depository receipts.
6. Close-ended funds; initial capital.
7. First six months.

*Source:* UNECLAC(1995b), p. 104.

The overall impact of globalization and IT on marginalization/poverty can be thought of as a combination of their impact on growth and on distribution,<sup>3</sup> in particular the income share of the group in or near the poverty category (at present most studies suggest that about a third of the population of the region is in poverty). In the case of the poorer countries, growth is especially important as a major contributing factor to poverty alleviation. If its impact on material poverty is positive enough, it could offset any effects from an increase in inequality. From a policy perspective, it is not so much the overall impact of globalization and IT on poverty that matters as (1) the effect that policy has on the advance of these phenomena, and (2) how, given the extent of globalization and dissemination of IT, which is either desirable or inevitable, policy can affect its impact on poverty. The main policies that affect the rate and pattern of globalization are those that affect trade flows, direct foreign investment and the flows of financial capital. The main influences on the evolution of IT, while harder to identify with any confidence, clearly include the country's R&D policy as well as the pace and pattern of human capital formation.

For neither globalization nor IT can the impact on Latin American society be more than crudely guessed at this time. The attempt to identify those

effects is at an early stage. But both phenomena warrant an increasing effort in that direction because *the effects could be large, they could go in either direction, and it is possible that policy could affect them significantly.*

The next section looks at the nature of the processes of globalization and technology change in the information area and their possible effects. A second point of departure, the focus of another section, is a review of a number of outcomes in the region – rates of growth, levels of employment/unemployment, and income distribution. These outcomes provide another test of any predictions made, and allow one to try to ‘work back’ from the outcomes to identify the mechanisms that are most likely to have been responsible for them. The distribution of income became more concentrated in most Latin American countries at around the time the economic reforms were introduced, one of which was a reduction in trade barriers, leading to more open economies and higher trading ratios. It is possible that the technological changes have had an impact in this direction as well.

All of the standard arguments in support of the view that international integration and new technologies will bring benefits are potentially valid (see Streeten, Chapter 1), but there are serious grounds for concern that expectations may have been overblown. Thus far the empirical record is ambiguous, but the post-crisis, post-reform outcomes in the Latin American region are worrisome on both the growth and the distribution front.

## THE EFFECTS OF GLOBALIZATION AND INFORMATION TECHNOLOGY

As noted above, both technological change (of which the new information-related technologies are the most prominent component) and integration into international markets are likely to affect the region’s growth and distribution performance in significant ways.

### **The ‘Dependency’ Critique of Latin America’s Earlier Experience of International Integration: its Relations to Marginalization**

During the early postwar decades much concern was expressed about the dependency of the Latin American economies on the industrial powers. Frank (1969) presented a classic Marxist interpretation. Sunkel’s non-Marxist views constituted one of several strands of postwar thinking on the need to intervene in markets, following a pattern of thought set in motion by Prebisch (1950) and his fears that primary goods exporters such as Latin America would fare badly over time due to a secular decline in the terms of trade for such goods. Sunkel (1973) argued that Latin America ran the risk of being trapped into continuing dependence, and that income and productivity gaps

might widen as backwash effects outweighed the spread effects of economic growth in the Centre countries. He associated this outcome with the increased difficulty of gaining access to the elements of the 'development package', because such access was becoming increasingly dependent on purchasing the complete package at a high price from transnationals (TNCs), which were taking advantage of the protection of the local market under import-substituting industrialization (ISI) to get good returns on their investments while centralizing all the R&D in their own countries and keeping their technical knowledge close to their chests. Very high estimates by Vaitos (1974) of the returns achieved – through transfer pricing, among other mechanisms – by foreign pharmaceutical companies in Colombia underlined such worries. Meanwhile the literature on marginality debated the extent to which the blame for the mushrooming urban squatter settlements (and poverty more generally) lay with the process of capitalist accumulation and growth in these dependent economies.<sup>4</sup>

Neither subsequent events nor the accumulation of research have confirmed the more pessimistic views expressed on the effects of dependency and on the trends in marginality, unless one interprets the economic crisis of the 1980s as a natural outcome of the mechanisms described by these authors rather than as a mainly chance historical event afflicting the region. Although growth varied markedly across countries, it was generally good until the crisis arrived in the early 1980s, averaging 5.5 per cent per year for the region from 1950–80, a 'performance not significantly surpassed by any other group of countries, either developed or developing' (Teitel, 1992, p. 356). Some countries did especially well, including Brazil and Mexico. Manufacturing exports expanded significantly, albeit from a fairly small base. There was no systematic evidence of a technological 'slipping behind' of the sort that exercised the dependency theorists.<sup>5</sup> For most countries of the region income distribution did not change markedly over this period; to the extent that there was some worsening (for example Brazil in the 1960s) it was not large enough to significantly offset the positive effects of growth. Employment generation occurred at a pace sufficient to raise the share of the labour force in the modern sector, with its relatively high labour productivity, and to bring about a continuous decrease (for the region as a whole) in the share of the population living in conditions of poverty. In other words, the decades leading up to 1980 saw a quite important degree of 'trickle down'. With the region's per capita income rising by about 3 per cent per year from 1950–80, the incidence of poverty – using Altimir's poverty line (Altimir, 1982) – fell quickly from around 65 per cent in 1950, 38 per cent in 1970 to about 25 per cent in 1980 (Berry, 1997a).

All too soon, however, the worries of the *dependistas* with respect to the region's inability to control its own fate and break out of the older modes of interaction with the industrialized countries were replaced by the trauma of

the debt crisis, during which an excessive presence of TNCs or FDI was the least of region's worries. Foreign capital withdrew rather than knocking on the door. Serious recessions hit all the major countries except Colombia, unemployment rose and most countries suffered serious bouts of inflation. Meanwhile the policy preference switched to 'outward orientation', with its strongest proponents arguing that the import-substituting industrialization (ISI) strategy was misguided and had contributed both to slow growth and to unnecessarily high income concentration (Corbo, 1988). The new view, like the *dependista* one, needs to be viewed with caution; the creditable growth performance and the essentially stable income distribution during the ISI phase seem to contradict them both (Berry *et al.*, 1997). Now that the region is reentering world markets and capital is again flowing in, the roles of foreign trade, foreign capital and the TNCs need to be reassessed.

Though the worst fears of earlier times were exaggerated, up to a point some of the concerns were no doubt justified – for example the long-standing contention that technological change was a key factor underlying the inability of Latin America's growth to generate the desired amount of employment and hence reduce the concentration of income. Pinto (1965) argued that technology developed in the industrialized countries was not suited to the factor proportions of the region, and that it was usually transferred with little attempt at adaptation. Tokman (1989) concurred, noting that studies of elasticities of substitution (for example ILO-PREALC, 1980) have usually found these to be low, and suggesting that the prevalence of foreign technology has played a role in the falling real wages of unskilled workers in a number of Latin American countries. As discussed below, the 'appropriate technology' question is an especially tricky one for the Latin American region. Since it is less labour abundant than the Asian countries, the idea that its comparative advantage lies in labour is less obvious.

### **An Optimistic View of Globalization**

The current optimistic view of globalization and freer trade anticipates growth benefits arising from allocative gains, gains in X-efficiency (because freer trade means more competition, which promotes efficiency), capital inflow raising the total capital stock and hence output, greater technological transfer through TNCs, greater imports of capital goods, a greater flow of ideas resulting from greater overall contact, and other positive mechanisms. All of this helps to make plausible the 'convergence theory', that income gaps between countries and between regions of countries are narrowing. Meanwhile the optimistic view of the distributional implications of freer trade comes from the belief that the demand for less-skilled labour will increase and that the prospects of agriculture, which as a whole tends to be penalized by import substitution, will be improved. Optimists also believe that the

scaling down of public-sector activity and the introduction of more market principles into that which remains will greatly increase the sector's efficiency in the provision of public goods and services, including poverty redressal services.

### **The Effects of Freer Trade**

Because Latin America's experience under globalization and freer trade has not thus far led to a clearly better or worse performance than the previous ISI model, it is useful to draw on the more general developing-country experience, even though it too remains surprisingly ambiguous in a number of respects. A vast array of empirical cross-country studies show that export growth and overall economic growth have tended to go together. But there remain questions with respect to how systematic the link is across groups of countries and periods of time, to what extent it is due to 'reverse causality' from output growth to export growth,<sup>6</sup> and to what extent it is due to joint causation.<sup>7</sup> Despite the absence of overwhelming confirmation of the positive role of exports in growth at the country level, few students of development doubt that it is true for individual countries and in a variety of contexts.

Two other major qualifications have been made. First, the elasticity of world demand for developing-country exports may be too low for the benefits from exporting to be generalized. Second, though trade may often be quite beneficial, this does not necessarily make the virtual absence of trade barriers the optimal policy choice. To so assume is to deny the potential validity of the infant-industry argument for protection.<sup>8</sup> This qualification is also of possible importance in Latin America. However mixed the signals provided by the empirical analysis on the mechanisms connecting levels of trade and growth, researchers have barely attempted (with cross-section or time-series analysis) the more refined task of analysing the effects that degree and type of barriers to trade have on growth. The historical record in East Asia provides evidence that ISI policies have been the normal prelude to and have complemented strong export performances. Persuasive arguments can be made that the region's successes (beginning with that of Japan) owed much to the effective management of trade in the context of organized industrial policies (Wade, 1990). The cross-country evidence (see especially Helleiner, 1994) that the exchange rate is the key variable determining export and growth success is consistent with the proposition that trade liberalization is not necessarily or generally the best way to achieve potential benefits from trade.

### **The Effects of Capital Inflows**

Much less analysis has been undertaken on the effects of capital flows into developing countries. As with trade, the main debate concentrates on whether

there should be any significant restrictions on capital inflows, beyond such obvious rationales as environmental protection. Along with considerable microeconomic evidence that important benefits can be reaped by hosting FDI, there is concern that such capital may seek out high-profit activities in the host economy and, helped by a process in which developing countries bid against each other to attract it, succeed in appropriating nearly all of the rents it generates.

Short-term capital flows clearly have negative effects as well as providing benefits. They have led to macroeconomic instability in some Latin countries and discouraged export production, hence slowing the rate of growth (as in Mexico and Argentina). Much of international trade and FDI is undertaken by TNCs, most of them large and in possession of considerable oligopolistic power. Although FDI by TNCs has trade-creating effects, it tends to assign to countries a specific type of commercial specialization in the international division of labour, and often to lock the country into that role. In the case of primary products, countries are vulnerable to replacement of their exports by synthetic substitutes. In that of export platform manufactures, they are vulnerable to TNC strategies. For these and other reasons, Japan and later Korea chose to develop without extensive use of FDI. Not being locked in is of special importance to middle-income countries such as those of Latin America.

The technological and managerial advances of the last 15 years, along with deregulation and liberalization, have strengthened the position of large international firms. The power of FDI-led intraregional, intraindustry and intra-firm trade is exemplified by the rapid increase in commerce between Mexico and the United States. In the second half of the 1980s Mexico accounted for two thirds of all employment in LDCs via affiliates of US TNCs (Chesnaïs, 1995, p. 20). These affiliates increased their share of Mexican exports to the United States fourfold to more than 25 per cent, and their share of Mexican imports from the United States to more than 40 per cent. The LDC worker, however, depends more on whether smaller firms can form an important part of the industrial structure. Some but not all TNCs have the capacity to draw smaller, more labour-intensive firms into the international circuit through subcontracting and other contractual arrangements.

One possibly damaging constraint of globalization as it is presently unfolding in Latin America is the pressure it puts on countries to bring inflation to very low levels, by historical standards. In the 'pro-investment macroeconomic environment' maintained by the East Asian countries as part of their development process, there have been long periods of large fiscal and current account deficits, financial repression and inflationary pressures (UNCTAD, 1996, p. 128). These countries generally tried hard to boost investor confidence in other ways, for example, by avoiding extreme policy shifts. The deployment of some pro-investment incentives may have an inflationary impact, and some degree of inflation can facilitate changes in relative prices

(for example movements in real wages). A rigidly low inflation policy could have significant costs. The long-term experience of Brazil, with its high-growth/high-inflation combination, is consistent with this hypothesis.

Perhaps the greatest fear of globalization involves its impact on income distribution; that fear has its greatest empirical basis in Latin America, where the switch to a more open and market-oriented strategy has been accompanied by a sharp increase in inequality in the majority of the countries (Berry, 1997a; Bulmer-Thomas, 1996). The expectation that freer trade would raise wages has been the exception rather than the rule. One factor probably at work is the domination of international trade by large firms – a combination of TNCs and large national firms, whose high labour productivity limits employment creation.

### **Possible Impacts of the Information Technology**

There is a rather widespread expectation that the information revolution will have a positive productivity/growth effect, but that this will be associated with a negative distributional effect. The impact of the information revolution, like that of any other technological advance, depends on who adopts the new techniques and how well they fit the factor proportions of the adopting countries. With the industrial countries adopting first, what remains to be seen is how quickly they spread to other countries, the resulting impact on the roles of transnational firms, larger national companies and smaller firms, and the overall impact on the demand for different types of labour. The effect on national income depends on how much IT raises total factor productivity (TFP). The effect on distribution depends on the factor proportions of the technology adopted and on who adopts it; as a first approximation, it is more negative the greater the unskilled labour-saving bias and the more adoption differentially favours larger firms. The medium- and longer-term impact of technology on distribution also reflects any effect it may have on the country's factor stocks; some new technologies lead to major bursts of investment or to changes in education/training levels and hence influence factor proportions.

The evolution of IT in Latin America appears to include the following scenarios. First, in spite of its being revolutionary in some senses, IT is best thought of as another wave of technological advance, not qualitatively different from earlier ones in the mechanisms and speed of dissemination or in the character of its impact. Latin America borrowed technology at a considerable rate over most of the postwar period (that is, up to the debt crisis of the 1980s), overall growth was relatively fast and the region did not suffer any major worsening of income distribution (Berry, 1997a). So a continuation of these trends would be relatively satisfactory. Though most countries invested at least modestly in science and technology, and some (especially Brazil)



mounted serious efforts in this direction, these were curtailed by the debt crisis and in any case were not of the intensity envisaged by those authors emphasizing the importance of this area for Latin America's future economic progress (Perez, 1992; Teitel, 1992).

Second, the region might continue to borrow as successfully as in the past without mounting an extensive R&D operation, but only if the rate of human capital formation is increased enough to permit efficient borrowing, dissemination and use of the new technologies. In this scenario, effective incorporation of the new technologies will require more and different skills than in the past.

Third, the above options might be either unfeasible or, inferior to a more aggressive technology policy. Such a policy could range from an attempt to keep technologically up-to-date by whatever means best achieves that goal (for example licensing, reverse engineering and so on), to one aimed at effective adaptation, including the 'blending' of new IT with traditional technologies, to one aimed at leapfrogging over some of the previous technologies to the newest ones.

Finally, the worst situation would be one in which it would be very hard not to lose ground in the technology race and hence lose income-earning capacity. This is more likely if the overall rate of technological change is faster than before (reflected in the term 'revolution'), if the information is more closely held (if strategic alliances among TNCs delay dissemination) or if the factor intensity of the technology that does disseminate fairly readily is more damaging than before. In this scenario IT, and technological change more generally, could be damaging to the region. On the question of potentially 'inappropriate' technology, optimists point to the fact that factor proportions do have an effect on the direction of R&D (Hayami and Ruttan, 1971; Binswanger and Ruttan, 1978). Though induced innovation does exist – in that the effective demand for new technologies affects the broad directions of research and of the resulting technological change – this effective demand reflects the economic weight behind it and the resources available to complement it. It explains why such a high share of research takes place in industrialized countries; why it is so concentrated on products that will benefit groups with high purchasing power; why so little is directed to producers of less important crops, to small and medium enterprises (SMEs), and to the least developed countries; and, finally, the labour-saving bias of most innovation. At the other end of the spectrum from the 'induced innovation' point of view is the description by Fransman (1991, p. 2, as cited by James, 1993, p. 406), whereby the pace and direction of R&D reflects not factor scarcities but various 'technological trajectories and momenta that are relatively uninfluenced by economic considerations'.<sup>9</sup>

The interface between globalization and IT is important in the sense that the former raises the stakes associated with country policy choices in the latter

area. With an inward-looking strategy the costs of a wrong decision with respect to a new technology are simply the lost benefits from its local application. In the global economy an error can cost the country the large rents to be had from having the right products at the right time. In Latin America, perhaps more than in any other major area of the Third World, the appropriate degree of scientific/technological capacity is an important and vexing question, as evidenced by the widely contrasting views expressed in the literature. In East Asia the requisite capacity is in place in several countries, especially Korea; in Africa it is not likely to be in place in the immediate future. Latin America is able to step to a higher level of technological capability; the question is whether this would be a good use of resources.

With such risks in mind it is important, as James (1993) emphasizes, to know a lot about the appropriability of the new technologies. TNC alliances are cause for concern on this front. But it may be that the technologies that really matter to Latin countries (on both the consumption and the production side) are not these frontier ones, but rather those whose prices tend to fall quickly as new breakthroughs appear and competition does its job. For example, CD-ROM enables the storage of vast amounts of medical and bibliographic information, benefiting agricultural research, health information and medical research and library development (Mody and Dahlman, 1992, p. 1714). Desktop publishing lowers the fixed costs of small-batch publications. With the declining cost of hardware, demonstration projects have become more feasible. Licensing of proprietary microelectronics technology from small firms in industrial countries might be more accessible to certain developing countries (Evans and Tigre, 1989). Unlike large firms these firms are more willing to share the technology. The diffusion of some automation techniques may depend on whether the equipment suppliers want to send service personnel to marginal markets, so the evolution of this market is important (James, 1993, p. 420).

Together with the factor proportions characterizing the new technologies, the way governments and other institutions respond to IT may be a key factor in determining whether its distributional impact will be negative or positive. James (*ibid.*, p. 413) refers to the area of biotechnology, where a number of ILO case studies show clearly that the existing capabilities in the Third World are generally not being applied in ways that will alleviate mass poverty, in spite of the important potential that many of the new techniques have in this respect. Thus, micropropagation techniques are being applied mainly to commercial crops to meet the needs of the large-scale, commercial agricultural sector. Public policy (including the regulations set for private-sector participants in the R&D area) is based on the fact that private actors focus on what will benefit those who are able to afford to pay for the research. Any benefits ultimately accruing to the poor are 'trickle-down' in nature, and although they may be substantial, nothing is guaranteed.

In the case of the new IT, much attention has been given to its presumed effect of raising the productivity and wages of those with skills in information use, and on the special value of mental flexibility to allow new learning and retooling in line with changing demands for skills.<sup>10</sup> It is well recognized, in Latin America as elsewhere, that the educational/training process should be modified to take account of the pay-off to information-related skills, but translating that recognition into effective action is very difficult, especially in the context of tight budgets and typically inefficient ministries of education and labour. As higher skills become more valuable in the market it is important that the variance of skills between people – currently extremely wide in countries such as Brazil – be shrunk; otherwise there is a serious risk that the information revolution will increase inequality, poverty and marginalization. It may be equally important for the system to facilitate the entry of workers displaced by IT into other activities.<sup>11</sup> Optimists point out that none of the earlier technological revolutions has led to a permanently more skewed distribution of income, as far as can be ascertained.

Information technology could accentuate inequality by improving the relative situation either of the more skilled workers or of larger firms. At the moment large organizations use more IT – both computing services and telecommunications – than do small ones. It remains to be seen how this gap will change over time. Mody *et al.* (1992, p. 1813) conclude that in a period of rapid technological change, significant productivity differences can emerge among competing firms and that these ‘can be magnified if the past accumulated learning creates an advantage in the adoption of new innovations’. The fact that such initial differentials favour larger firms curtails the demand for labour. Such differentials could also have a regional dimension; income gaps related to productivity tend to be magnified by weaker demand effects and externalities in the poorer areas. The chronic persistence of the income gap between the north-east of Brazil and the southern region suggests that such income-equalizing mechanisms as the high rate of migration from the former are only moderately strong.

The overall importance of IT in Latin America and elsewhere will depend on how it affects the region’s trade. Thus far, although there is no evidence of a boom on the scale experienced by East Asia, there are some indications of real potential. There is no doubt that, IT is becoming essential to serious contenders in many markets. The benefits are viewed by some as ‘strategic’, that is, non-price. An important determinant of the employment effects of trade increases resulting from the spread of IT will be the degree to which it facilitates the relocation of routine parts of production to lower-wage countries or regions.<sup>12</sup>

It is clear that many elements of IT are being transferred to Latin America, but as yet many of them are not at all widespread. If those elements that have mainly beneficial effects are non-frontier, have falling prices and can be

disseminated widely (for example to smaller firms), then the net impact could be quite positive. In the opposite scenario it could be negative.

### **TNCs, IT and Globalization**

TNCs play a big role in R&D that undermines developing-country exports of primary products and light manufactures. Conversely information technology reduces the costs of intrafirm communication and thereby encourages firms to engage in more geographically dispersed patterns of activity (see Chapter 2). This has helped to keep the location of labour-intensive activities such as in clothing relatively unaffected, in spite of the introduction of some modern technology and the need for short turnaround times. It accounts for the relocation of computer software activities involving routine data processing from the United States to the Caribbean (Barbados, Jamaica), where advanced telecommunications facilities exist and a plentiful supply of skilled labour is to be found. Such potential is of special interest to Latin America, because of the proximity of part of it to the United States, its reasonably advanced telecommunications system and the expanding supply of skilled operators.

One issue is thus the way in which evolving IT will affect the decision of TNCs to locate their production activities in regions such as Latin America. Another is the implications of TNC locations for the desirability of R&D and significant technology development within the region. Patel (1995, p. 151) concludes that there is no systematic evidence to suggest the widespread decentralization of TNCs' R&D activities in the 1980s. An overwhelming majority of technological activities are still located close to the home base. This, however, does not preclude the possibility that what does occur in developing countries is quite important to them (for example microelectronics and biotechnology R&D in India, biotechnology in Mexico and other countries). To the extent that it is more directed at producing internationally relevant products than was the case under the product cycle model (when its main purpose was to adapt products or processes to local tastes and production conditions), the positive effects on the host country may be reduced (see Chapter 2).

At this point, then, the international activities of TNCs do not provide a reason for Latin America to downgrade the importance of developing its own capability in the technology area. Pack and Westphal (1986, p. 111) argue that 'pecuniary externalities related to investments in technology – in acquiring technological capability and in undertaking technological effort – are ubiquitous in industrialization'. James (1993, p. 411) notes that the importance of these activities is heightened by convergence among the major new technologies: microelectronics and communications technologies are converging, and the former is also interacting extensively with biotechnology (for example automated bioprocess control, automatic DNA synthesizers). What remains

to be done, however, is to assess the separate roles of activities that are complementary to international research, that is, those that facilitate domestic purchase, adaptation and dissemination, compared with those that are more competitive with, or at any rate not simply derived from the activities of international agents. The general view is that the former function is quite important and requires considerable effort and expenditure in the technology area. As for the latter, which is vigorously pursued only by a modest number of countries, a judgment in the Latin context is more difficult. In their comparison of the super-mini industry in Korea and Brazil, Evans and Tigre (1989, p. 1752) note that the Korean state exhibits a degree of cohesiveness that far exceeds what Brazil can achieve, allowing it to focus and coordinate various organizations and instruments in a policy area like this. Chesnais's (1995, p. 28) summing up is worthy of note:

The future of countries in the international trading system now depends essentially on their capacity to build domestically (or within close regional cooperation and protection) the skills and interactive mechanisms on which technological accumulation and capital formation both depend. While the possession of these attributes will in due course make them attractive to MNEs, the current priorities of the latter and the basis on which international investment decisions are taking place mean that it is preferable that countries do not lay undue expectations on FDI.

## **SOME EMPIRICAL EVIDENCE**

As noted above, IT and globalization arrived in Latin America at about the same time. In many other parts of the world, including the industrial countries and the rapidly growing East Asian economies, the advance of IT has been part of the process of investment and technological change for a longer period. In Latin America, however, investment rates were low during the 1980s (Table 3.1) so embodied technological advance was slow. As the recovery came, accompanied by trade liberalization and rising trade and foreign investment ratios, the backlog began to be made up. As a result of this simultaneity, it is especially hard to identify from the aggregate record of growth, distribution and poverty, what may be due to trade and other policy change, what to IT and other aspects of technical change, and what to other factors, including the process of recovery from the crisis.

### **The Impact of Globalization on Growth**

The 1990s, while obviously better for Latin America than the disastrous 1980s, have been disappointing in that the region has not been able to recover

the sustained growth of the pre-1980 period (Table 3.6). Nor has overall unemployment declined from the high levels suffered in most countries during the mid-1980s; instead the levels in most countries and the regional average have risen during the 1990s, putting the latter at 7.7 per cent in 1996 (Table 3.7). Per capita output in 1995 was still a bit below that of 1980 and per capita income nearly 10 per cent below; the regional growth rate through 1996 was close to 3 per cent, hardly dramatic but enough to edge per capita incomes up by about 6 per cent since 1990 (UNECLAC, 1996a, p. 14) and to contribute to a return of optimism about the region's economic future. Much of that optimism is based on the widespread belief that the currently more market-friendly economic policies are a change for the better *vis-à-vis* those of the precrisis period.

How well-founded is this optimism? On the growth front, there are several causes for concern. First, the performance of Chile, while stellar in many respects, is that of a small, mineral-rich country that was able to disregard popular dissatisfaction while putting its reforms in place and ultimately managed to get much of its microeconomic policy right from a growth perspective. It would be expecting too much to presume that the region as a whole could do this well. Second, those countries that have opted for uncontrolled exchange markets may continue to suffer the exchange rate instability and periodic overvaluation that is interfering with their attempt to induce healthy export growth. Third, there remains the possibility that protection, as previously implemented in the major countries of the region, rather than impeding the considerable economic success achieved during the ISI era

*Table 3.6 GDP growth rates for Latin American countries (per cent per year)*

	1970–80	1980–90	1990–94	1995
Argentina	2.5	–0.3	7.6	–4.6
Bolivia	4.5	–0.4	3.8	3.7
Brazil	8.1	2.7	2.2	3.9
Chile	1.8	4.1	7.5	8.2
Colombia	5.4	3.7	4.3	5.7
Costa Rica	5.7	3.0	5.6	2.3
Dominican Republic	6.5	2.7	4.2	4.7
Ecuador	9.5	2.0	3.5	2.7
Mexico	6.3	1.0	2.5	–6.6
Peru	3.5	–0.2	4.2	7.7
Uruguay	3.1	0.4	4.4	–2.8
Venezuela	3.5	1.1	3.2	2.3
Latin America	5.4	1.7	3.6	0.3

*Sources:* World Bank (1995a, 1996a); UNECLAC (1996a).

*Table 3.7 Urban unemployment rates for Latin America, by country  
(average annual rate)*

	1980	1985	1990	1991	1992	1993	1994	1995	1996 <sup>1</sup>
Latin America & the Caribbean	6.2	7.3	5.8	5.8	6.3	6.3	6.4	7.3	7.7
<i>Regional average:</i>									
Argentina									
(total urban rate)	2.6	6.1	7.5	6.5	7.0	9.6	11.5	17.5	17.2
Bolivia									
(department capitals)	—	5.8	7.3	5.8	5.4	5.8	3.1	3.6	3.5
Brazil									
(six metropolitan areas)	6.3	5.3	4.3	4.8	5.8	5.4	5.1	4.6	5.7 <sup>2</sup>
Chile <sup>3</sup>									
(metropolitan region)	11.7	17.2	6.5	9.3	7.0	6.2	8.3	7.4	7.2 <sup>4</sup>
Colombia <sup>5</sup>									
(seven metropolitan areas)	10.0	13.9	10.5	10.2	10.2	8.6	8.9	8.9	11.4 <sup>6</sup>
Costa Rica									
(total urban rate)	6.0	6.7	5.4	6.0	4.3	4.0	4.3	5.7	—
Ecuador <sup>5</sup>									
(total urban rate)	5.7	10.4	6.1	8.5	8.9	8.9	7.8	7.7	—
El Salvador									
(total urban rate)	—	—	10.0	7.9	8.2	8.1	7.0	7.0	7.5 <sup>7</sup>
Guatemala									
(nationwide total)	2.2	12.1	6.5	6.4	5.7	5.5	5.2	4.3	—
Honduras									
(total urban rate)	8.8	11.7	7.8	7.4	6.0	7.1	4.0	6.0	6.3
Mexico									
(total urban rate)	4.5	4.4	2.7	2.7	2.8	3.4	3.7	6.3	5.7 <sup>2</sup>
Nicaragua									
(nationwide total)	—	3.2	11.1	14.2	17.8	21.8	20.7	18.2	16.1
Panama <sup>5</sup>									
(Metropolitan region)	9.9	15.6	20.0	19.3	17.5	15.6	16.0	16.2	16.4
Paraguay <sup>8</sup>									
(Asuncion metropolitan area)	4.1	5.2	6.6	5.1	5.3	5.1	4.4	5.3	—
Peru <sup>6</sup>									
(Lima metropolitan area)	7.1	10.1	8.3	5.9	9.4	9.9	8.8	8.8	8.7
Uruguay									
(Montevideo)	7.4	13.1	9.2	8.9	9.0	8.4	9.2	10.8	12.6 <sup>4</sup>
Venezuela									
(total urban rate)	6.6	14.3	11.0	10.1	8.1	6.8	8.9	10.9	11.9 <sup>7</sup>

*Notes:*

1. Preliminary figures.
2. January – October.
3. From 1991 on the data have been drawn from a new sample.
4. January – September.
5. Includes hidden unemployment.
6. Average for the rates in March, June and October.
7. First half of the year.
8. From 1994 onwards the figures shown correspond to the total urban rate.
9. The data for 1995 and 1996 have been taken from a new survey and refer to the first half of each year.

*Source:* UNECLAC (1996b, p. 40).

contributed to it. This may be because, as hinted by Khan in Chapter 4, it provided a level of certainty about the future that encouraged high levels of investment, perhaps by facilitating learning by doing, or perhaps through other mechanisms. If such was the case, it may be hard to match those earlier performances. MERCOSUR and its ilk may be the answer to the need for some protection from industrial-country competition, at least for some of the countries. Fourth, to the extent that high levels of investment in human capital, especially broadly based ones, are a key element of growth, as is currently so widely alleged, it remains to be seen how many countries will satisfy this requirement in these days of fiscal constraint, especially those starting from a modest base. Finally, as has been widely noted of late, increasing inequality constitutes a direct impediment to continued stable growth. While strong regional growth in the future is far from a foregone conclusion (the 1990–96 average has been just 3 per cent), it is nonetheless reasonable to expect growth in the 4–5 per cent per year range. Given that population growth has decelerated substantially from its peak, and now runs at well under 2 per cent per year, this could produce a decent rate of increase of per capita income and lower the incidence of poverty, unless the level of inequality increases.

### **The Impact of Globalization on Income Distribution**

On the distribution front, unfortunately the news is nearly uniformly bad. The economic reforms – trade liberalization, labour market reforms and so on have coincided rather systematically with a severe accentuation of (primary) income inequality; the ‘normal’ observed increase in inequality accompanying reforms is 5–10 percentage points, as measured by the Gini coefficient of primary income; among those Latin American countries for which the statistical evidence is adequate to reach conclusions on this issue, the only probable exceptions to this generalization seem to be Costa Rica, Jamaica and Peru (Berry, 1997a). Available data are insufficient to judge whether the distribution of secondary income (after allowing for taxes, transfers and the public provision of goods) has moved differently from that of primary distribution. Effective targeting has made a positive impact in some cases, but the reduction of government activity and changes in tax systems towards the greater use of indirect taxes may have had a regressive effect.

It seems likely that the observed increases in inequality are typically the result of a jump in the share of the top decile, with most of this accruing to the top 5 per cent or even the top 1 per cent (as in the case of Colombian and Ecuadorian households), and most of the bottom deciles losing ground. At a moderate per capita GDP growth rate of 2 per cent per year, it would require nearly 10 years of distribution-neutral growth for the bottom decile in urban Colombia to recover the ground lost as its income share fell. In urban



Ecuador where the percentage decline for the bottom decile was sharper (from 2.2 per cent to 1.5 per cent), nearly 20 years of such growth would be needed.

Too little research has thus far been done to establish causality between the increases in income concentration and the specific reforms or other changes (such as rapid technological change) that have accompanied them. The economic cycle appears to have played a role, but it cannot in any obvious way be held accountable for the large, lasting (at least to date) shift towards inequality.<sup>13</sup> Other possible factors include technological change and the elements of globalization (more open trade regimes and increasing foreign investment,<sup>14</sup> together with the associated market-friendly reforms), the dismantling of labour institutions and the 'socialization' of debts (whereby the state makes itself responsible for certain private debts that might otherwise threaten macroeconomic or financial stability).

Trade and labour market reforms have been consistent elements of the reform packages instituted in those Latin American countries where distribution has worsened significantly. The prediction that more and freer trade would raise wages at the expense of capital has not been fulfilled; instead wage inequality seems to have widened in a number of countries (including Chile, Costa Rica, Colombia and Ecuador) as trade increased or was liberalized.<sup>15</sup> Among the alternative theories put forward to explain the correlation between the removal of trade distortions and increasing inequality, several authors (for example Wood, 1994) assume that the labour involved in producing exports is relatively skilled, with the result that increased trade widens earnings differentials in accordance with level of education. Other theories involve 'skill-enhancing trade' (Robbins, 1995a): the increased imports of capital goods that result from trade liberalization can increase the returns on skilled labour, which is complementary to capital goods (Hamermesh, 1993; Stokey, 1994). It has also been widely noted that globalization tends to favour the 'large-scale sector' of the economy – large firms, large cities, the more developed regions of the economy and so on.

The dominance of large firms in the production of manufactured exports implies less employment creation than would otherwise be expected (Berry, 1992). Since earnings differences associated with firm size (including those across the formal – informal sector divide) and with region are often large in developing countries, an accentuation of this tendency constitutes a real risk. A third inequality-increasing mechanism related to international trade involves the fact that import liberalization appears to shift the price vector in favour of better-off families. Although optimists have argued that the opening up of trade should be expected to raise the relative incomes of agricultural workers, the evidence *on this point* is not encouraging. A significant feature of the 1984–89 period in Mexico was a widening gap between urban and rural incomes and of the sharp decline in income from agriculture and livestock as a share of rural income both of which contributed to the

overall increase in inequality (Alarcon, 1993, pp. 139, 148). In Colombia an unprecedented increase in the gap between urban and rural incomes in the early 1990s, coincided with the process of liberalization. In such countries it appears that a significant part of the agricultural sector cannot compete easily with an onslaught of imports and that its labour resources cannot easily shift to other sectors. Paraguay provides a longer-run test of the implications of outward orientation for agriculture, since it is unique among Latin American countries in having pursued such a strategy more or less systematically since the 1950s (Weisskoff, 1992, p. 1531). Some exports (for example cotton) are produced by small peasant farmers, soybeans and wheat are grown on medium-sized farms with machinery and international technology, while cattle are the domain of the *latifundia*. Although all groups have participated in it, Weisskoff concludes that export-led growth has worsened the structural inequities of the economy. The three-country study by Carter *et al.* (1996) suggests that Paraguay's experience with export-oriented agricultural growth is probably among the most negative in terms of its distributional consequences. It provides few grounds for optimism that the rural-agricultural side of the outward-orientation picture will be positive enough to alter greatly the negative conclusions reached mainly on the basis of urban data.

Some policies that countries have chosen as complements to liberalization (of trade and foreign investment) may also be contributing to increased inequality; three such are privatization, financial reform and labour market reform.

Although privatization is not inevitably associated with trade and investment liberalization, the international financial institutions have strongly encouraged it as an accompaniment to liberalization packages. Thus significant privatization steps have been taken in Latin American countries as part of liberalization. The World Bank (1996c, p. 53) cautions that 'poorly managed privatization, even if it delivers short-term revenue or performance gains, may be seen as corrupt or highly inequitable, concentrating economic and political power in the hands of a domestic elite or foreign investors'. Privatization in Chile clearly contributed to wealth and income concentration; 'the sales led to an acute concentration of ownership and to the formation of large conglomerates' that continue to dominate the economy (Meller, 1992, p. 27).

Meanwhile the 'socialization' of international and other debts in order to save teetering financial and non-financial enterprises has doubtless had a significantly negative impact on distribution as well, as detailed most clearly for the case of Chile by Meller (*ibid.*) This was in part a crisis-response policy. But such liberalization contributed to financial crises during the 1970s, the 1980s (Diaz-Alejandro, 1985) and more recently. Mexico once again provides the most dramatic example. Both Argentina and Mexico have recently engaged in official bailouts to contain banking crises. Solid evidence is yet to appear on the distributional effects of financial liberalization, apart from

those occurring via financial crises *cum* bailouts, but there are reasons to suspect that these too could be negative.

Labour market reforms that decrease job protection and labour's bargaining power appear to open the way for wider wage and salary differentials among individuals. The record in Latin America, together with evidence from developed countries, which implicates them as a factor in increased wage inequality, suggests that such reforms and labour market functioning more generally need to be carefully assessed as possible contributors to inequality.

### Identifiable Effects of IT

Latin America, like other countries introducing the new IT technologies, awaits the outcome as far as growth is concerned. In industrialized countries it has been widely commented that no significant positive impact on growth of output or on total factor productivity (TFP) has yet been identified (see Chapter 7, Table 7.9 for estimates of TFP over time), a fact that seems strange to some observers given the consensus that this is a technological revolution. But students of earlier bursts of technological change note that it takes a long time for the changes to work their way through the system, with the main productivity effects showing up only after dissemination has reached a rather high level; so it is not surprising that no obvious positive output effects can be identified in the aggregate national accounts figures for Latin America.

On the distribution front, the difficulty of identifying the sources of the widespread increase in inequality has been noted above; however IT and technological change more generally are obvious candidates at this point. Evidence from other countries provides some help in this respect. The consensus for the industrial countries seems to be that new technology, and increased imports of labour-intensive goods are the main suspects for the widespread tendency towards increasing inequality during the last 15 years. As we note in Chapter 7, the experience of East Asian countries shows that such a tendency is clearly avoidable.

### POLICY ISSUES AND RECOMMENDATIONS

It is assumed here that the outward-oriented strategy of most Latin American countries will continue for some time, although the precise mix between the unilateral freeing of trade and investment, maintenance of some restrictions and participation in trade blocs remains to be seen. Thus much of the policy concern, including that in the technology area, will be aimed at complementing a relatively free-trade strategy in a globalizing world. Though external pressures from the industrial world leave countries much less policy space than before, there are important decisions to be made on how to design and

implement an economic policy in this new context. Greater emphasis on exports now must affect the thinking on most of the policy areas discussed here.

The IT area is also characterized by limited policy space. In terms of adoption or non-adoption of some of the new technologies, it is possible that policy may have at most a modest impact. It may certainly influence the speed and extent of their dissemination, and that may be important to their overall effect. Here, as with trade, the main decisions revolve around (1) which types of IT would be beneficial to the country, if properly complemented by policy in other areas; (2) whether policy tools exist to guide adoption in the desirable directions and away from the undesirable ones; (3) the details of policy in the areas of complementary infrastructure, education and training; and (4) special support for the adoption of IT by small and medium-size enterprise.

There are three striking similarities about policy making in the context of globalization and information technology. First, there is no assurance that the broad effects of either globalization or IT will be positive in Latin America, even though many policy makers have embraced greater openness as desirable and accepted IT as largely inevitable. Second, it is widely believed that the effects of both phenomena will be large. If such effects are both large (the general expectation) and unpredictable (my view, as argued above), it is clearly important that decision makers continue to monitor the effects as closely as possible in order either to backtrack or to redesign policy.<sup>16</sup> Third, positive output (efficiency) effects appear likely in each case but the distributional effects are worrisome. So the policies surrounding both phenomena should give greatest attention to guarding against and alleviating those effects. In the case of Latin America, with its legendary high levels of inequality to start with, it more generally puts a greater onus on governments to design good antipoverty and inequality policies.

In the case of IT especially, decisions have to be made about whether significant support should be given to improving local capacity. It appears that some types of benefit will not be forthcoming in the absence of such an effort, but whether it should be made is unclear since the effects of IT in general remain ambiguous.

### **Policies on Globalization**

An optimal set of policies to help Latin America to respond to and take maximum advantage of the process of globalization includes some that will affect the rate and extent of integration into the international economy, some that are related to the accompanying policy package. Others that are not directly related to globalization or to IT but affect poverty are increasingly important owing to the risks associated with those two phenomena.

First, there should be *astute management of the new system of freer trade, investment and capital flows* so that it does not lead to instability or premature loss of productive capacity, especially in those activities and firms that create many of the lower-paid jobs. In part this involves further development of the instruments now in widespread use in industrial countries to defend against dumping and other unfair practices, import surges and so on. The small and medium sectors, which create large numbers of jobs, can be vulnerable to import surges.

Second, great care is needed in the *management of the capital account* to avoid overvaluation and instability of the real exchange rate, since both of these tend to discourage exports, reduce growth and increase unemployment. The two countries with the most successful growth performances in recent years, Chile and Colombia, both impose controls in this market.

Third, *policies designed to assure a healthy demand for labour* should give due attention to what are likely to be the major sources of productive employment over the next decade or so: the rural and the SME sector. A strong rural sector has been a hallmark of the most successful development experiences around the world, including those of Costa Rica, Indonesia, Japan, Taiwan and others; and it has been the normal precursor to healthy overall development. Most countries of Latin America have been strikingly deficient in this area, for reasons that relate to the highly unequal distribution of land. But there are enough positive experiences in the region, albeit mostly on a small scale thus far, to give some grounds for optimism.

Fourth, *general support is required for small and medium enterprises* (including microenterprises) in the form of improved credit institutions, marketing assistance (fairs, for example) and technological and training assistance. Special support should be provided to enterprises with export potential as otherwise there is a risk that the export basket, being dominated by large enterprises, will not create much employment. The experience of many countries, including Japan and some of its Asian neighbours, illustrates the potential importance of linkages between efficient modern industry and smaller firms. Though the evidence from Latin America is scant, it suggests that such mutually beneficial synergies are significantly less common than in Asia. The contribution of effective linkages of this sort is likely to be more important in open economies than in closed ones. Where it is larger firms that do most of the exporting (as in Brazil for example, see Silber, 1987), export success may bring little productive employment in its wake unless smaller subcontractors are hooked into the process.

Finally, complementary to fostering a healthy demand for labour is *strengthening the human capital* at the lower end of the earnings profile through improved coverage and quality of primary education, better and more applicable vocational education, and support for on-the-job training for lower-skilled persons. In addition, reform of the labour institutions

appears to be important in some countries since malfunction there can be prejudicial to a country's success in the world market. Some of the onus of protection against unemployment should be shifted from the firm to an unemployment insurance system; and a number of Latin countries have already moved in this direction. Perhaps most of all, labour institutions need to be considered with the needs of small and medium enterprises in mind, together with those of the workers. This includes responding to the possible use of 'labour standards' as a weapon of high-wage countries as opposed to lower-wage ones. If SMEs are extensively involved in trade, as they will have to be in some countries for employment generation to proceed satisfactorily, these issues may become especially contentious.

### **Policies on IT: Capacity Building and the Capital Goods Industry**

There is fairly general agreement that a strong capacity to foster the right sort of technological change is important in most developing countries; the disagreement revolves around what sort of change (for example does it matter greatly whether it is labour saving or not?) and what sort of institutional capacity is needed to produce the requisite change.<sup>17</sup> As Lall (1992, p. 171) notes, healthy industrial development requires a continuous process of technological learning, adaptation and improvement, a process that still lacks adequate inducement mechanisms.

For the countries of Latin America it is helpful to consider *three policy levels or domains*. The first level involves policies that will contribute to the effective introduction and dissemination of those desirable components of IT that will come by transfer. The second envisages an important role for domestic capabilities in complementing the process of transfer in additional ways and in developing locally relevant technologies, where much of the progress is based on local capacities and less on borrowed knowledge (within this category one might or might not see a role for leapfrogging). The third level refers to a non-local role for the country or region, whereby it develops its capabilities in line with exports that draw significantly on that domestic capability. These might include direct exports of technology or exports of products that incorporate domestically developed technology. At the first two levels the main task of local science and technology capacity is to determine which technologies are borrowed, adapted and adopted locally, and improve the capacity to adapt so that the undesirable elements of foreign technologies can be bred out of them before being used locally. Exponents of the latter are mainly worried about inappropriate technology being introduced when there is too little local capacity.

In his argument for a strong-support strategy Teitel (1992, p. 366) notes the long-term trend towards the capability to export manufactures beyond the region – even in product lines involving fairly advanced stages of value added,

skills and technology. While the region's recent export performance testifies to the competitive potential of industries fostered under the old policy regime, Teitel (*ibid.*, p. 374) notes that a substantial technological discontinuity seems to have occurred in Latin America around 1975–80. For the industrial applications required in the new fields, the learning embodied in the stock of human capital acquired during ISI is of limited use. He feels that to boost the region out of its current stagnation an enhanced role on the part of the public sector may be needed.

Perez (1985) has been a strong proponent of this view. Her view that Latin America should be trying to 'get in early at the ground floor' in the present information technology revolution is based on the conclusion that this is both feasible and desirable for a region with its current factor endowments. The implicitly or explicitly interventionist views of such authors as Perez and Teitel contrast with the neoliberal view that the process of technical change is best left to the market, especially when it involves high technology.

The optimal levels of activity in and support for technological development and capacity building vary widely among the countries of Latin America. Only a few have the potential to operate at the third level discussed above – Brazil and perhaps Mexico and Argentina. Still, the recipe for taking maximum advantage of IT may be qualitatively similar. Newness of the technology, its riskiness and the very imperfect information about it among many economic agents would imply that education and training must focus on skills complementary to the IT. Moreover, public support to improve information about IT and assistance to economic agents to bear risk, and so on may be essential for getting the IT into application in the full range of places where it would be advantageous.

Widespread application is necessary if increasing technological dichotomy among firms (correlated to their size) is to be avoided, but since rapid adoption implies a high level of labour displacement it is important for the economy to be growing rapidly so that additional job opportunities can be created, whether in the sectors most affected by it or in others. This recipe seems to have been achieved in several of the East Asian countries. Distribution appears not to have worsened significantly during the rapid increase of IT in the four tigers. In Korea it actually declined, perhaps in part due to the great expansion of subcontracting there – an expansion that linked the SME sector to international trade in a major way. Such success stories notwithstanding, *there is much uncertainty about the magnitude and timing of the impact of IT in Latin America*. The risk of attempting the recipe but failing lies in the fact that if labour displacement occurs and this is not balanced by rapid growth, the main impact of the whole process might be damage to the distribution front. In Latin America, going 'all-out' on a high-tech path is riskier than in East Asia because of the likelihood and the costs of leaving people behind. This likelihood is greater since there is no reason to suppose

that economic growth will be rapid, and the costs will be greater because of the currently high level of inequality. But the costs of not pushing ahead are also large. There is the danger of losing international competitiveness, if indeed these technologies are becoming increasingly central to such competitiveness. In addition, losing out on certain technologies that are successfully applicable at low scales of production and hence are SME-friendly, would deprive SMEs of the opportunity to raise their relative productivity.

Even the lower ranges of technological capacity, to which Latin countries should be aspiring, involve sometimes challenging levels of infrastructural and human capital development. An efficient telecommunications infrastructure is an essential condition for the conduct of everyday business and hence for export success. It is also 'the basis for a rapidly expanding network of new services which can be traded internationally and can greatly enhance the efficiency of many other services, especially education and health' (Freeman *et al.*, 1995, p. 592). The frequent claim (for example Kaplinsky, 1990) that the new technologies make it possible to produce at a smaller scale than with the earlier technologies remains controversial. James (1993, p. 432) observes that thus far there is virtually no empirical evidence to support this claim, while Alcorta (1992) has suggested that the impact at the firm level may be scaling-up rather than the opposite. It is important to sort out how much of the earlier adoption of IT by larger firms was due to economies of scale and how much was due to information asymmetries and different lags in the implementation of such technologies. Also relevant in this connection is the extent to which the increasing use of IT in banks and other financial institutions enhances their capacity to serve the needs of SMEs by lowering transactions costs. Improved performance in credit verification, a typical information-intensive area, might improve their outreach to SMEs. Certainly one of the main tasks of local technology efforts in Latin American countries should be aimed at reaching small and medium firms, which are often found in outlying regions, and improving their technological options. This can be done by making new technologies available to them, adapting these technologies, blending new with traditional technologies and so on. While the objective is obvious, it is less clear how far it might succeed, and what policies are most likely to make it successful. Several points can be made in this respect.

First, infrastructure development in the smaller urban and rural areas of many Latin countries, which is often desirable irrespective of the new IT, may be more so in the presence of those options. One of the striking aspects of the successful development of some East Asian countries (especially Taiwan) is the role of rural electrification, plus the rural industrialization and the general non-agricultural dynamism that went with it. Might rural communication improvements have a similar effect? They would be especially important in tying smaller firms to international markets; FAX machines are now



*de rigueur* for many small exporters and constitute a major improvement in their information and communications capacity (Levy *et al.*, 1994).

Second, 'blending' should be given serious attention. As Bhalla (1996, p. 13) notes, 'A proper integration of new technologies into traditional modes of production offers much better prospects of learning-by-doing, of local experiments in adaptation and capacity development, than an indiscriminate use of new technologies in the advanced sectors of economic activity.'

Unfortunately few resources have been directed towards either blending or other approaches to the advance of appropriate technology in Latin America. Total spending on R&D has been small and the SME-directed component much smaller still. Information about the various activities that do contribute in this direction is quite unorganized.

### **The Capital Goods Industry**

Bruton (1985, p. 81) argues that 'technological advance must occur in response to the conditions within the country's economic and social system rather than be imposed or simply made available from outside sources'. He argues that the first condition for the establishment of an indigenous capability lies on the demand side, that is, when the users are searching for new knowledge that begins the process of their production over broad areas of the economy.<sup>18</sup> For there to be an adequate supply response, a domestic capital goods industry is essential.<sup>19</sup> A related issue is assistance in the importation and refurbishment of used equipment. This is important both to widen the scope of available technologies (usually in the direction of more appropriate ones) and to facilitate the creation and survival of small firms, which are the locus of labour-intensive production in most countries.<sup>20</sup>

### **The Role of Government**

The successful spread of IT depends on an active support policy, according to authors such as Mody and Dahlman (1992, p. 1703). They conclude that 'effective planning and organizational capabilities are essential to successful adoption of the new (information) technologies'. Though TNCs are an important vehicle for the transfer of technical knowledge, they are unlikely by themselves to satisfy the needs of the host country due to some combination of inappropriate technology being transferred, transfer that is unhelpful because of its focus on products rather than processes,<sup>21</sup> and more generally a failure to contribute to the domestic knowledge-accumulation process<sup>22</sup> and the associated indigenous technological capacity. 'Indeed, it is easy to find evidence that they may well harm any effort to do so' (Bruton, 1985, p. 101). Lall (1992, p. 198) notes that, despite its size and capital goods base, Brazil has retained a high dependence on foreign technology in the form of foreign

direct investment. Its dynamic indigenous private sector is 'wedged between' TNC dominance in some industries and that of public-sector enterprises in others. Though it has had some major successes, the Brazilian strategy has thus far proved ineffective in improving the dynamism and competitiveness of large areas of industry. Mexico has not adopted the Brazilian style of intervention to develop specific technologies.

## Notes

1. The term 'marginalization' is used in this chapter to refer to a situation or a process in which segments of a population do not share the fruits of economic growth and social change, or in more extreme cases, are isolated and made worse off by it. The main operational measures are low levels of income, education, health/nutrition and housing – the standard indicators of material poverty. Losses so measured often go hand in hand with social and political marginalization.
2. The current price trends are different from those in constant prices because the relative price of capital goods changes in individual countries, and also because the relative price of the currencies changes so that their weights in the regional totals change.
3. Since poverty is determined by private purchasing power and by what governments provide, a further relevant distinction is between private income and spending and public-sector income and spending. Globalization may affect the public-sector share, as well as the way in which the benefits of public spending are divided among people.
4. A prominent statement was that of Nun (1969). An interesting critique came from Perlman (1976).
5. Of course technological advance is harder to gauge than most of the other variables under discussion. Microeconomic evidence contradicting the theory has come from studies such as that of Fairchild (1979, p. 135). His comparison between national firms and joint ventures in the city of Monterrey found no evidence of greater technical innovation in the joint ventures, though the Mexican firms relied much more on the founders or other local people for technical information than did the joint ventures. Aggregate data, while subject to quality constraints, have likewise not suggested a low rate of technological change in Latin American manufacturing.
6. For example if a country tends to export what domestic demand does not absorb. The main tests of direction of causation have been intracountry (for example Sharma and Dhakal, 1995); though they clearly suffer from a range of methodological limitations and deficiencies of their own, they have detracted from the strong hypothesis cited above.
7. Most studies reporting the positive correlation in question have been consistency checks for the reference hypothesis rather than serious attempts to confront it with the more obvious alternatives – various other variables, including imports. Fishlow (1994) criticizes the World Bank's (1991) statement of the merits of openness on this count.
8. Such denial might be either on the ground that the 'learning by doing' on which the argument is based is quantitatively insignificant (a very hard position

to sustain in these days of emphasis on the importance of learning through this and other routes), or on the ground that governments do not have the skill to implement such protection competently. The second view seems more plausible.

9. In his survey of developments in the economics of R&D, Stiglitz (1987, p. 75) notes that in this area 'Adam Smith's invisible hand is not only not visible, but there is considerable evidence that it is not even there'.
10. Freeman *et al.* (1995, p. 600) predict that the bias that has appeared in the last 10–15 years against the use of unskilled workers, or those whose skills are wrongly suited to evolving needs and who are not easily retrainable, is likely to become much more pronounced in the rest of the decade.
11. Freeman and Soete (1994) note the potential value of job-creation programmes for these workers in community and personal services, which have a high growth potential partly because the imperatives of international competition will not exert the same degree of force there as on tradables.
12. This process may explain why countries such as China, Indonesia, Thailand and the Philippines have shown very rapid growth in trade in information and communication (ICT) products.
13. In Argentina, Chile and Mexico, for example, the increases in inequality occurred mainly during economic downturn or crisis but in Colombia and Ecuador they did not. Even in the former cases post-crisis inequality, while sometimes less than the peak level sustained during crisis, in general has been markedly higher than the pre-reform level.
14. The latter has also been proposed as a source of worsening in Mexico (Feenstra and Hanson, 1995).
15. Regarding the Latin American experience, see Berry (1997a) and Robbins (1995a, 1995b). Increases in inequality also coincided with the liberalization in Hong Kong and Taiwan in the 1980s, although not in Korea or Singapore, where the relative supply of more educated workers increased strongly (Wood, 1995).
16. James (1993, p. 425) refers to the striking absence of general equilibrium macro modelling of the impacts of microelectronics and biotechnologies in developing countries, even though these are becoming sufficiently widely adopted to be able to gauge their detectable effects.
17. The case for local technological capacity has been made in great detail by Lall (1993, 1995a) and Bruton (1985) in the context of Third World countries in general, and by Perez (1985) and Teitel (1992) in the Latin American context.
18. Bruton cites Freeman's (1973) study of the success and failure of innovations in the UK, which showed that the single measure most correlated with success was 'user need understood'; the innovation was designed to meet a need of the potential user.
19. A question that arises in these days of trade liberalization (and also of trade blocs) is whether the latter can improve the scope for fulfilment of this need.
20. The role of equipment specialists who imported, repaired, installed and guaranteed machinery used by small and medium firms in Colombia is discussed in Cortes *et al.* (1987) and Escandon (1981).
21. TNCs depend very heavily on the home market to develop their new products, and often bring to the LDC a new product (often a luxury) with little linkage to the domestic economy. Process technologies – for example, layout, testing procedures, properties of materials and so on – are more likely to be useful in developing countries than new products, since they may have wider application and be free from the undesirable features just noted.

22. One manifestation is the infrequency of the common phenomenon in rich countries of engineers or other skilled personnel leaving the parent company to create their own businesses (Bruton, 1985, p. 100). It might be expected to be less common in the case of TNCs since a higher proportion are foreign and a higher proportion are likely to see their future as solidly linked to the firm. It is noteworthy that national firms often have considerable spin-offs of this sort. Cortes *et al.* (1987) emphasize the frequency and importance of new firms created in this way in the agricultural machinery industry and furniture industry in Colombia. In the former, such spin-offs were an integral part of the process of quality improvements and price reduction, as they increased competition and provided a challenge for the application of good ideas that were bottled up in the parent firm.