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CEPAL

REVIEW

ECONOMIC COMMISSION FOR LATIN AMERICA AND THE CARIBBEAN

UNITED NATIONS

ECLAC

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ALICIA BÁRCENA

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GERT ROSENTHAL

Latin America, from boom to crisis: macroeconomic policy challenges 41
OSVALDO KACEF AND RAFAEL LÓPEZ-MONTI

The economics of climate change in Latin America and the Caribbean: stylized facts 69
LUIS MIGUEL GALINDO AND JOSELUIS SAMANIEGO

Trade unions in the "South" in the era of globalization 97
JOSEPH RAMOS

Technological dynamism and social inclusion in Latin America: a resource-based production development strategy 121
CARLOTA PÉREZ

Agricultural and trade policy reforms in Latin America: impacts on markets and welfare 143
KYM ANDERSON AND ERNESTO VALENZUELA

Regional integration and export diversification in MERCOSUR: the case of Argentina and Brazil 165
MARTA BEKERMAN AND CECILIA RIKAP

Development banks in the financial-liberalization era: the case of BNDES in Brazil 189
JENNIFER HERMANN

Paraguay's *Tekoporã* programme for cash transfers: debating targeting methods for beneficiaries 205
RAFAEL PEREZ RIBAS, GUILHERME ISSAMU HIRATA AND FÁBIO VERAS SOARES

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SUMMARY

Structural constraints on development in Latin America and the Caribbean: a post-crisis reflection 7
Alicia Bárcena

The financial and economic crisis of 2008 and its repercussions on economic thought 29
Gert Rosenthal

Latin America, from boom to crisis: macroeconomic policy challenges 41
Osvaldo Kacef and Rafael López-Monti

The economics of climate change in Latin America and the Caribbean: stylized facts 69
Luis Miguel Galindo and Joseluis Samaniego

Trade unions in the "South" in the era of globalization 97
Joseph Ramos

Technological dynamism and social inclusion in Latin America: a resource-based production development strategy 121
Carlota Pérez

Agricultural and trade policy reforms in Latin America: impacts on markets and welfare 143
Kym Anderson and Ernesto Valenzuela

Regional integration and export diversification in MERCOSUR: the case of Argentina and Brazil 165
Marta Bekerman and Cecilia Rikap

Development banks in the financial-liberalization era: the case of BNDES in Brazil 189
Jennifer Hermann

Paraguay's *Tekoporã* programme for cash transfers: debating targeting methods for beneficiaries 205
Rafael Perez Ribas, Guilherme Issamu Hirata and Fábio Veras Soares

Guidelines for contributors to CEPAL Review 217

Recent ECLAC publications 218

Explanatory notes

The following symbols are used in tables in the *Review*:

… Three dots indicate that data are not available or are not separately reported.

(–) A dash indicates that the amount is nil or negligible.
A blank space in a table means that the item in question is not applicable.

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

(.) A point is used to indicate decimals.

(/) A slash indicates a crop year or fiscal year; e.g., 2006/2007.

(-) Use of a hyphen between years (e.g., 2006-2007) indicates reference to the complete period considered, including the beginning and end years.

The word "tons" means metric tons and the word "dollars" means United States dollars, unless otherwise stated. References to annual rates of growth or variation signify compound annual rates. Individual figures and percentages in tables do not necessarily add up to the corresponding totals because of rounding.

KEYWORDS

Financial crisis
Economic development
Development strategies
Sustainable development
Macroeconomics
Investments
Productivity
Income distribution
Social policy
Latin America
Caribbean region

Structural constraints on development in Latin America and the Caribbean: a post-crisis reflection

Alicia Bárcena

The development of Latin America and the Caribbean is still a work in progress. Although there have been macroeconomic improvements, allowing the region to confront the recent crisis on a better footing, this crisis has exposed old and new structural constraints faced by the countries of the region, which are reflected in the persistence of large social, economic, fiscal and environmental gaps. These gaps need to be closed for the sake of future generations and as a precondition for viable development that combines economic growth with equality and sustainability. This suggests that there are more than just economic reasons for the State to play, once again, a major role in development strategies, so that public policies take the lead in building the future. The main purpose of the present article is to make this argument.

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I
Introduction

ECLAC has put forward three general hypotheses about the character and consequences of the recent crisis. The first is that it is not just a manifestation of weaknesses in financial system regulations, or the exclusive result of a moral crisis brought on by ambition and greed. The crisis is also bringing a particular "development style" to an end and opening up new avenues for economic, social and environmental debate.

The second hypothesis is that the State needs to play a renewed part in guiding development strategies in the region's countries. Setting out from a critical review of its recent performance, there is a vital need to redefine the role of the State and the way it operates, with a view to achieving a balanced interaction between the market, institutions and citizens in the development process.

The third hypothesis, which follows naturally from the first two, is that there needs to be a return to the idea of building "long-term" development strategies. This will require a greater capacity to devise and implement public policy measures that can reconcile what is enduringly important with the needs of the moment.

For all the progress in the past decade, the economic and social development of Latin America and the Caribbean is still a work in progress. There have been major macroeconomic advances that have translated into an improved fiscal situation, lower inflation and lower levels of external debt, all of which put the countries on a better footing to deal with the global economic and financial crisis that began in 2008. At the same time, however, successive financial shocks since the 1990s have resulted in more volatile business cycles and an unsatisfactory growth pattern. Old problems like the dynamics of productivity, economic heterogeneity and the creation and dissemination of technological capabilities still persist and underlie some of the structural constraints affecting the region. Thus, while the recent crisis has shown how important it is to strengthen the countercyclical capacity of macroeconomic policies, it has also reminded us of the need to prioritize production policies while expanding the coverage and improving the design of social policies. This confirms the need to rebuild the capabilities that will allow the State to resume strategic planning of long-term policies, create more leeway for fiscal policy and design appropriate instruments to deal with the structural challenges affecting the current pattern of development in the region.

This article offers a reflection on State policies and action in Latin America and the Caribbean. It advocates new forms of policy intervention and management, without which there can be no progress towards the different goals of development combining growth with equality and sustainability. At the same time, it argues for a new debate and for the centrality of politics when it comes to redefining the roles of the State and the market, so that the requirements of development can be reconciled with the expansion of citizen rights and democratic institutions.

This article is structured as follows. Section II briefly reviews the macroeconomic performance of Latin America and the Caribbean, discussing how this relates to external dependency and the structural problems that have traditionally afflicted the region. Section III supplements the analysis by discussing the accompanying social trends in the region. Transmission mechanisms and the effects of the crisis on the region are analysed in section IV, as are the responses of the Latin American and Caribbean countries. Section V presents the post-crisis scenario and discusses the old and new structural problems already brought out in the tradition of ECLAC thought. These are reflected by the persistence of major divides in society (poverty, exclusion and unequal distribution of income), in the productive realm (investment, productivity and innovation), in the fiscal area (the level and efficiency of fiscal expenditure and tax collection) and in the environmental arena (low-carbon production and energy efficiency). It is argued that the last of these is not just a condition of viability for growth and the welfare of future generations, but also and increasingly a requirement of the international "new normal" now taking shape, an emerging characteristic which will constrain the carbon content of goods. These constraints will have substantial repercussions on the international trade and global role of Latin America and the Caribbean in the post-crisis world.

☐ The author is grateful for the assistance of Mario Cimoli, Filipa Correia and Daniel Titelman, and for the contributions of Osvaldo Kacef, Joseluis Samaniego and Luis Yáñez.

II

Stylized facts regarding macroeconomic performance

Macroeconomically, the region has been characterized by low and volatile growth, particularly since the 1980s, and the result has been a persistently wide gap in per capita gross domestic product (GDP) between Latin America and the Caribbean and the developed countries.

GDP growth fell from about 6% in the 1970s to 2% in the 1980s (the "lost decade") and some 3% in the 1990s. The "lost decade" was characterized by low rates of growth and investment, partly owing to the tremendous effort required to pay down the debt taken on in the 1970s. This was compounded by acute macroeconomic instability with very high levels of inflation that spilled over into hyperinflationary episodes in some countries, severely unbalancing the economy and aggravating the problems of poverty and inequality. Where economic policy was concerned, the primary goal was to reduce inflation, and short-term concerns predominated as a result (ECLAC, 2002). During the 1980s, furthermore, not only did the region have to cope with a sharp fall in its GDP growth rate, but social conditions deteriorated and it fell far behind a rapidly moving technology frontier. Latin America and the Caribbean thus went into the 1990s weakened, with no improvement in productivity and no track record in disseminating technological innovations or expanding production capabilities.

The international omens in the early 1990s were more favourable, with the Brady Plan (1989) facilitating a return to international financial markets. This more propitious environment played a significant role in the success of the bolder stabilization plans adopted in the 1990s, where the stress was on measures to liberalize the economy, including trade.

The vital macroeconomic advances made as the 1990s went on should not be overlooked, in particular the success of Latin American and Caribbean economies in avoiding new inflationary excesses or any serious loss of fiscal control generally. These were positive aspects of macroeconomic policy administration; however, some of the collateral effects did not receive the attention they merited, and this was particularly true of short-term external capital inflows.

For all the success in combating inflation, there was no strong upturn in growth. Nor was stability wholly achieved, as the period was characterized by a run of external crises that became more recurrent and contagious towards the end of the decade, most particularly the Mexican crisis of December 1994, the Asian crisis of 1998, the Brazilian crisis of early 1999 and the Argentinean crisis of 2000-2001. The result was that growth fell off sharply and volatility increased. This period of stagnation (from the perspective of growth) ended with half a decade of impressive economic expansion (2003-2008) driven by higher commodity prices and a strong impetus from the global economy.

In both the 1980s and the 1990s, the countries of Latin America and the Caribbean tended to follow procyclical policies which amplified the upturns and downturns of the growth cycle (Ffrench-Davis, 2005). These policies passively tracked booms and busts in the supply of capital, so that phases of excessive borrowing coupled with currency appreciation were followed by severe contractions and sharp depreciation (Stiglitz and others, 2006). All this negatively impacted growth, stability and the development of technological and production capabilities, which were inevitably affected as they struggled to adjust to frequent fluctuations in relative prices and in demand and output levels. In particular, the emphasis on balancing budgets and using inflation control instruments (particularly interest rates) without at the same time considering the effects on the exchange rate (and competitiveness) helped to generate a surge in imports and reduce the density of the input-output matrix in Latin American economies. These weaknesses in the production structure meant that exports created few spillovers for the rest of the economy, and this was compounded by increased vulnerability when the phase of favourable external conditions came to an end (Ocampo, 2005).

From 2002 until the outbreak of the present crisis, Latin America and the Caribbean were able to achieve growth rates similar to those of the 1970s. There was a boom period from 2003 to 2007 during which regional GDP expanded by some 5% annually, while per capita

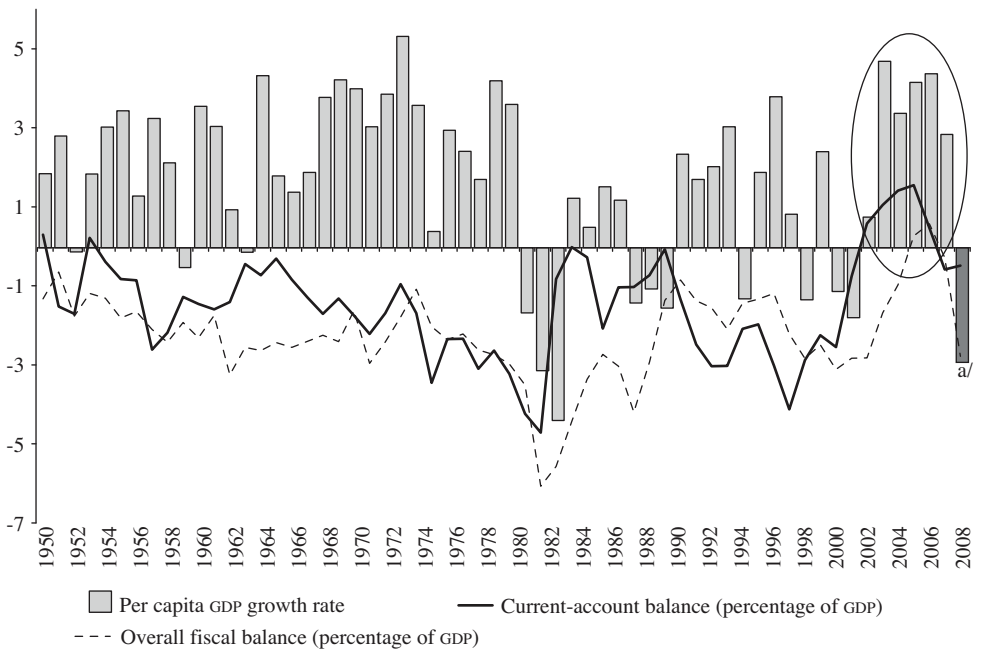
GDP growth exceeded 3% for almost five years running, in a context of positive current-account balances, fiscal surpluses and an unprecedented build-up of international reserves (see figure 1). At the same time, unemployment dropped sharply (from 11% to 7.4%) and the percentage of people below the poverty line fell by 10 percentage points (from 44% to 34%). This highly favourable combination of strong growth and good external balances was without precedent in the region's recent history (ECLAC, 2009a).

A key factor in obtaining such favourable results was the growth of the world economy, which averaged close to 3.6% a year during the 2003-2008 period (DESA, 2010). This resulted in an expansion of the region's international trade, which rose 138% in value, and a steady improvement in the terms of trade, which improved by 25% over the period. The economic expansion of Asia, and particularly China, where growth averaged 11% a year over the period, was critical to this improved performance in the global economy, with powerful repercussions for Latin America and the Caribbean (Rosales, 2009). Meanwhile, the new role of the Asian countries in the international economy has a dual character which should not be overlooked. While these countries pose a strong competitive challenge to the region in some branches of manufacturing, they are also driving growth in international demand for the commodities the region exports. This dual effect means that the impact of Asia has varied depending on countries' international specialization. On the one hand, large natural resource-based commodity exporters have benefited substantially from Asian demand and the improving terms of trade. In South America, which is where most commodity exporters are, the terms of trade rose by 33% over the period. Conversely, countries that export labour-intensive goods, such as Mexico, and that are not rich in natural resources (like many of the Central American and Caribbean economies) have suffered greatly from Chinese competition

FIGURE 1

Latin America and the Caribbean: per capita GDP growth, current account and overall fiscal balance

(Annual growth rates and percentages of GDP)



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

[a] Projection for 2009.
GDP: Gross domestic product.

and are now subject to greater constraints. In turn, countries that export low- and medium-technology goods, like Brazil, have been left in an intermediate situation, although there is evidence that they are being increasingly affected as China diversifies its exports into more technology-intensive goods (ECLAC, 2009b and 2009f).

Unlike other periods, 2002-2008 was distinguished by prudent management of the favourable external shock and by macro policies that yielded positive fiscal results, a build-up of external assets to cope with contingencies, low rates of unemployment and inflation and strengthened domestic financial systems (ECLAC, 2008b).

III

Social trends and changes

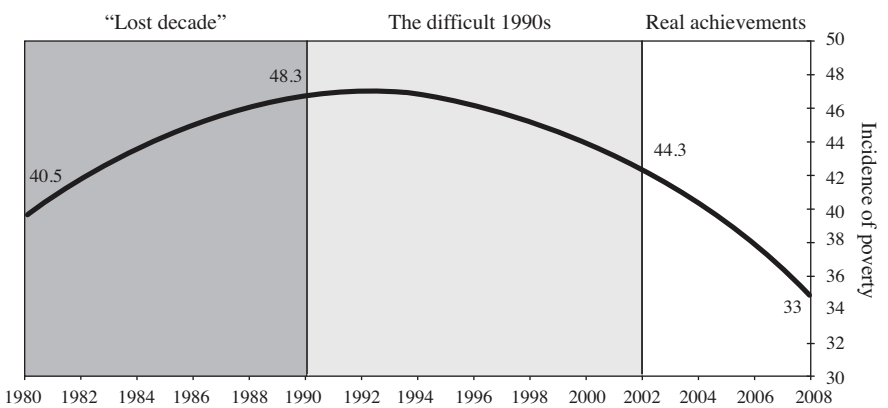
Cycles of growth and stability have their counterpart in society. The effects are particularly important in Latin America and the Caribbean, characterized as they historically have been by persistently high levels of inequality. As figure 2 shows, charting poverty over time produces a parabola which roughly tracks the growth phases of the region. Thus, poverty increased from the 1980s to the early 1990s before declining, with the incidence of poverty diminishing from 48% to 33% between 1990 and 2008.

Poverty levels rose towards a peak during the "lost decade" of the 1980s owing to lack of growth and to fiscal restraint, which negatively affected social spending. From the late 1980s to the early 1990s, as growth and employment began to pick up and social policies were strengthened, the trend towards rising poverty was reversed and it began to retreat. There have been substantial social advances in Latin America and the Caribbean over recent years, improving the overwhelmingly negative picture inherited from the "lost decade". From 2002 onward, steady growth and the application of social policies on a larger scale drove poverty down to its lowest level of the past 30 years (ECLAC, 2009d).

Six years of steadily declining poverty and inequality ended in 2008. It must be made clear that for all the progress since the late 1980s, there is still a long way to go. In 2008, compared to 1980, there were 44 million additional people living in poverty, and of those 9 million were living in extreme poverty. By the end of 2008 there were still 180 million people in poverty in Latin America, a high enough figure

FIGURE 2

Latin America and the Caribbean: poverty rate, 1980-2008
(Percentages)



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

to alert us to the need to improve policies aimed principally at this section of the population.

An assessment of the full six years, including the 2008 results for countries with information available, yields a positive final balance in the struggle against poverty. For the first time, as figure 3 shows, all the region's countries had a lower poverty rate than in 2002 or thereabouts. The percentage annual decline was most substantial in Argentina, the Bolivarian Republic of Venezuela, Peru, Nicaragua, the Plurinational State of Bolivia, Honduras and Brazil, while at the other extreme there were smaller reductions in the Dominican Republic, El Salvador, Paraguay and Uruguay.

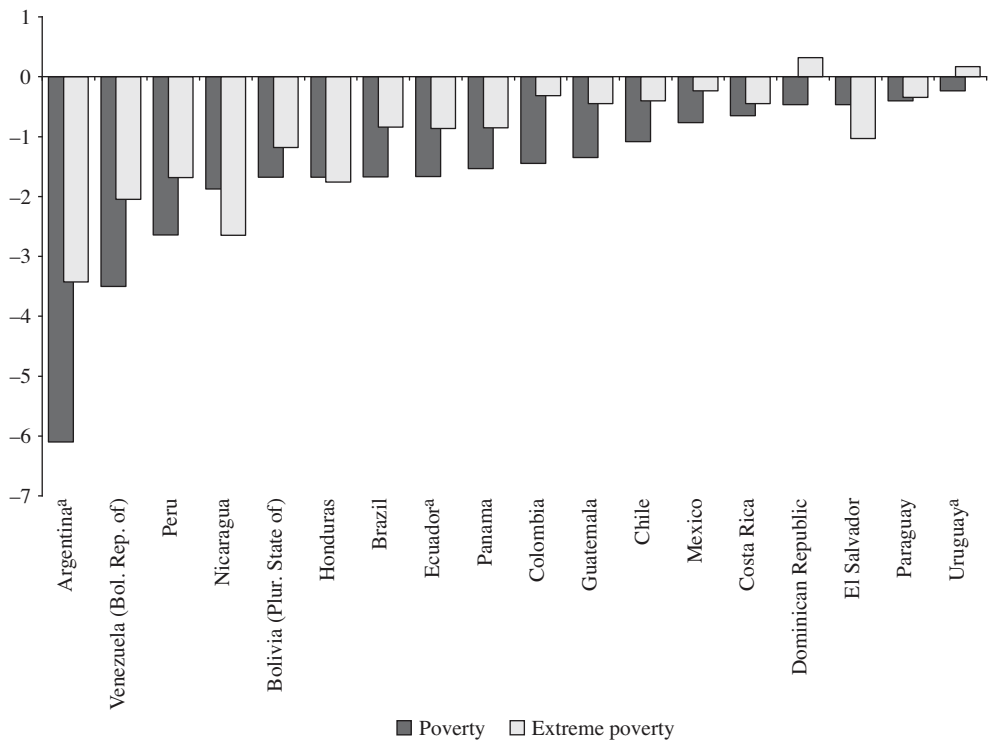
The extreme poverty rate also fell everywhere except the Dominican Republic and Uruguay. Although extreme poverty rates generally fell by fewer percentage points than poverty rates, the picture is the reverse when absolute changes are compared, with living conditions improving especially for those at the bottom of the income distribution despite rising food prices over the last year.

Where inequality is concerned, between 2002 and 2008 the Gini index dropped substantially in several countries, particularly the Bolivarian Republic of Venezuela (-18%), Argentina (-10%), Peru (-9%), the Plurinational State of Bolivia, Nicaragua, Panama and Paraguay (-8% in all of these). The only countries where income concentration increased in the period were Colombia, the Dominican Republic and Guatemala. It should be mentioned that the Colombia data are from 2005 and those of Guatemala from 2006, which means they may not be representative of the 2002-2008 period (see figure 4).

The combination of better distribution and rising average household incomes made a considerable

FIGURE 3

Latin America and the Caribbean: annual variation in poverty and extreme poverty rates, 2002-2008
(Percentages)

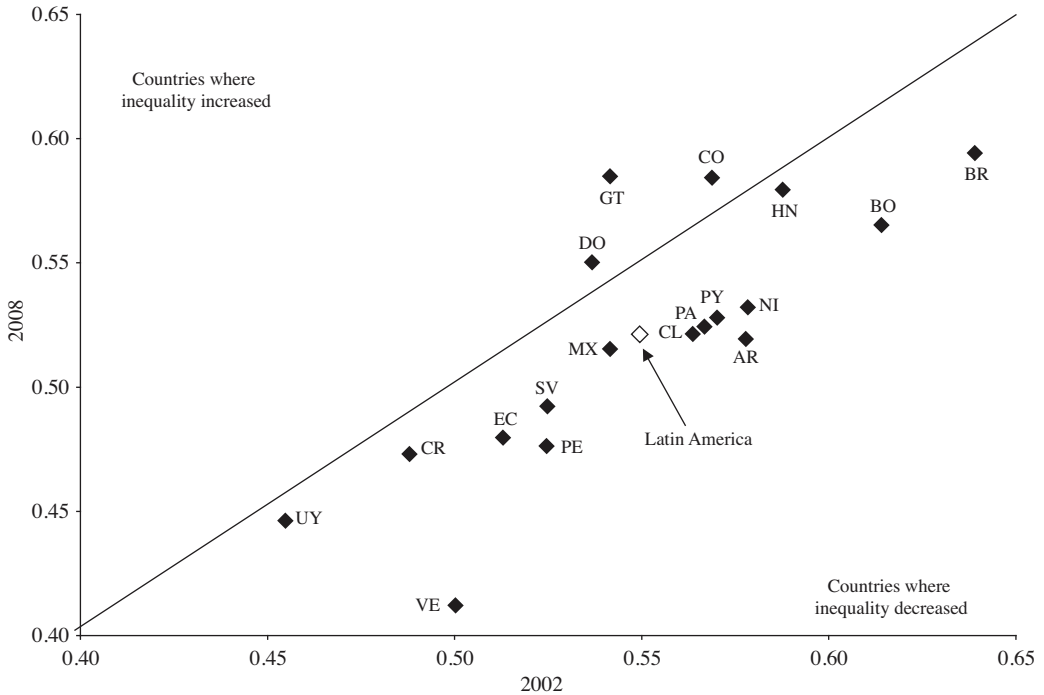


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of special tabulations of household surveys from the countries concerned.

[a] Urban areas.

FIGURE 4

Latin America and the Caribbean (18 countries): Gini coefficient, around 2002 and 2008



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of special tabulations of household surveys from the countries concerned.

BR: Brazil. BO: Plurinational State of Bolivia. HN: Honduras. NI: Nicaragua. CO: Colombia. PY: Paraguay. AR: Argentina. PA: Panama. GT: Guatemala. CL: Chile. MX: Mexico. DO: Dominican Republic. SV: El Salvador. PE: Peru. EC: Ecuador. CR: Costa Rica. UY: Uruguay. VE: Bolivarian Republic of Venezuela.

contribution to reducing inequality, something reflected by a drop in the Gini coefficient from 0.55 to 0.52. This reduction in inequality is not small (although inequality is still a long way from acceptable levels) and in some countries it has been very substantial, examples being Brazil, Argentina, the Plurinational State of Bolivia, Peru and the Bolivarian Republic of Venezuela. It should be recalled that a reasonable range of variation for the Gini index over a 10-year period is between 5% and 10%. In Latin America and the Caribbean, it dropped by an average of 3% for all the countries over six years, and by more than 5% in some. These are very substantial changes, especially in a region where inequality has traditionally proved very intractable (ECLAC, 2009d).

To sum up, in the third quarter of 2008, Latin America and the Caribbean closed a cycle of economic expansion (2002-2008) that saw substantial and consistent improvements in levels of poverty (which fell from 44% to 33%) and extreme poverty (from 19.4% to 12.9%), in the employment rate (which rose from 52% to 55%) and, in many cases, in equality (a decline in the Gini coefficient from 0.55 to 0.52). Although there are differences between countries, the improvements occurred in almost all of them. This progress deserves to be highlighted, especially given the earlier record of the Latin American economies, with inequality proving particularly hard to correct.

Although the trends have clearly been favourable, the results of the last six years do not change the fact that the Latin America and Caribbean region is one of the world's most unequal. Its record has improved, but not by as much as other developing regions', and the absolute number of poor and extremely poor people remains very high. All this means that governments cannot afford to lower their guard over the coming years in the struggle against social problems that still pose a serious obstacle to Latin American development.

IV

The current crisis, transmission and response mechanisms

Although the region was better placed macroeconomically to deal with this economic crisis than with previous ones, going into it with strong growth, a cushion of international reserves, a better fiscal situation, low unemployment and inflation and relatively sound financial systems, the scale of the present crisis has had substantial negative effects on the countries of the region.

GDP fell by more in 2009 (-1.8%) than at any time since the external debt crisis of 1982-1983. Indeed, apart from a small drop in 2002, it was the first time GDP growth had been negative since 1983. As figure 5 shows, growth has fallen off by more in this crisis than in previous ones, dropping on average from 4.8% to -1.8%, which represents a decline of almost 7 percentage points in the GDP growth rate. In the Asian crisis the decline was 4 percentage points, while in the "tequila" crisis it was 1.6 percentage points (Pineda, Pérez-Caldentey and Titelman, 2009).

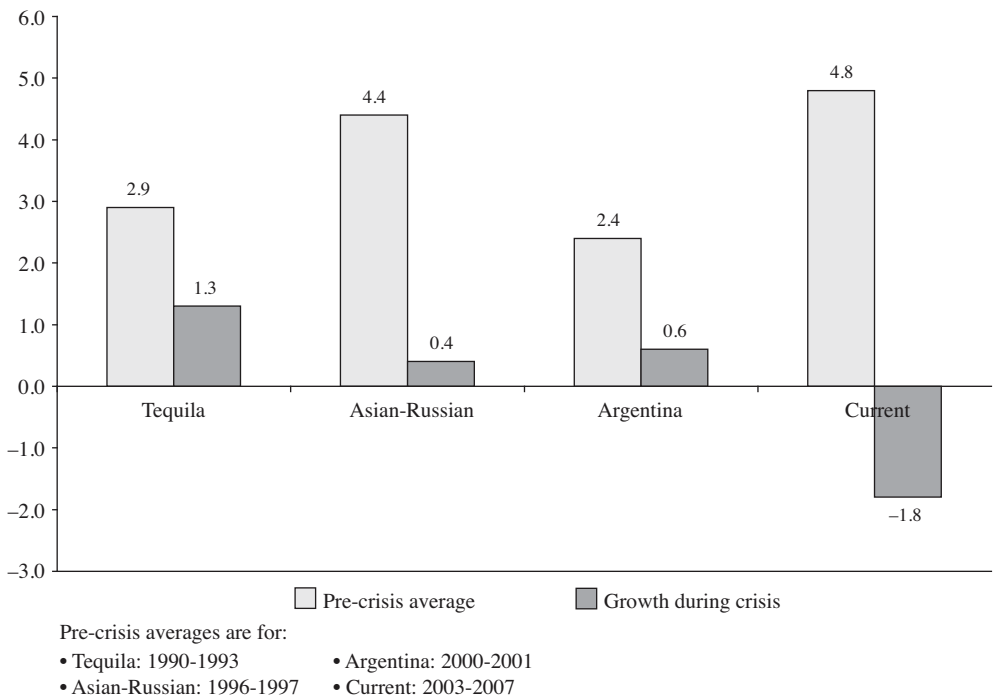
The effects of financial crises have traditionally been associated with a considerable deterioration in external conditions. Trade has been a particularly important channel of transmission in the present crisis, although there has also been a substantial decline in external financing.

Excluding foreign direct investment (FDI), net financial flows in six of the main countries of the region fell from 1% of GDP in the third quarter of

FIGURE 5

Latin America and the Caribbean: GDP growth before and during crises

(Average growth rates before and during the crisis)



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

2008 to -1.5% in the second quarter of 2009.[1] The regional balance-of-payments financial account result, including errors and emissions, fell from US$ 64.413 billion in 2008 to about US$ 53 billion in 2009. External financing constraints have led to a contraction in domestic lending, with growth in this indicator falling from 18% in January 2008 to 2% in September 2009.

Restricted though financial flows have become, the trade channel has been more important. The crisis resulted in a sharp dip in trade flows. In 2009, exports are estimated to have fallen by 24% and imports by 25% (ECLAC, 2009b; 2009g). These figures were also associated with a drop in FDI, remittances and commodity prices (see figure 6) (ECLAC, 2009h; Orozco, 2009).

While the emphasis in this crisis has been on the consequences for economic growth, it should not be forgotten that some of its most significant effects have been on employment/unemployment and poverty. The effects on employment have been considerable (see figures 7 and 8): the urban unemployment rate, which dropped from 8.9% to 7.2% between the first and fourth quarters of 2007, rose back to about 8.3% in 2009 as a result of the crisis. The rise in unemployment has been compounded by a deterioration in job quality in some countries of Latin America and the Caribbean. The increase in the number of people living in poverty, meanwhile, is put at 9 million. As figure 8 shows, the social cost of the crisis is greater than the projected 9 million extra poor, since if the earlier trend had been maintained there could well have been a further 5 million drop in the number living in poverty (ECLAC, 2009a; ECLAC, 2009f).

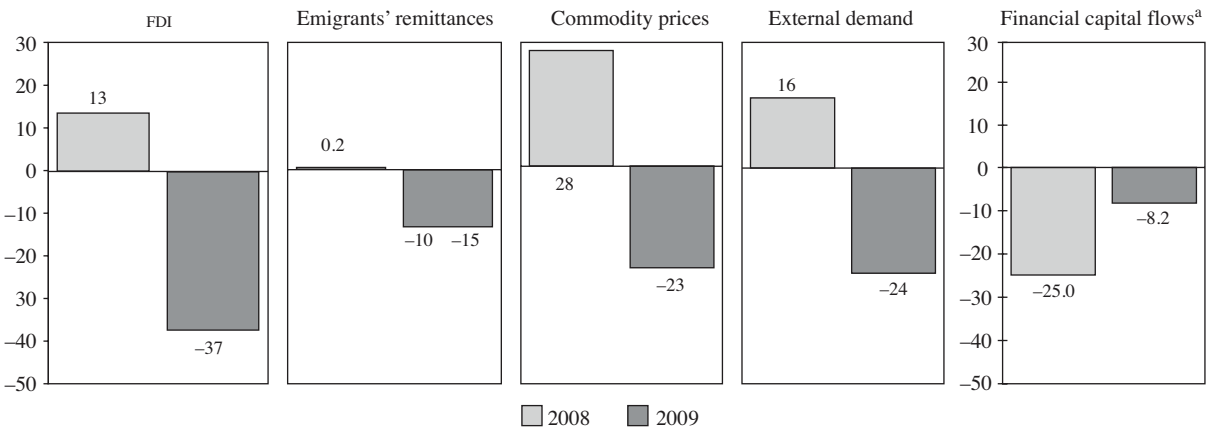
It should be emphasized that the region was able to confront the crisis from a position of macroeconomic strength, as was seen earlier, since it was running a current-account surplus and a fiscal surplus (see figure 1), while the social position was easily the best it had been in 40 years. A crisis whose origins lay outside the Latin American economies was met with countercyclical fiscal and monetary policies which mitigated its impact on growth, economic activity, employment and poverty (Kacef and Jiménez, 2009).

Given the constraints on monetary policy resulting from the low degree of monetization in the region's economies, and considering too the fiscal and institutional difficulties in many of the countries (the lack of projects, the constitution of sectoral spending units and the institutional complexity of allocating, disbursing and evaluating public spending), fiscal policy proved an important

[1] The six countries are Argentina, Brazil, Chile, Colombia, Mexico and Peru.

FIGURE 6

Latin America and the Caribbean: crisis transmission channels
(Annual percentage rates of change)

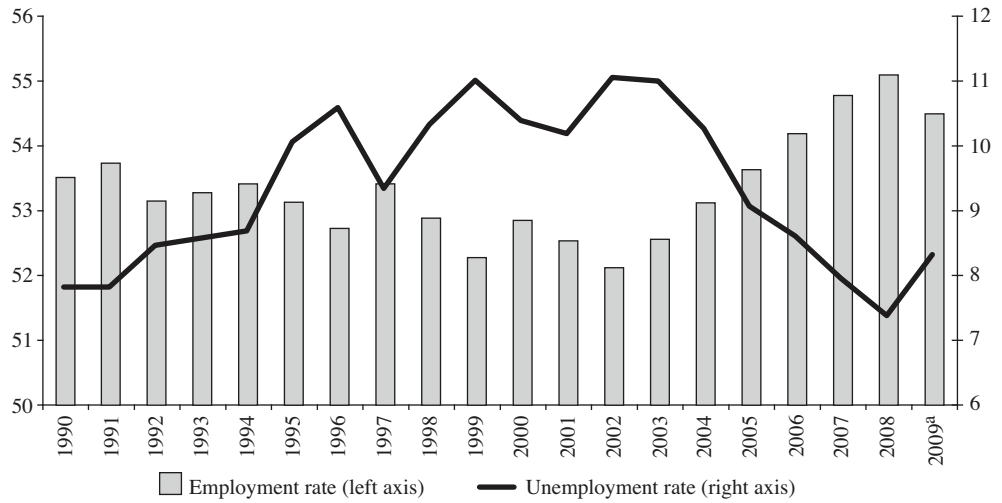


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.
N.B.: The 2009 figures are projections.

[a] Financial account plus errors and omissions minus foreign direct investment (FDI).

FIGURE 7

Latin America and the Caribbean: urban employment and unemployment rates, 1990-2009
(Percentages)

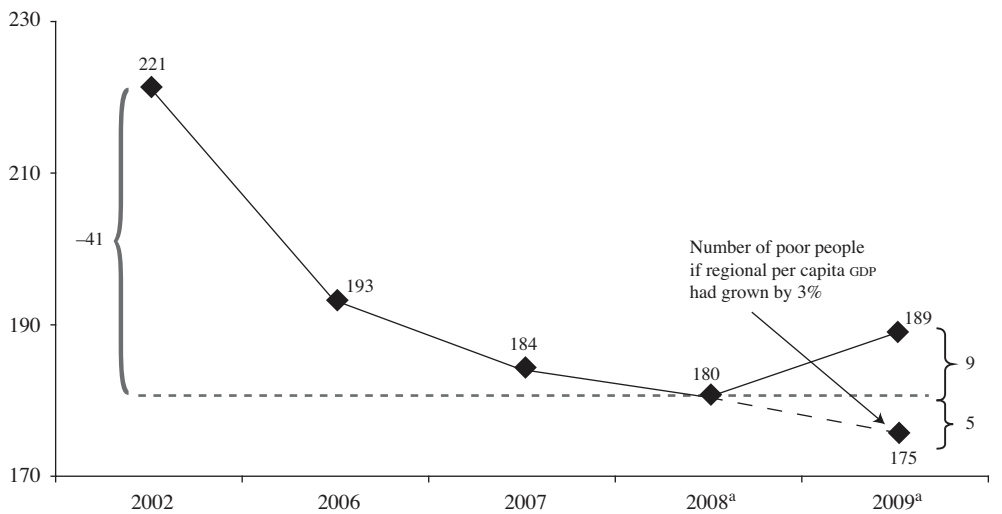


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.

[a] Estimate.

FIGURE 8

Latin America and the Caribbean: poverty trend and estimated effect of the crisis
(Millions of people)



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

[a] Estimate.

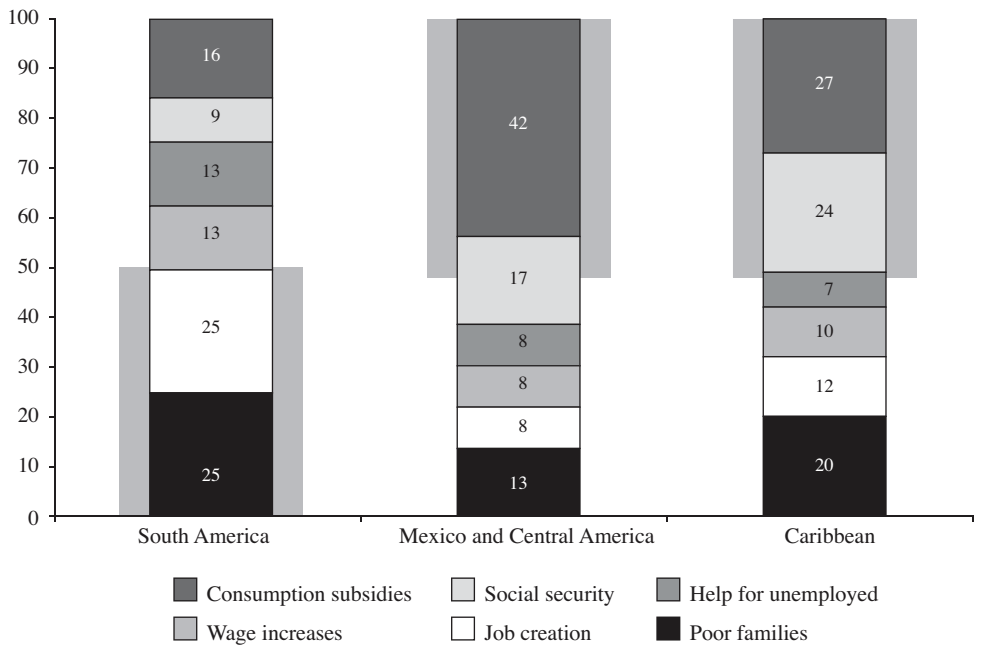
tool for boosting activity in the short and medium term. Despite the obstacles mentioned, the growth rate of public spending increased in some countries and sectoral policies were implemented in the areas of house-building (because of the spillover effects on employment and domestic demand), assistance for small and medium-sized enterprises (SMEs) (because of their importance in job creation) and support for economic sectors, especially agriculture, with a greater emphasis on social programmes, some of them focused on employment policy (see figure 9) (ECLAC 2009e; Sojo, 2009).

Positive signs began to appear across the region's economies in the second half of 2009. Industrial production and exports began to recover, even as rising activity levels overall and higher international trade volumes stoked demand for commodities, pushing up prices and improving the terms of trade. Share markets returned to pre-crisis values, and the region was once again able to tap the international supply of credit.

Projected growth for 2010 is 4.1%, and the figure is expected to be somewhat higher in South America than the rest of the region, given the larger size of some countries' domestic markets and the broader diversification of export markets (ECLAC, 2009a). Also contributing to this expectation is the larger role of China in several countries' trade and the recovery in commodity prices. Conversely, slower growth is expected in more open economies with a portfolio of trading partners that is less diversified and more tilted towards manufacturing (such as Mexico and Central America). Much the same may be said of the Caribbean economies, some of which are experiencing financial and currency difficulties. Generally speaking, the essential factors underpinning this growth are the recovery in private consumption and the rise in gross fixed capital formation, driven in part by fiscal stimulus packages whose effects will be fully felt in 2010. It also needs to be emphasized that commodity prices (particularly energy and minerals) have recovered to their 2006 levels.

FIGURE 9

Latin America and the Caribbean: composition of social programme portfolios announced since the crisis
(Percentages)



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

V

The post-crisis scenario and structural constraints

Nonetheless, there is a growing perception that the after-effects of this economic crisis will shift the dynamic of growth and the structure of economic, financial and trading relationships towards what has recently come to be called a "new normal" in the global economy, consisting of the following elements: lower rates of global economic growth, a greater role for emerging economies, a slowdown in trade growth, a tendency towards greater trade protection, a reduction in external credit (at least pending the design of a new global financial architecture that provides more stable conditions of access to external capital) and a transition towards economies with lower CO_2 emissions, with marked repercussions on conditions of access to external markets and the creation of production and technological capabilities.

The recent economic crisis redefined the terms on which Latin America and the Caribbean confronted the challenges of growth and equality. Although the shape of the post-crisis world is still unclear, it will probably be one in which growth is lower overall because of a contraction in aggregate demand in developed countries. Indeed, the potential GDP growth rate of the Organisation for Economic Co-operation and Development (OECD) countries is expected to be about 1 percentage point lower in the medium term because of the crisis (OECD, 2009). The emerging economies could play a more prominent leadership role in this context. The fall in import demand in the developed economies will reduce the scope for emerging economies to sell their products into these markets, heightening competition and at the same time creating incentives for the adoption of growth strategies oriented primarily towards domestic markets, at least in larger economies.

Boosting growth requires changes in the composition of aggregate global demand that will not be easy to bring about. In the medium term, recovering the pre-crisis global growth rate will mean rebalancing aggregate demand between developed and emerging countries. However, there is little consensus or clarity about how this is to be achieved. To give an example, the developed countries account for a very large share of global consumption, with the United States alone accounting for 34% and the OECD for 84% of the total in 2004-2007. While the emerging economies (Asia, China) have scope to increase domestic demand, they face constraints on their ability to do so.

There is also a need to rebalance aggregate public- and private-sector demand in domestic economies. Fiscal stimuli cannot well be maintained indefinitely, as this would entail substantial growth in public debt. Accordingly, some public demand will need to be replaced by private demand.

In addition, the "new normal" will involve not just lower economic growth but also considerable constraints on financial sector expansion. This will mean smaller financial flows both globally and to developing regions. Consistently with the credit crunch, cross-border financial flows, after rising from US$ 1 trillion to US$ 10 trillion between 1990 and 2007 (from 5% to 21% of world GDP, respectively), dropped significantly in 2008 to US$ 3.1 trillion (2% of global GDP) (McKinsey, 2009). Private-sector financial flows to developing economies practically halved between 2007 and 2008 from US$ 1,250 billion to US$ 650 billion. The projected figures are US$ 350 billion for 2009 and an estimated US$ 670 billion for 2010 (IIF, 2009).

This trend will be contributed to by an increasing domestic bias, greater financial protectionism and changes to current financial regulations. Accordingly, there is expected to be less global financial integration, with a lower level of cross-border flows (financial protectionism). Changes in financial regulation will result in far more exhaustive oversight and regulation to seal the gaps that existed before the crisis. Supervision will be further-reaching, encompassing the different market instruments and participants. This dynamic will result in the model changing to create a banking system that is more transparent and has lower levels of risk and leverage.

Lastly, the new normal will also bring changes to trade patterns. In particular, global trade growth is expected to slow. Predictions are for world trade volumes to contract by some 10% in 2009 before growing by about 1% in 2010 (WTO, 2009; IMF, 2009). The decline is expected to take place mainly in the

developed nations, followed by a trade contraction in China.

These projections are based on expectations of a prolonged slowdown in import demand in the developed economies, greater use of "protectionist" practices, a slow recovery in credit and payment systems and the disruption of global production chains.

1. Investment and the productivity gap

While recognizing that macroeconomic policies operate in the short term, it is important to realize that the production structure, or some fundamental features of it like investment and productivity dynamics, influence and affect the dynamic of macroeconomic variables (Ocampo, 2005). Willingness to invest in the region, and thus the dynamic of productivity growth, has been affected by speculative financial flows and the risk of local crises of the kind that have tended to arise when capital flows have been cut off. In the long term, indeed, volatile output growth and unstable net capital inflows have translated into periods of underutilization of production capacity and deterioration of accumulated capital. The volatility of these flows (which has contributed to the volatility of economic growth) and the stagnation of domestic savings represent a serious constraint on efforts to renew investment and expand production capacity.

As the economies of Latin America and the Caribbean come out of recession, actual GDP is once again lower than potential GDP, creating scope for a rapid recovery. Unless investment and thus production capacity begin to grow again, however, expansion of the production frontier and the consequent rise in potential GDP will be curtailed. In this context, the investment gap relative to GDP is still a determinant of the region's development pattern (see figure 10).

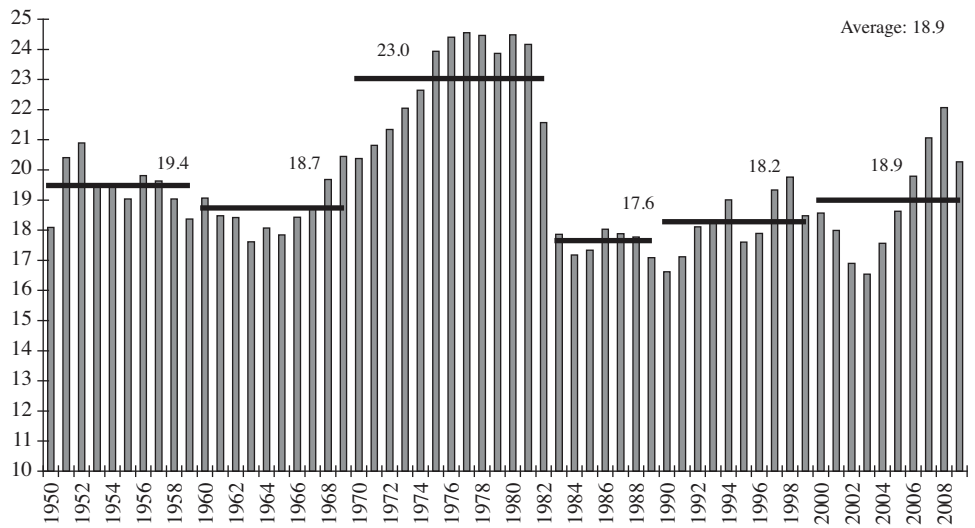
There is an important debate in progress about the factors accounting for economic growth and the production frontier in the long run. While this debate is not yet over, opinions are converging on the idea that the ability to innovate and rapidly disseminate international technological best practices within the production structure is one of the keys to this growth. This position has been advocated by ECLAC since its earliest days (Prebisch, 1949) and is a very important aspect of its more recent contributions (ECLAC, 2007). From the ECLAC perspective, technological learning is closely tied to the production structure and to the institutional framework for education, science and technology activities.

The view taken is that the greater the weight of technology-intensive sectors in the production structure, the faster learning processes arise, innovation rates increase and domestic and international demand for a country's goods expands. This last effect exists not

FIGURE 10

Latin America and the Caribbean: investment rate, 1950-2008

(Percentages of GDP on the basis of dollar figures at constant 2000 prices)



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

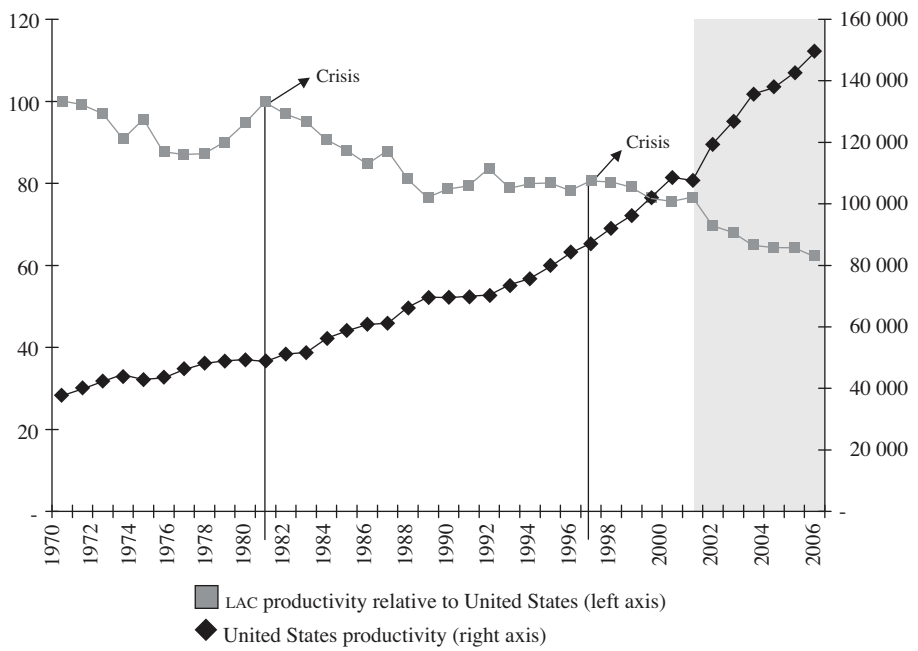
only because demand for more technology-intensive goods is particularly dynamic, but also because technological capabilities are essential for an economy to adapt and respond to the frequent transformations that occur in the international market. Without these capabilities, exports will lose dynamism and growth will slow, leading to stop-go cycles whose rhythm is determined by external crises and booms in commodity prices or the availability of external financing —as has so often happened in the region.

The empirical literature recognizes the vital role played in economic growth by the production structure and the incorporation and dissemination of technical change (ECLAC, 2007). Recovery is more or less assured in the post-crisis period, as it is starting from very low output levels, but strong and enduring growth (which means a rise in investment and potential GDP) is a more doubtful proposition. Despite the recent boom, the evolution of the economy and the industrial sector in recent years does not seem to have led to major structural changes, a situation that is largely reflected in the industrial trade balance issues referred to. A similar conclusion emerges when the productivity levels achieved by the region's countries are compared directly with those of the United States. The huge gap that currently exists is a measure of the challenges the region will have to confront in the coming years.

The relative labour productivity index for the industrial sector in Latin America and the Caribbean shows that the productivity gap did not narrow over the whole of the period considered (see figure 11). The gap tended to widen over the 1980s before stabilizing in the 1990s. From the mid-1990s, however, the relative productivity index began to decline again (meaning that the productivity gap widened). It is important to note that the contraction was particularly acute in the last six years of the series. There are two reasons for this. First, labour productivity in the industrial sector of the countries of the region rose by 2% a year between 2003 and 2007, the indicator's worst performance in the last 36 years except for the "lost

FIGURE 11

Productivity in Latin America and the Caribbean relative to the United States and productivity in the United States economy, 1970-2006
(Percentages and index value)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.
N.B.: Productivity measured in industrial sectors.
LAC: Latin America and the Caribbean.

decade" of the 1980s. Second, after rising by about 3% a year for 20 years, productivity in the United States began to grow by 5% annually in the mid-1990s.

It is important to stress the role played in productivity trends by the interaction between the short and long term and by different economic policies. Every time there is a shock (in prices or the real exchange rate), productivity is lower throughout the adjustment period (Cimoli and Porcile, 2008).

In other words, each shock has a structural impact, the ensuing changes and adaptations in production processes are costly, and it takes time to restore earlier competitiveness. The speed with which firms respond to shocks and the direction of change are critical in determining whether they remain competitive in the international marketplace. Consequently, there will be a spell in which productivity in the economy inevitably grows less strongly, and in Latin America and the Caribbean at least, this does not imply a longer-run rebound.

The time taken to adapt clearly depends on many factors, such as the particular characteristics of firms' assets, productivity differentials between sectors and businesses, firms' management strategies and the general characteristics of human capital. In other words, there is a degree of rigidity in the technological and production capabilities of firms that determines the duration and direction of the adaptation process. This can result in a new, more competitive firm with an increasingly diversified product mix, or it may lead to the firm's disappearance.

The end result where labour productivity is concerned is that Latin America and the Caribbean are not catching up with the frontier (represented by the United States). The effects of the different crises are clearly visible in figure 11, which reveals an extraordinary plunge in relative productivity during the 1980s debt crisis, a modest recovery from the early 1990s and a new contraction beginning in the second half of the decade (the "tequila" crisis). Underlying these fluctuations are alternate periods of currency appreciation, trade liberalization and rising external debt, followed by fresh devaluations, as mentioned earlier.

Tackling the productivity gap is unquestionably crucial when it comes to sustaining international competitiveness with equality, as Fajnzylber has pointed out (Fajnzylber, 1990). However, there is a new key economic transformation variable whose importance has grown steadily over time, namely environmental sustainability, which will now be discussed.

2. Sustainable structural change and the environment

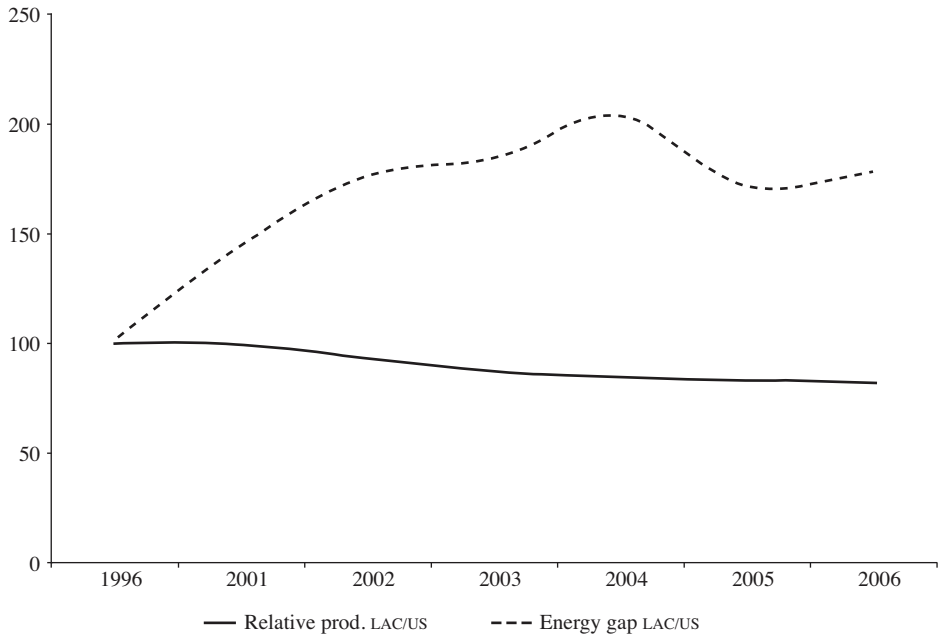
To achieve a development pattern that is virtuous and sustainable over time, macroeconomic equilibria are obviously not enough. There will also have to be a process of structural change that narrows the productivity lead of the most developed countries (convergence), as ECLAC has been arguing since the era of productive transformation with equity. There are now very clear signs that the growth pattern predominating in the world is not compatible with conservation of the environment. The estimated costs of environmental damage, including climatic problems with all their destructive consequences for human, physical and natural capital, are becoming increasingly evident. From an environmental sustainability standpoint, however, it is now imperative to find the path to growth that entails the least energy consumption per unit of output and the smallest impact on the environment.

The scenario in which the productivity divide is closed without exacerbating environmental problems can be defined as one of sustainable convergence. In point of fact, engineering-intensive sectors use less energy per unit of output than natural resource- or labour-intensive sectors. However, structural change in the region has not gone in the right direction as regards either technology or energy, since the picture is generally one of divergence in productivity combined with an energy consumption pattern that is unsustainable over time (unsustainable divergence). This type of growth pattern is often associated with intensive use of natural resources, as it prevails in mature sectors where technical change is incorporated more slowly. Furthermore, greater use of natural resources entails higher energy consumption. On the basis of the data presented earlier, it can be concluded that energy consumption per unit of output is expanding relative to the energy frontier and, simultaneously, that the region is not catching up in terms of productivity. Figure 12 gives a graphical description of the situation, with a "scissor" shape that opens up over time depicting the widening of the productivity and energy gaps between Latin America and the Caribbean and the United States.

Some of the highest growth in fossil fuel emissions is to be found in the Caribbean, particular examples being Trinidad and Tobago, Jamaica and the Dominican Republic, although some Caribbean countries such as Cuba and the Dominican Republic have made considerable progress with reforestation.

FIGURE 12

Latin America and the Caribbean (4 countries): energy gap and relative productivity,[a,b] 1996-2006
(Index values)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of figures from the Industrial Performance Analysis Program (PADI) and industry surveys from the countries: National Institute of Statistics (INE) in Chile, National Administrative Department of Statistics (DANE) in Colombia, National Institute of Statistics, Geography and Informatics (INEGI) in Mexico, Brazilian Geographical and Statistical Institute (IBGE) and Bureau of Economic Analysis (BEA) in the United States.

[a] The countries taken are Brazil, Chile, Colombia and Mexico.
[b] The energy gap is measured by the ratio between the energy intensity indicator for the region's countries and that for the United States.

In the Latin American context, this is expected to be one of the regions hardest hit by a combination of climate change effects manifested in bleaching of 75% of coral reefs in the coming 30 to 50 years (Samaniego, 2009), owing to rising ocean temperatures, the loss or erosion of land caused by the thermal expansion of the sea and the growing intensity of extreme weather events such as floods and hurricanes. Given its limited economic diversification, with heavy dependence on the primary sector and tourism, the region could face very substantial economic repercussions.

Energy efficiency and environmental protection are among the demands imposed by climate change, and count among the challenges for Latin America and the Caribbean in the new international context. ECLAC has projected that, without international mitigation efforts, by the end of the century the region could be experiencing large losses in agriculture and biodiversity, severe pressure on infrastructure and a rise in the intensity of extreme events, the cumulative impact of which could add up to a substantial portion of current GDP (ECLAC, 2009c). Unless urgent action is taken to alter this path, environmental strains will reach historically unprecedented proportions over the coming decades. The scientific evidence is very conclusive and urgent changes are needed in modes of production and consumption, especially where energy is concerned.

Following the sparse (and legally non-binding) results of the World Climate Change Summit in Copenhagen in December 2009, where participants agreed to limit the global temperature rise to two degrees centigrade, but without setting emissions figures for 2020 and 2050, and to commit resources to poor countries to allow them to stop deforestation, the challenge of moving towards lower-carbon economies has taken on a renewed urgency. Two international approaches remain open. The first is

to follow a negotiated path based on shared values, agreed timetables and matching efforts and criteria based on common but differentiated responsibilities within a framework of multilateral negotiations. The second is to go down the road of unilateral initiatives applied indiscriminately and without distinction as to relative development levels, and governed only by the laws of competition.

Among the measures that will form part of the climatic and economic "new normal" is the application of unilateral trade regulations based on the carbon content of goods exported to the developed economies, implying a serious risk that mitigation could largely be shifted on to developing economies, if not in this way then through other economic channels such as conditional access to credit. Consideration is also being given to applying countervailing tariffs to imported carbon-intensive goods from 2020. Developing countries will need to prepare themselves if they are to avert a possible loss of export markets as competitors better equipped to meet these demands appear.

In summary, the problems of sustainability and the new regulations beginning to appear around the world could become another constraint on economic growth in Latin America and the Caribbean. However, if this new context is taken as an opportunity to renew infrastructure, improve production and technological processes with a view to creating more efficient means of transportation and put in place new lower-emissions production methods, fresh prospects for long-term growth could open up. This will mean coordinating investment incentives (still very limited) and national innovation systems (still weak) to boost investment and innovation rates on the basis of less polluting technologies. There is thus a need to ensure that Latin America and the Caribbean have access to the sustainable technology frontier and can approach it more quickly.

3. Distribution and the equality gap

Latin America and the Caribbean continue to display high levels of inequality and, as already mentioned, there is no prospect of reducing these inequality and poverty rates in a context of low growth where employment and productivity also remain low. Growth does not in itself guarantee improvements in income distribution, but in combination with more determined and consistent rights-based social policies (Hopenhayn, 2001) it has a crucial role to play in improving it. On the other hand, rising productivity itself makes it viable (under certain conditions) for output, wages and employment to expand in parallel, helping to reduce heterogeneity in the production system and close the productivity gap (Infante and Sunkel, 2009).

Social indicators reflect a positive trend that is a product of economic growth, but also of institutional advances and public policies for fighting poverty, exclusion and inequality. The first evidence for this is the steady growth of social spending over more than two decades, both in per capita terms and as a percentage of GDP. Changes in income distribution over the period contributed to the reduction in poverty, although not by as much as they could have. The change in poverty and extreme poverty rates can be broken down into two components: average income growth, or the "growth effect", and changes in the way income is distributed, or the "distribution effect". This type of analysis allows us to see that the "growth effect" was the main factor explaining the retreat of poverty between 1990 and 2008, accounting for about 85% of this, while the "inequality effect" accounted for the remaining 15%. The contribution of distributional improvements to poverty reduction occurred chiefly in the 2002-2008 period (ECLAC, 2009d).

Labour income was the source that contributed most to reducing poverty between 1990 and 2008. The positive change in per capita labour income was due chiefly to the decline in the demographic dependency ratio (commonly termed the "demographic dividend") in all countries other than Uruguay, and to a large increase in the economic activity rate. Equally, income per worker differed substantially between countries. The countries where poverty fell most (as a percentage variation in the rate) —namely Brazil, Chile, Costa Rica, Ecuador (urban areas) and Panama (urban areas)— are the very ones where income per worker in poor households increased the most. Colombia is an exception here, since although this variable did rise substantially, poverty declined at a considerably lower rate, partly owing to a rise in unemployment. In the other countries, income per worker tended to decline.

One worrying feature of the poverty trend in Latin America and the Caribbean is the persistence of divides in people's vulnerability to poverty depending on demographic characteristics, particularly age, sex and ethnic origin. Children are among the most exposed to poverty. The incidence of poverty is 1.7 times as high on average among under-15s as among people over that age. Between 1990 and 2008, the ratio

between child and adult poverty rates rose in most of the region's countries, the largest increases being in Brazil, Panama and Uruguay.

Despite the active policies implemented, the crisis reversed two trends that had become well-established over the previous five years: the decline in unemployment and in poverty. Public social spending, along with spending on industrial policies, is essential to consolidate what has been achieved and to enhance equality.

The crisis in Latin America and the Caribbean in the early 1980s severely constrained public spending. The policy options for closing the widening fiscal gap (the subject will be returned to in the next section) were to increase the tax take or cut public spending, and it was the latter option that was chosen as the adjustment variable to restore the fiscal accounts, with all the negative effects that ensued for social spending at a time of diminishing well-being in society.

The upward trend in public social spending since the early 1990s is indicative of the progressive commitment of the Latin American countries to allocating public resources to social policies, thereby giving these stronger financing guarantees and greater institutional stability and legitimacy, although such efforts have been limited considerably by the degree of development attained by the countries (ECLAC, 2006). In the face of old and new social and economic risks in each country, the availability of public resources to finance social protection systems is directly related to governments' tax-raising capacity. Tax burdens continue to be low in the region, however, and this is a factor that weighs heavily on budgets. Nonetheless, governments have made considerable efforts to increase the sums budgeted (in a context of greater fiscal discipline than before), particularly those earmarked for social functions. Despite such government initiatives to increase it, social spending in the region is still inadequate and is not having the impact needed to improve well-being and equality. Its behaviour is still procyclical and it tends to tighten at times of crisis. This illustrates the budgetary constraints and limitations facing the least-developed countries, as it is these that have the least capacity for taking countercyclical measures at times of economic contraction.

4. The fiscal gap and public policy financing

The subject of the fiscal gap should be very prominent in future policy design, as it affects variables that are extremely important both in the short term (such as inflation and the activity level) and on a longer view (the capacity for financing social and production policies). Public policies require financing mechanisms that do not go counter to the goals of macroeconomic stability, learning and innovation, and equality.

In the period from 2002 to 2008, sound fiscal policy management (Martner, 2007) and the favourable international situation and macroeconomic environment led to improvements in macroeconomic policy design and management and to a reduction in the vulnerability of the public and external accounts, allowing debt stocks to be reduced and reserves to be built up. In 2006 and 2007, Latin America and the Caribbean as a whole recorded a fiscal surplus for the first time in the region's history (see figure 1).

As the crisis progressed in late 2008, the existing need to mitigate volatility, strengthen growth and enhance equality in the societies of Latin America and the Caribbean was combined with new demands for countercyclical policies and instruments to protect the most vulnerable population from negative distributional impacts. In this context of higher spending demands at a time when fiscal revenues were falling because of lower commodity prices and activity levels, the greater policy leeway obtained in earlier years was reduced significantly (fiscal deficits in 2008 and 2009 were -0.3% and -2.8% of GDP, respectively).

The fiscal gap is not just something that appears in difficult periods, however, but is actually a structural problem in the region's countries and is also connected to the inequality characterizing them.

The manifold problems associated with a fragmented society where a small percentage of the population owns much of the wealth and large groups of households are below the subsistence line indicate a need to redefine the role of the State in the redistribution of income. The three main characteristics limiting the redistributional role of the State in the region are low tax burdens, the regressiveness of taxation systems and the misallocation of public spending.

The countries of Latin America and the Caribbean have low levels of tax collection (although there are large variations between countries). The tax burden averages about 18% of GDP in the region, a low level given its degree of development, particularly when compared to the financing needs implicit in public policy demands. This means that public sectors have a very limited pool of resources on which to draw to meet the demand for goods and services from large sections of the population. The situation is even more extreme in certain Central American countries that

have tax burdens of some 10% of GDP and great social needs as a result of extremely high poverty levels.

Furthermore, tax systems in the region are regressive, i.e., they heighten income disparities. Less than a third of the tax collected comes from direct taxes, with most of the burden falling on consumption taxes and other indirect forms of taxation with clear regressive effects. The end result is that aftertax income distribution is if anything more inequitable than primary distribution. The need, then, is to strengthen direct taxation and strike a better balance between this and indirect taxation. Any attempt to reform the tax system so that it redistributes resources to the poorest will require a redesign of income tax and asset taxes. The latter ought to account for a larger proportion of all tax collected, and to be more progressive. However, these efforts will need to be accompanied by greater control of tax evasion and avoidance, as these are major sources of inequality and of injustices that imperil the legitimacy of tax systems, ultimately affecting their revenue-raising capacity. Higher tax collection is needed, therefore, but so are efforts to correct the regressive bias of the tax structure as far as possible.

Meanwhile, the volume and quality of spending need to be assessed for appropriateness. At times of crisis like the present, increasing or maintaining social spending becomes a priority, and it is important to assess its redistributional potential and the scope for targeting it on the most vulnerable population groups.

To sum up, there are problems with the quantity and quality of public spending that need addressing, and the relationship between taxpayers and beneficiaries, which has tended to heighten inequality in Latin American societies, ought to be reshaped. Consequently, there is a need for a new fiscal covenant (ECLAC, 1998) that spells out policy priorities and the sources of financing required to implement them, with growing influence for citizens in the decision-making process through democratic institutions.

VI

Final reflections

The 2008 crisis and the signs of recovery that have recently appeared hold important lessons for Latin America and the Caribbean, concerning not just short-term mitigation of the effects of the crisis, but also the long-term vulnerability of the predominant growth pattern. The equality, productivity, investment and fiscal gaps that have long acted as obstacles to growth with equality are still there, compounded now by increasingly urgent demands relating to the environment and climate change. The persistence of old gaps and the appearance of new ones suggest very clearly that the policy responses traditionally offered by the region have not been enough to spur development.

On top of this, the contours of the post-crisis scenario do not seem to be those of the past. While the region may have recovered its former growth rate in late 2009, with an expansion of 4.1% forecast for 2010, it will be faced with a different context. In the course of 2010, those elements that some see as constituting what has begun to be called the "new normal" in the global economy will start to become increasingly evident. They are: lower rates of growth in the global economy; a new role for emerging economies; slower growth in trade flows; greater financial protectionism; the construction of a new global financial architecture; and a shift towards economies with lower CO_2 emissions. This new reality makes the old policy responses (both excessive protectionism and ill-considered liberalization) even less appropriate, and strengthens the case for a fresh approach.

The view taken in this study is that the structuralist tradition offers valuable insights for our understanding of the crisis and the post-crisis situation, with emphasis on the role of policies designed to reform the production structure and disseminate technical progress as a central component of growth with equality and sustainability. This thinking is all the more relevant when climate challenges are considered, as they entail changes in the way we produce and consume and in the way energy is generated and used that are making the carbon footprint a leading variable in countries' competitiveness. Adaptation and emissions reduction policies require long-term planning. Furthermore, the new normal of environmental economics will involve carbon emissions caps and incentives, penalties or taxes likewise designed to reduce emissions, tradable emissions permits and even trade regulations based on the carbon content of exported goods ("carbon footprint").

Automatic market mechanisms are not enough by themselves to deal with this whole complex challenge of structural transformation. Besides, the market will generate new social and political strains and conflicts that will have to be responded to with more than purely economic thinking. It is therefore natural to expect politics to begin to play a leading role in the construction of the future once again.

This means, first of all, thinking in a "long-term" framework again in order to achieve equality through a rights and citizenship approach, with a welfare society as the ultimate goal. The short-term problems of the crisis need to be resolved from a long-term perspective, which means developing the capacity to devise and implement public policies that can reconcile the different time horizons. The future will be constructed with ideas, clear leadership and long-term strategic visions but also, and essentially, with overarching political and social agreements to make development pathways viable and provide the countries of the region with democratic governance. It is essential to have a long-term strategic vision nurtured by the sovereign will through the institutions of democracy. These are ingredients inherent in the very concept of development.

Secondly, the centrality of politics makes it more urgent to consider what new functions the State needs to discharge to give substance to citizens' development aspirations. It was long assumed that the market could provide public goods without intervention, but there is an increasing recognition that this is not the case. The State is the locus of political action and its role needs to be redefined so that it can guarantee provision of these goods. A new balance needs to be struck between State, market and citizens, and this will require the creation and reinvention of public, private, solidarity and community institutions. This, in turn, calls for the development of better systems for organizing and assessing public-sector administration in the interests of accountability and transparency. Reclaiming the public space for the collective action of all citizens rather than just the government or the State is essential for inclusiveness and for the full exercise of citizenship, and thence for the determination of a country's priorities.

Underlying this whole task, thirdly, is the construction of a solid "fiscal covenant" that turns tax systems into more progressive structures and make policy financing viable. It will not be possible to achieve the different objectives proposed and give policies a wider role without the construction of political agreements, whether explicit or implicit, regarding the level, composition and direction of public expenditure and its financing.

Taken together, all these points add up to a need to design a "new State architecture" allowing the State to play an important role once again in the general welfare and as a leader in Latin American countries' development strategies, thereby escaping the paradigm of "subsidiarity" relative to the market. What is proposed is that the role of the State be redefined on the basis of a critical assessment of its historical performance, with proposals to endow it with adequate tools so that it can find its proper place in equilibrium with the market and citizen rights —not just the current generation's, but also those of future generations, who will be inheriting an increasingly precarious environmental balance.

To sum up, while one size does not fit all and no model is right for everyone, and it is true that each society will have to consider and agree upon the right balance to strike in the light of its own development dynamic, it is also universally agreed that the State will have to play a more significant and assertive role in guaranteeing public goods, dynamizing growth, achieving economic stability, working for equitable fiscal reform, promoting the necessary economic convergence with innovation and generating consensus around fiscal covenants with clear redistributional effects. It is within the framework of this welfare State, as opposed to a merely subsidiary State, that it will be possible to relaunch development goals under the new conditions and rules being set in the post-crisis international economy.

(Original: Spanish)

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The financial and economic crisis of 2008 and its repercussions on economic thought

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The financial and economic crisis of 2008 had multiple consequences in Latin American and Caribbean countries. It disrupted economic performance and called into question the paradigms that had steered economic policy in most countries; and it also exacerbated the growing divergences in points of view that were emerging before the crisis, some of which are ideological, while others reflect different approaches to economic strategies. The differentiating factors include: the role of the State and its relation to the market; and the nature and scope of participation in the global economy. This article addresses some of these divergences, the tensions they generate, and what the future holds for cooperation within Latin America. It also points out that in this new scenario, characterized by some perplexity, issues inherent to the work of ECLAC are clearly emerging.

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I
Introduction

Without doubt, the financial and economic crisis of 2008, preceded by the twin crisis that affected the energy and fuel markets, will be remembered as a watershed event, because it revealed the vulnerabilities of globalization, pushed the global economy to the brink, inflicted major hardship on tens of millions of human beings and also exacerbated old disputes and tensions over how to approach development. The crisis has spawned an abundant literature in academic circles, international organizations and even in the media. In ECLAC itself, valuable work has been done in analysing the origin of the crisis, along with its propagation, impact and potential consequences for the future (ECLAC, 2009a, 2009b, 2009c and 2009d). Perhaps less studied have been the disputes and tensions that that crisis intensified in the economic domain; and these in particular will form the central focus of this article from the Latin American standpoint. In general, the debate revolves around the role of the State in the various development paradigms; more specifically, two areas will be highlighted: how to address social equity and the growing polarization in multilateral forums.

II
The immediate backdrop

The outbreak of the financial crisis in 2008 not only changed the performance of the region's economies, but tested economic policy paradigms that had been in place for a long time, albeit with contents and intensities that differed from one country to another. Thus, by having differentiated repercussions on different groups within each country, and also between countries, the crisis generated or exacerbated pre-existing tensions, influencing —among other things— the content, scope and tone of international relations. Above all, differentiated responses intensified the debate on how to overcome the current predicament and be in a position to fulfil the universal aspirations so eloquently expressed in the Millennium Development Goals.

From that standpoint, many analysts have noted, not without a certain perverse satisfaction, that following decades of listening to "sermons" from the world's main economic centres, including multilateral financial institutions, on how to responsibly and consistently conduct macroeconomic management to avoid the periodic crises that characterized the region, this time the scenario was inverted and the former preachers were shown to be irresponsible. Meanwhile, their former Latin American pupils, who in general acted professionally, were those who had to pay for the havoc caused by a crisis that developed in the very heart of capitalism, without bearing the least responsibility for creating it. For a region that has often concealed its economic mismanagement by blaming its unsatisfactory performance on international phenomena, the "blame" on this occasion undeniably could be assigned abroad.

In the light of the crisis, many analysts, both individual and institutional, including the Economic Commission for Latin America and the Caribbean (ECLAC) itself, have felt vindicated in their analysis of recent years. Firstly, they have persistently warned about the unsustainability of the financial imbalances that were developing in the world economy, especially between the United States and some of its surplus trading partners.[1] Secondly, they have questioned the economic paradigm that has been in vogue since the 1980s, specifically because of its overvaluation of the role of the market and its undervaluation of the role of the State in economic and social performance.

Over the last 20 years, ECLAC has contributed to the debate on development paradigms, strengthening its vocation as an organization that generates heterodox positions, questioning or supporting the postulates

[1] See, among others, ECLAC (2006a, p.31; 2007a, pp.35 and 36; and 2007b, p.24).

of various orthodoxies, and addressing the specifics and characteristic features of development patterns in the region and its various types of economies.[2] This vocation has been particularly relevant since 1990 in the economic debate on current models, and the critique made by various sectors on the mechanical way in which its precepts were being applied.[3] In its most simple terms, a central thrust of the analysis revolves around the idea that market signals alone would not resolve everything; what was required was a judicious combination of market and State to achieve the multiple objectives of development, including economic growth, greater equity, financial stability and environmental sustainability.

The trigger for the great financial crisis of 2008, which can largely be blamed on a market that functioned deficiently (to say the least) and the virtual absence of the State in fulfilling its regulatory role, will clearly encourage the agnostics of pure orthodoxy to persist in seeking devices to enable them to promote development in an increasingly complex and agitated international setting.

III

Tensions and polarization of positions

The panorama becomes even more complicated, however, when one takes account of the increasing heterogeneity of approaches emerging in Latin America, not only on how to address economic strategies and policies, but on how to visualize the role of the region in the international setting, compounded by differences in political agenda that reflect the highly diverse situations prevailing in the different countries. The main dividing line in the economic debate precedes the 2008 crisis and stems from the way the different countries seek to interact with the international economy. In schematic terms (reality is always more complex and nuanced), the two extremes in a wide spectrum of positions would be as follows: at one end are countries that are intensively committed to openness and trade liberalization (but not all of them accepted financial liberalization at the same time, as postulated by the paradigm then in vogue). These countries sought to gain access to the main developed markets, particularly the United States, through free trade agreements. By definition, these countries are willing to largely submit to the dictates of the market economy.

At the other end of the spectrum are countries that seek greater autonomy —from the international economy and the United States in particular— and less dependence on market signals. Indeed, the then entitled "Bolivarian Alternative for the Americas (ALBA)", signed between Cuba and the Bolivarian Republic of Venezuela in December 2004, was initially proposed as an alternative to the Free Trade Agreement of the Americas (FTAA), which, following the First Summit of the Americas, held in Miami in December 1994, aimed to create a hemisphere-wide free-trade zone (although specifically excluding Cuba for well-known reasons).

As is common knowledge, the latter initiative never materialized, owing to resistance by several of the region's countries, each motivated by its own reasons and interests. But the failure of the original initiative gave rise to a set of free trade agreements of limited geographic scope, which were added to the North American Free Trade Agreement (NAFTA) signed earlier between Mexico, Canada and the United States. Agreements of this type have been implemented in Chile, the Central American countries, the Dominican Republic and Peru, with Colombia and Panama still waiting to join them. The dividing line between countries that maintain free trade agreements (FTAs) with the United States and those that propose an alternative, gained an additional ideological and political dimension in the way the different countries interacted with United States, which the Internet portal of ALBA itself describes —not without an offensive bias— as "an imperialist proposal for domination confronted by a patriotic proposal of liberalization" (Rossi, 2009).

Some analysts have also added a geographic dimension to this sharp economic, political and ideological division. Firstly they point out that Latin

[2] See ECLAC (1990, 1994a, 1996 and 1998) and Torres (2006).
[3] For a penetrating analysis of the differences between the paradigm that was current in the 1990s and that proposed by ECLAC, see the interview of Fernando Fajnzylber by Fernando Fernández (Fernández, 1994, pp. 207-209).

American countries in the Pacific Rim are well disposed towards openness and are increasingly engaged in the global economy. Secondly, those located on the Atlantic —including the original members of the Southern Common Market (MERCOSUR), midway between ALBA countries and those that maintain FTAs with United States— are somewhat less enthusiastic about openness, although each for different reasons. In this scheme, Brazil would be seen a unique case, given its growing leadership and participation in the global economy, and the size of his domestic market (ECLAC, 2006b, p. 86).

Before going any further, it is worth noting that the divisions described above are in no way rigid, since there is a vast web of communicating links between countries which transcend those divisions. These arise from trade and financial relations, shared interests, membership of different formal groupings such as the Union of South American Nations (UNASUR), the Rio Group, the Latin American System (SELA), the Andean Development Corporation (CAF), and MERCOSUR plus its associate members. There is also one country, Nicaragua, which, through a remarkable juggling act, maintains an FTA with United States and is also a member of ALBA. In addition, all of the region's countries cultivate bilateral relations with Cuba, the major absentee from inter-American forums thus far, but which remains a source of inspiration for many Latin American people, who, among other things, view its resistance to the "empire" as a symbol of great dignity.

Whatever the case may be, this growing division within Latin American and the Caribbean, which, as noted above, was already developing before 2008, was greatly aggravated by the crisis. Thus, the strong tone of condemnation of the "neoliberal model" which accompanied the ALBA discourse (today known as the "Bolivarian Alliance for the Peoples of our America") saw the crisis as the confirmation of its frequent predictions, thereby heralding little less than the demise of capitalism.[4] That discourse certainly had some objective foundation. The crisis exposed the myth of the exaggerated expectations that the market contained its own mechanisms for self-correction against speculation; and it revealed serious failings in regulation and supervision mechanisms in the leading industrialized countries, not to mention the virtual non-existence of regulatory bodies with an international remit. It also noted the huge risk involved in the excessive participation of flight capital in international financial flows.

In addition, the fact that the crisis was born in the "empire" underlined, once again, in the view of the ALBA interlocutors, that this was the source of many of the evils afflicting the region. Consequently, it is hardly surprising that countries that already had serious doubts about the organization of the international economy before the crisis —including their explicit disagreement with the role of the Bretton Woods institutions— now reached the conclusion that all of the failings seen in the workings of the market called for nothing less than a new model. This position contrasted with that of countries that contented themselves simply with accommodating to the situation, even if this meant substantial manoeuvering.

Furthermore, detractor countries believe the crisis provides them with additional vindication, noting that Latin American countries whose export sector is most dependent on the United States market are those that were dragged down most by the effects of recession in that economy. Although it is hard to establish relations of causality between the trend of the United States economy and that of various countries in the region, it is undeniable that the high degree of economic interdependence between the United States and Mexico is one of the factors explaining the dramatic drop in the level of economic activity in the latter country in 2009, even though it showed signs of recovery in the final quarter (ECLAC, 2009e).

That said, in the world of ideas, the crisis is seen as triggering renewed debate in the region on how to approach its development. That debate has features of polarization that call to mind the discussion of the 1960s and 1970s, despite distances in time and considering the huge change of context, on the virtues and disadvantages of centrally managed economies compared to market economies, with "mixed economies" occupying the middle ground, each with its own peculiar nuances. In the globalization context, the extremes are, again in schematic terms, the ALBA agenda on the one hand, and countries that are determined to persevere with the strategy that has prevailed in recent times, without major adjustments, on the other. The other countries — for now the majority having never embraced the "pure" orthodoxy — occupy intermediate spaces in which

[4] In the final communiqué issued by the Special Summit of ALBA, held in Cumaná, Venezuela, on 17 April 2009, the President declared: "Capitalism is killing humanity and the planet. What we are living through is a global economic crisis of a systemic and structural nature, not just one more cyclical crisis." Later on, the text refers to the "decadence of capitalism."

they propose to redefine the frontier between market and State, again with individual variants from one country to another. These countries continue to build on the considerable achievements of recent years as a result of their participation in the global economy, rejecting sudden and substantial course changes in their development strategies. In other words, the current panorama recalls an era that had seemed consigned to the past, in which "opening up" strategies confronted "inward-looking development", or socialism versus capitalism, with reformists occupying the middle ground and attempting to exploit the virtues of both schools of thought while eliminating their inconvenient assumptions.

IV

Parameters of the debate

Nonetheless, the content and scope of the opposing strategies still remains unclear. The model that President Hugo Chávez calls "Twenty-first century Socialism" is better defined by what it is not than by what it actually proposes, by categorically rejecting the model it proclaims to be defunct ("neoliberalism"). In the group of countries that are willing to maintain the general course of recent policies, although there is greater clarity about the precise modalities of the liberalization model, the mutations to be incorporated into the model in the future to adapt it to new domestic and international circumstances arising from the crisis are not clear.

In terms of what it actually proposes, the "Bolivarian Alternative" is more doctrinaire than the relative pragmatic liberalization model. In the economic domain, it proclaims solidarity over egotism or profit-seeking; it gives pride of place to the State in preference to private activities; and it argues for inclusion, participation, egalitarianism and poverty reduction as non-renounceable values. In addition, this alternative is wary of an open trade regime guided by market signals and aims to mitigate its effects through balanced trade —sometimes based on a managed trade model between ALBA members and between them and other countries that are not members of the Alliance, which harks back to the Mutual Economic Assistance Council (MEAC) of old. It also values South-South co-operation, one of whose most eloquent specific expressions is the PETROCARIBE Energy Cooperation Agreement promoted by the Government of the Bolivarian Republic of Venezuela, along with bilateral cooperation programmes that both Venezuela and Cuba provide to many countries, particularly in the health area.[5]

These general calls for change in both the development paradigm and the international economic order have not yet been articulated in a comprehensive, internally consistent programmatic proposal. In other words, the rhetoric does not yet translate into implementable proposals, as can be inferred from the following quote, which again emphasizes what it is not: "It is necessary to develop an alternative model to the capitalist system; a system of solidarity and complementarity rather than competition; a system that is in harmony with Mother Earth, rather than squandering natural resources; a system of cultural diversity rather than the crushing of cultures and the imposition of cultural values and lifestyles that are foreign to the realities of our countries; a system of peace based on social justice rather than imperialist policies and wars."[6] Clearly, the call to far-reaching transformation implicit in the foregoing, which encompasses doubtless praiseworthy objectives, also has a significant political and ideological underpinning, and is inspired in a nationalist current and calling for Latin American unity.

At the same time, many of those calls to action, including those related to inclusion, participation and combating absolute and relative inequality, are common to the development strategies of countries that seek to improve their participation in the international economy; so the key element of differentiation between the opposing economic-policy approaches concerns the secular debate on the role of the State and its relation to the market. This, of course, is juxtaposed with more pronounced ideological or doctrinaire differences.

In brief, the region is facing two quite conflicting approaches towards its future development, with a

[5] Thus far 18 countries are benefiting from the innovative PETROCARIBE Energy Cooperation Agreement.

[6] Extracted from the Final Declaration of the Special Summit of ALBA, held in Cumaná, Venezuela, on 17 April, 2009.

wide range of intermediate variants. One end of the spectrum calls for a "fresh start" the precise outlines of which are hard to discern; in contrast, the other extreme accepts that the strategies used to engage in the international economy thus far are pointing in the right direction, although they need constant adjustment, particularly in the wake of the multiple crises of 2008. Any attempt to characterize the conflicting approaches is on slippery ground, not only for the reasons set out in the previous section, but also because each of the region's countries has its own peculiarities in macroeconomic management and social policies, which reflect the prevailing reality and circumstances and also the ideological bias of the government in power.

In any event, the 2008 crisis clearly marks the end of a period in which the vast majority of the region's countries pursued mainstream economic strategies and policies, albeit with variants from one country to another. Some called those economic strategies and policies as "neoliberal", others as the "Washington consensus"; and others still saw them as a national response to the challenges of globalization. Despite considerable nuances, the broad outlines of economic policy in the vast majority of countries were pointing more or less in the same direction. Clearly, the same could be said of the 1950s and 1960s, when the ECLAC paradigm was what constituted the mainstream, and this was called into question by an orthodoxy that started to gain ascendancy in the 1970s, spawning a variety of approaches, similar to the phenomenon being experienced today and which probably will accentuate in the immediate future (Fishlow, 1985).

V

Conflicting proposals on inequality

One of the most persuasive critiques of the "neoliberal model" concerns its concentrating and excluding nature. The orthodox thesis whereby "the magic of the market" would ensure that the benefits of economic growth would "trickle down" in favour of low-income groups, has long been discredited. For that reason, over the decades ECLAC has been insisting on the importance of supplementing market signals with specific policies to make growth more equitable.[7] The social deficits and inequity prevailing in Latin America are also the foundations most widely postulated by those who invoke "Twenty-first century socialism" to address the needs of lower-income groups, pointing to Cuba's undeniable achievements in this area over several decades (ECLAC, 2000).

It is hardly surprising that combating inequality attracts so much attention. As is well known, there is a huge range of literature on absolute and relative poverty in the region, as well as on the strategies for dealing with it and how to reconcile growth and equity objectives. The priority given to this aim does not answer to any specific ideology. Proposals for empowering the poor have even arisen with intellectual origins that can be found in ideas embraced by relatively more conservative groups in the Latin American ideological spectrum — such as placing trust in the functioning of the market, the fundamental role of the rule of law, and an environment that is friendly to small business development.[8]

Latin America and the Caribbean is, on average, the most unequal of all of world's developing regions (World Bank, 2005, pp.4-8 and 66; Lustig, 2009, p.1); and it is also true that, while economic growth tended to help reduce absolute poverty until the 1990s, in most cases income distribution (relative poverty) tended to stagnate or even worsen (ECLAC, 1997; La Fuente and Sáinz, 2001, pp.161-170). But the fact that this is precisely where changes have occurred in recent times makes a powerful call for reflection at the very least.

It is therefore important to recognize the significant progress made in many of the region's countries, which have pragmatically combined elements of the paradigm in use, particularly in terms of macroeconomic management and strengthening of the rule of law, with innovative policies to deal with the social backlogs

[7] See, for example, ECLAC (1994b).

[8] See, for example, Commission on Legal Empowerment of the Poor (2008). This commission was co-chaired by Madeleine Albright and Hernando de Soto.

that constitute the main Achilles heel of the region's economic performance. This judicious combination of market and State was starting to yield significant achievements in the region, particularly when comparing certain countries in 2008, for example, with their situation 10 years earlier. It could also be argued that some nations withstood the devastating effects of the financial and economic crisis with a greater capacity for resistance and greater strength than was envisaged just a few months earlier, at least to judge by performance forecast for 2010 (ECLAC, 2009e).

What is even more relevant for the purposes of this article, however, is that significant progress was made in tackling the social deficits. Thus, the incidence of poverty in the region as a whole fell from around 44% to 33% in a decade —between the late 1990s and 2008— while the incidence of extreme poverty declined from 19% to 13% (ECLAC, 2009f, pp. 3-12). Equally or perhaps more significant is that for the first time widespread improvements are reported in the income distribution, which are partly attributable to the compensating effect of public policy on the concentrating trend of growth in earlier periods.[9] According to a recent ECLAC report, 15 of the 18 countries that have data available reported an improvement in the income distribution (ECLAC, 2009f, pp. 12-17).

According to that report, the progress achieved was due to the following factors among others: firstly, economic expansion combined with growing levels of job creation; secondly, a gradual but significant improvement in the financial capacity of States, which, among other progress, made it possible to achieve a sharp quantitative and also qualitative increase in social spending; thirdly, the application of quite creative distributive policies, such as monetary transfer programs and conditional transfers (Madariaga, 2009); and, fourthly, the favourable (and predictable) effects of the demographic transition under way in most countries of the region, which is producing lower indices of dependency per worker employed (ECLAC, 2009f). Added to these factors are the cumulative effects of increased social spending, particular on education, because the wage gap —which separates the best from the worst paid groups— seems to be narrowing in many countries, as a reflection of that phenomenon (López Calva and Lustig, 2009).

In brief, the development strategies adopted by countries of the region that chose the "openness model", judiciously combining public intervention with market forces, seem to have produced equal or even more satisfactory results in combating poverty and improving the income distribution than those achieved by countries that have been critical of that strategy's notoriously concentrating nature (Lustig and McLeod, 2009). At the same time, it is important to recognize that the impressive progress made in some countries has not been shared by all economies of the region; and capacity to withstand the effects of the crisis was also not generalized.

VI

Conflicting proposals regarding the international order

The other subject on which positions within the region are polarized relates to the attitude of the different governments towards the institutional organization of the international economy. Although countries that chose the openness model have expressed serious doubts about the governance systems of existing mechanisms, they generally argue in favour of correcting those failings through institutional reforms.[10] In contrast, other countries in the region, led by members of ALBA, propose much more radical reforms and even the replacement of those institutions by something

[9] See, for example, Soares and others (2009, pp. 207-224).

[10] This statement can be confirmed by reviewing some of the documents contained in the web portal of the Inter-governmental Group of Twenty Four (http://www.g24.org/).

different, which they tend to characterize as more transparent and more democratic.[11]

The dividing line is not clear: all countries in the region denounce the current institutional order; and all of them blame the existing financial institutions, in particular the International Monetary Fund. They all also point to major failings in that international order which depend largely on a single reserve currency (the dollar) and lack many coordination mechanisms.[12] But the differentiation also has clear features. At one extreme are countries that essentially blame those institutions for "imposing" the model that led to ruin and want to suppress them, transferring their functions to other more democratic and universal institutions such as the United Nations. At the other extreme are countries that have raised a variety of questions about the working practices of those institutions and above all their governance system, but not to the extent of suggesting their elimination. Instead, those countries confine themselves to proposing changes, including major ones, in the governance system and in regulatory practices of those institutions, sometimes considering the creation of new international mechanisms. For example, an idea that is attracting increasing attention is to create an international mechanism to act as a sort of economic governing council for all multilateral organizations in the economic and financial domain.[13]

As a parallel issue, one group of countries severely criticizes the emergence of the Group of 20 (G-20) as an extension of the system of domination and exclusion present in the current international financial order. Other countries in the region accept this informal forum —some of them reluctantly— as a step forward, in that it includes some increasingly protagonist emerging economies, and because it acted swiftly to promote a concerted, coordinated and timely response to the crisis.[14] Moreover, some see this incipient forum as the embryo of a future mechanism such as the economic council described in the foregoing paragraph. Here again, the positions adopted by Latin American and the Caribbean countries to this international dimension of the crisis are highly divergent.

All of these divergences came to the fore during the design, preparation and holding of the United Nations Conference at the Highest Level on the World Financial and Economic Crisis and Its Impact on Development. The mere decision to hold this event was overshadowed by intense controversy between countries that wanted to restore to the United Nations its governing role over international financial and economic organization and those who insisted that that role corresponded to the Bretton Woods institutions and their inter-governmental mechanisms. Underlying the controversy is the increasingly obvious obsolescence of the governance system of the Bretton Woods institutions, particularly in relation to voting weights among their boards of executive directors. In addition, the actual policies of the World Bank, the International Monetary Fund and what now is the World Trade Organization (WTO) were also increasingly called into question. Clearly, the United Nations is not immune from that critique, where there are insistent calls for reform of the Security Council.

The developed countries, led in this case by the United States delegation (in the final months of the Bush administration), ferociously resisted the holding of such a conference. The opposition, in which Cuba, the Bolivarian Republic of Venezuela and Nicaragua, among others, played a proactive role, were equally insistent in favour of it. In the end a compromise was reached at the International Conference on Financing for Development, held in Qatar, Doha, in December 2008, which announced that "the United Nations will hold a conference at the highest level on the world financial and economic crisis and its effects on development". The latter wording was crucial, because countries that denied a role for the United Nations on financial issues did not question its role in promoting development (United Nations, 2008, paragraph 79).

The preparation of the conference was a highly problematic process, especially because it was placed

[11] "We need to establish a new international economic order based on solidarity, justice, equity and sustainable development. The international financial architecture should be founded anew. The United Nations, particularly this General Assembly, is called to play a key role in this endeavor." MenuAddress by the Minister of Foreign Relations of Cuba, Bruno Rodríguez Parrilla, in the general debate of the 64th session of the General Assembly, 28 September, 2009 (http://www.un.org/ga/64/generaldebate/CU.shtml).

[12] José Antonio Ocampo has written an excellent essay on this topic, entitled *"Rethinking Global Economic and Social Governance"* (Ocampo, 2009).

[13] See, for example, United Nations (2009). This commission, chaired by Professor Joseph Stiglitz, among many other things recommended setting up what he calls a "Global Economic Coordination Council, (United Nations 2009, pp. 90-97).

[14] For the report issued by the latest G-20 meeting held in Pittsburgh, United States, on 24 and 25 September 2009, see: https://www.pittsburghg20.org/PDFs/G20Report1109.pdf.

under the aegis of the President of the General Assembly, held at that time by Father Miguel D'Escoto of Nicaragua, who used his position to influence the content of the declaration that would emanate from the General Assembly. The conflicts that soon arose around the final product of the conference were not of the traditional North-South type, but also occurred within the Group of 77 plus China, and among Latin American and Caribbean countries. It is beyond the scope of this article to provide a detailed description of this, but reader should refer to the text of the draft proposal of the policy declaration that the President of the General Assembly submitted to members on 8 May 2009, replacing the "softer" version prepared by the two facilitators he had previously assigned to this task (the Ambassadors of the Netherlands and Saint Vincent and the Grenadines).[15]

That draft declaration projected the conference as an event comparable to the historic Bretton Woods Conference of 1944, and it aimed to place the new financial and monetary order under the universal forum of the United Nations (the "G-192"), in a conceptual and ideological context that did not specifically reflect the viewpoint of the world's leading economic powers, and not even that of many developing countries. There was a rebellion against the text, the President had to retract, and ultimately the conference was held without major upheavals, resulting in a declaration that was diplomatically acceptable to all parties, but irrelevant for future action.[16]

The main point is that the increasing differentiation of approaches on how best to address development has also been transmitted to the positions adopted by the region's countries on economic issues in the main international forums. It remains to be seen whether this new differentiation is healthy for the United Nations. For the moment, it has revived issues that were being debated 35 years ago in the framework of "a new international economic order", with a strong tone of denunciation by countries of the "South" against countries of the "North", and demands to level the playing field of the international economy to give similar opportunities to all countries to participate in its benefits.[17]

VII

Summary and conclusions

In conclusion, the 2008 crisis not only had far-reaching repercussions on economies and financing, but also on ideas. The questioning of the paradigm that had been predominant for some two decades, which had gained a growing number of supporters, was intensified as a consequence of the crisis. The many consequences that can be expected for the years to come include the following:

Firstly, it would seem that a period that allowed for a high level of consensus around an economic paradigm, at least in its broad execution outlines, has given way to a period of doubts, questionings, and testing of alternatives.

Secondly, there will consequently be a more intensive debate on development strategies and policies, motivated by the reversal that the crisis has inflicted on many countries. That debate will be healthy provided it does not lead to unnecessary confrontations between countries or between different groups in any given country.

Thirdly, and as a corollary, new areas are opening up for the work of ECLAC, whose Secretariat can contribute to the debate with its own initiatives and as a vehicle for exchange of opinion and experiences.

Fourthly, at the same time the emergence of the "Bolivarian Alternative", which invokes Latin American and Caribbean unity, paradoxically could foster division rather than rapprochement, by introducing diverging factors within country groupings that have historically been united around common

[15] These documents are available on the United Nations portal at: http://www.un.org/ga/president/63/interactive/uneconference.shtml.

[16] General Assembly Resolution 63/303, on the "Outcome of Conference on the World Financial and Economic Crisis and its Effects on Development". The potentially most significant outcome to emerge from the conference was perhaps the establishment of an ad hoc open-ended working group to follow up on the issues contained in the final document (see Resolution 63/305).

[17] Resolution 63/224 of 19 December 2008, "Towards a New International Economic Order".

values and interests. It is notable that the Bolivarian Alliance for the peoples of our America has now grown sufficiently to participate in each of the formal integration processes that are currently ongoing: in Central America (Nicaragua), the Caribbean Community (Antigua and Barbuda, Dominica, Saint Vincent and the Grenadines), and in MERCOSUR (should membership by the Bolivarian Republic of Venezuela be ratified). Of course, that scenario will not necessarily be reflected in daily practice, but it does constitute a new reality of differentiation that did not exist before. This in turn is bound to fuel sharper disputes and tensions than those that seen, for example, in the 1990s.

Fifthly, with the increasing differentiation of positions, a new bias of confrontation is being introduced in multilateral forums normally characterized by cooperation. This has made it increasingly difficult to reach universal agreements, as shown by the experience of the High-Level Conference on the World Financial and Economic Crisis and its Effects on Development in July 2009, and again at the United Nations Conference on Climate Change, where the relatively meagre results —even then rejected by ALBA countries— were being announced just as this article was being completed.[18]

Lastly, as in previous transition periods, it is likely that we are again entering a period of perplexity, in contrast to the relative security that characterized the actions of policymakers in the years leading up to 2008. This will be another of the legacies of the 2008 crisis.

[18] See the Special Communiqué on Climate Change of the VIII ALBA Summit, with a view to the XV Conference of Parties in Copenhagen, on 14 December 2009, and the intervention by the President of the Bolivarian Republic of Venezuela, Hugo Chávez Frías, at the United Nations Conference on Climate Change in Copenhagen, Denmark, on 16 December 2009. http://www.alternativabolivariana.org/.

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KEYWORDS

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Macroeconomics
Economic stabilization
Latin America

Latin America, from boom to crisis: macroeconomic policy challenges

Osvaldo Kacef and Rafael López-Monti

This article analyses the most recent phase of growth in Latin America, lasting from 2003 to late 2008, and the way the different policies applied in this period lessened its countries' vulnerability and gave them greater macroeconomic policy space to confront the international crisis than in other negative shocks of the past. In addition, it briefly surveys the main countercyclical fiscal, monetary, financial and exchange-rate policy measures applied in the region's economies to mitigate and reverse the effects of the crisis. It concludes by discussing post-crisis macro policy challenges in the region.

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I
Introduction

Latin America experienced six consecutive years of growth from 2003 until late 2008, an expansion whose strength, duration and characteristics were unprecedented in the economic history of the region. It encompassed almost all the region's economies, and regional output growth averaged 4.8% a year over the period, with cumulative per capita gross domestic product (GDP) growth of 22.1%, equivalent to 3.4% a year.

The recent international crisis brought this period of growth to an end and showed the need to take stock of it, to analyse the channels through which the crisis was transmitted to the Latin American economies and its repercussions for a region that was better prepared than it had been for other crises in the past, and to consider some of the post-crisis challenges for macroeconomic policy.

To address these issues, the present article is structured as follows. Section II analyses the main features of the growth period running from 2003 to 2008 in the countries of Latin America and the contribution of macroeconomic policy to reducing the region's vulnerability. Section III studies the main channels through which the international crisis was transmitted to Latin American economies, while section IV examines the macroeconomic scope for addressing the crisis and the fiscal, monetary, financial and exchange-rate measures taken. Lastly, and by way of conclusion, there is a discussion of some challenges for macroeconomic policy in the longer term.

II
The main characteristics of the growth phase, 2003-2008

The period we are concerned with was clearly unprecedented in the economic history of the region, not only because per capita GDP grew steadily at over 3% annually, which had not happened in the last 40 years, but because this growth was accompanied by a quantitative and qualitative improvement in fundamental macroeconomic variables. For one thing, the balance-of-payments current account went into surplus, largely because of a recovery in the terms of trade (especially for South America) and rising remittances from emigrant workers (in Mexico and, most particularly, Central America). The excess growth of national disposable income over consumption provided a basis for higher national saving and investment financing. External surpluses and policies to accumulate "reinsurance" and stabilize real exchange rates allowed central banks to build up large quantities of external assets. Meanwhile, developments in the public accounts during the expansion phase included growing primary surpluses and the virtual disappearance of overall deficits, allowing public debt to be reduced substantially. Unemployment fell and the quality of new jobs improved during this period of growth, leading to a reduction in poverty and indigence and a small improvement in equity. Each of these stylized facts will now be analysed in greater detail.

1. The external context and the current account

The good economic performance of Latin America in the 2003-2008 period occurred in a general global context of rapid growth. The number of countries achieving per capita output growth rates of more than 3% a year increased over the period, and this was due essentially to rapid growth in emerging economies: per capita GDP growth rates exceeded 3%

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in 57% of these between 2003 and 2008, while only 25% of industrialized economies saw comparable growth (see figure 1). This pattern is remarkable when compared with the distribution of growth in the 1990s. Then, just 38% of emerging economies and 33% of industrialized ones averaged per capita output growth of more than 3% a year, with growth in the industrialized countries picking up strongly between 1998 and 2000.

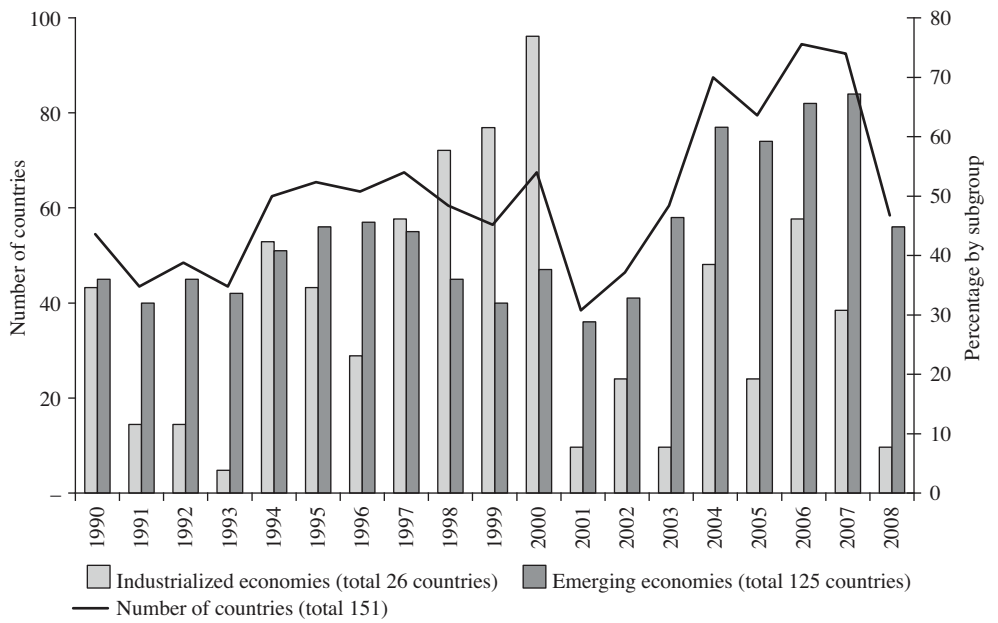
Other major developments in the context of this prolonged expansion of the global economy were the growing share of global demand accounted for by China and India and the high level of liquidity in international markets until mid-2007. The favourable external conditions meant that growth in the region was accompanied, unprecedentedly in its economic history, by a current-account surplus every year except 2008. Two main factors account for the evolution of the regional current account: the terms of trade, and remittances from emigrant workers. These affected the region's countries differently, however, so that although the region as a whole averaged a current-account surplus between 2003 and 2007, just eight countries (all in South America) actually ran surpluses during the period of expansion, something that is largely explained by the behaviour of their terms of trade.

As figure 2 shows, countries specializing in exports of oil and oil derivatives and of metals and minerals experienced the greatest improvement in their terms of trade during the period of growth. In the case of the Southern Common Market (MERCOSUR) countries, higher net export volumes were mainly responsible, since the rise in relative export prices was not particularly large (less than 10%). Mexico is another country that saw a large improvement in its terms of trade, in this case thanks to higher oil prices, although these were partly offset by a decline in net goods exports by volume. The experience of the Central American countries was different. As net oil importers competing with China in the United States market, not only did they suffer from a deterioration in their terms of trade during the regional growth stage, but their external sales actually declined in real terms, in both cases relative to the average for the 1990s.

Mexico, the Dominican Republic and most of the Central American countries are large recipients of remittances from emigrant workers, as to a lesser degree are some countries in South America (Ecuador, the Plurinational State of Bolivia, Colombia and Paraguay). The region as a whole received remittances equivalent to an average of 1.7% of GDP in the 2003-

FIGURE 1

Number of countries with per capita GDP growth in excess of 3%, 1990-2008



Source: prepared by the authors on the basis of data from the United Nations and the International Monetary Fund (IMF).

2008 period (see figure 3). However, Central America received the equivalent of 9.2% of GDP on average (rising to 14% when Costa Rica and Panama are excluded) and Mexico some 2.4%, a figure comparable to the country's inward foreign direct investment (FDI) over the period. Remittance inflows in South America were most substantial for Ecuador and the Plurinational State of Bolivia, followed by Colombia and Paraguay.

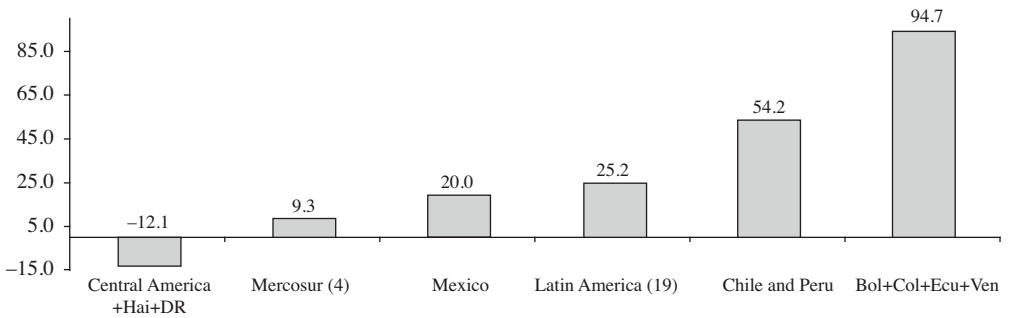
Another characteristic of the balance-of-payments current account in the growth years was the substantial rise in profit remittances by foreign firms to their parent companies. As figure 4 shows, net profit flows as a share of GDP grew strongly in South American economies largely reliant on the production and export of commodities, chiefly oil, metals and minerals. This is consistent with the improvement in international prices for these products and the fact that, in many cases, natural resources are exploited by foreign firms. Chile and Peru accounted for an average of 33% of net currency outflows of this type between 2003 and 2008, even though they represent less than 8% of regional GDP as measured in current dollars.

To illustrate the effects referred to above and their repercussions for the current-account balance, we shall now analyse disaggregated changes in current-

FIGURE 2

Percentage variation in the average terms of trade

(2003-2008 average versus 1990s average)

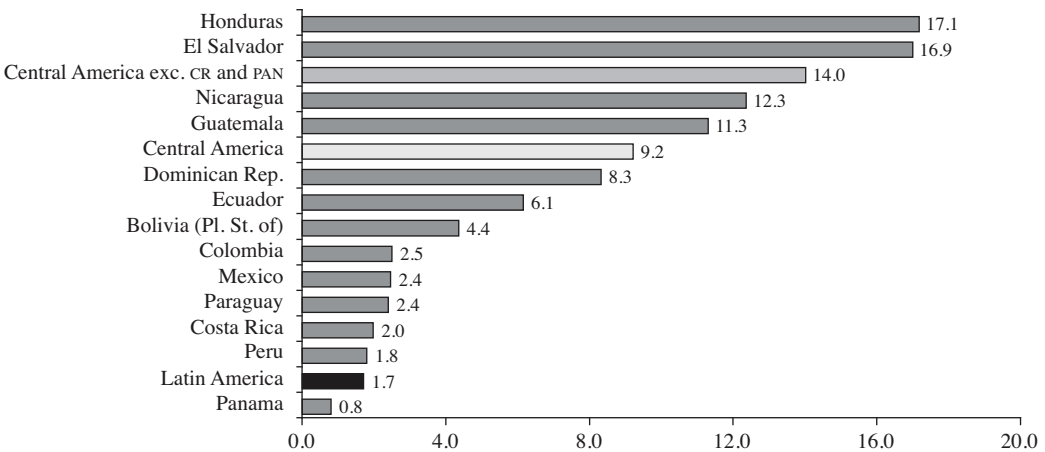


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.

FIGURE 3

Worker remittances received, 2003-2008 average

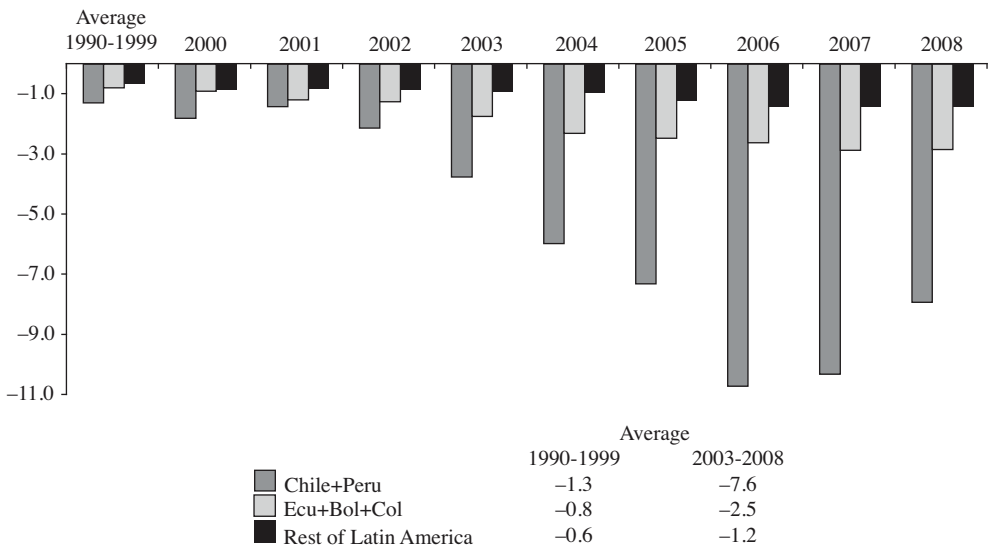
(Percentages of GDP)



Source: prepared by the authors on the basis of official figures.
Exc. CR and PAN.: Except Costa Rica and Panama.
GDP: Gross domestic product.

FIGURE 4

Net profit remittances
(Percentages of GDP)



Source: prepared by the authors on the basis of official figures.
GDP: Gross domestic product.

account averages by country over the growth period (2003-2008), using the 1990s average as a yardstick of comparison. In South America (see figure 5a), current-account balances improved in most of the countries (the exceptions were Colombia and Uruguay), essentially because of better terms of trade and, in some countries, improved trade balances in real terms. The countries that benefited most from improving terms of trade were the Bolivarian Republic of Venezuela and Chile although, as already discussed, the improvement was partly offset in the latter and in Peru by the remittance of profits abroad, particularly in the mining industry. The economies of Argentina, the Plurinational State of Bolivia, Brazil, Peru and Uruguay recorded the largest rises in export volumes. It is interesting to note that emigrants' remittances began to play a prominent role in a number of South American countries (the Plurinational State of Bolivia, Colombia, Ecuador and Paraguay) when compared to the averages for the 1990s.

Figure 5b gives a breakdown of current-account developments in Mexico and Central America between the periods analysed. A common element in these countries is the deterioration of trade balances at constant prices and, other than in Mexico, the negative effect of terms-of-trade developments. At the same time, currency inflows from emigrant workers' remittances were very significant everywhere except Costa Rica and Panama. In these two countries and the Dominican Republic, the services balance had a significant positive effect.

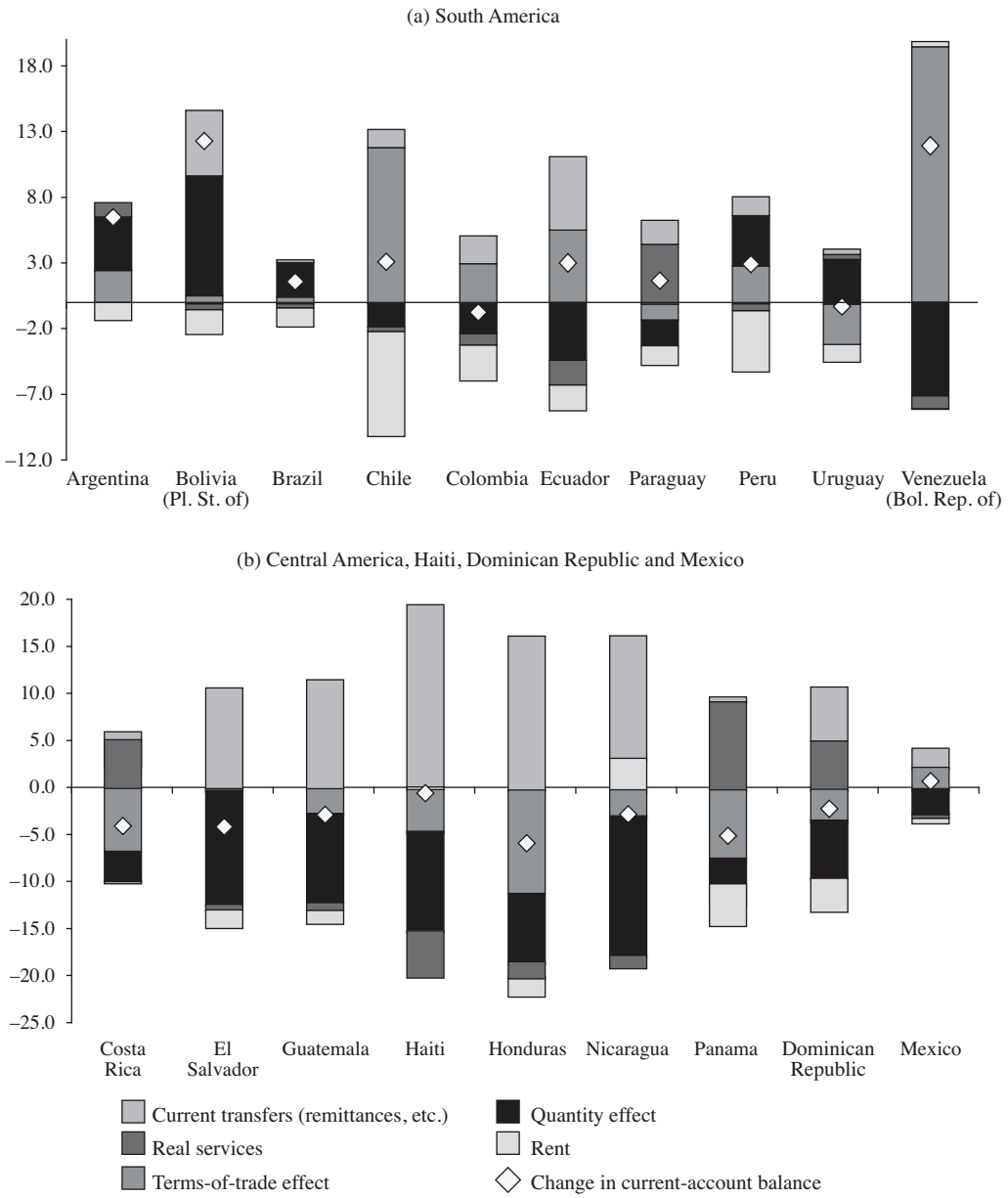
2. Saving and external vulnerability

One thing that characterized the 2003-2008 period of expansion was that gross national disposable income (GNDI) expanded more quickly than GDP in most of the region's countries. While regional GDP grew by an average of 4.8% annually, GNDI growth averaged 5.7%. This development was most pronounced in countries exporting metals, minerals and hydrocarbons (Plurinational State of Bolivia, Chile, Colombia, Ecuador, Peru and the Bolivarian Republic of Venezuela), which saw a substantial increase in GNDI consistent with terms-of-trade improvements, even though in some cases there was also a considerable rise in net payments of profits and dividends to the rest of the world.[1] GNDI growth also

[1] A detailed analysis of these issues can be found in Kacef and Manuelito (2008).

FIGURE 5

Breakdown of changes in current-account balances between the 1990-1999 average and the 2003-2008 average
(Percentages of average 2003-2008 GDP)



Source: prepared by the authors on the basis of official figures.

outstripped GDP growth in the other countries of South America, albeit to a lesser degree. In Central America, notwithstanding the declining purchasing power of exports, rising emigrants' remittances allowed GNDI to grow more strongly than GDP in some countries (Guatemala and Honduras). In the case of Mexico, the expansion of national income can be attributed both to the improved terms of trade and to the growth in net current transfers received.

Dynamic consumption notwithstanding, the rise in GNDI in the region meant that national saving rose strongly in most of the countries, averaging 22%

of GDP between 2003 and 2008 at current prices, the highest level since 1990. By contrast with the last decade, external saving turned negative (–0.7% of GDP), meaning that regional investment was wholly financed out of national saving for much of the period of expansion, the exception being 2008.

The situation of the external accounts led to a remarkable build-up of international reserves, with some central banks intervening in currency markets because of concerns about the level of the real exchange rate. The stock of international reserves has grown strongly over the past six years as a result of such intervention, and it provided "reinsurance" when the international crisis struck. At the same time, the external debt burden fell greatly as a share of both GDP and exports.[2] Although external debt remains high in some countries, the ratio between external debt and goods and services exports has dropped to less than half its level of 10 years ago when calculated on the basis of total debt, and to about a third when calculated as debt net of international reserves.

Increased liquidity and the improved debt profile reduced vulnerability in the region, something that was manifested in a large decline in the ratio between short-term external debt and international reserves from 49.3% in 2002 to less than 25.4% in 2008 (see figure 6). Besides the lower external borrowing ratios, vulnerability to external shocks diminished thanks to a reduction in the degree of dollarization in a number of the region's economies, especially in South America (including the Plurinational State of Bolivia and Peru). The improvement in the Latin American macroeconomic situation between 2003 and 2008 was clearly reflected in international financial markets, not only in the evolution of sovereign risk indicators but also in more favourable debt ratings for several of the region's countries.

3. Social indicators and labour markets

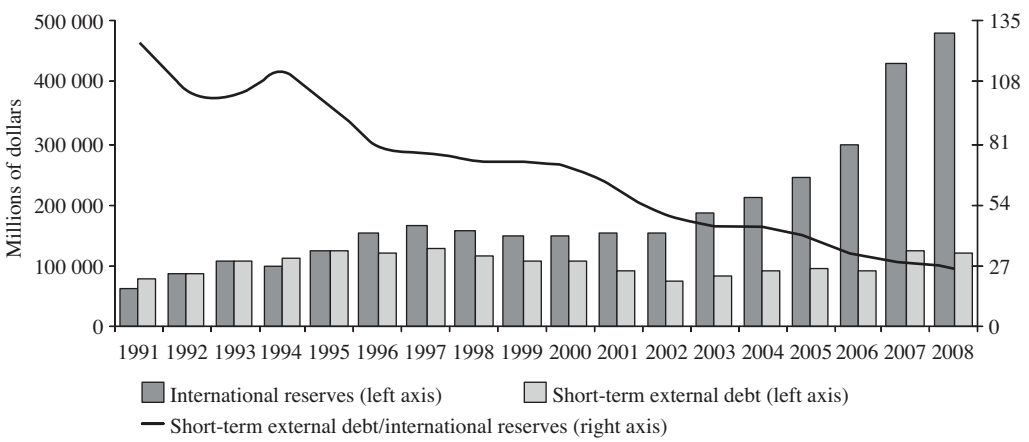
Economic growth led to expanding demand for labour and thence to many new formal jobs. The employment rate began to recover in 2003 and was 3 percentage points higher by 2008, equating to annual average growth of 3.3% in the number of people in work over the 2003-2008 period, although there was a marked slowdown in the last of those years (see figure 7). At the same time, the unemployment rate in the region as a whole fell from a peak of 11% in 2002 and 2003 to 7.4% in 2008, bringing it back down to its early 1990s levels. Because unemployment was still high, however, real wages in the formal sector saw only moderate increases that did not keep pace with labour productivity growth.

The urban economically active population (EAP) has grown by 2.4% a year since the beginning of the current decade. Since the numbers in work grew by less than 2% in the early years, unemployment

[2] Mention should be made in both cases of the increase in the variables of the denominator of these ratios.

FIGURE 6

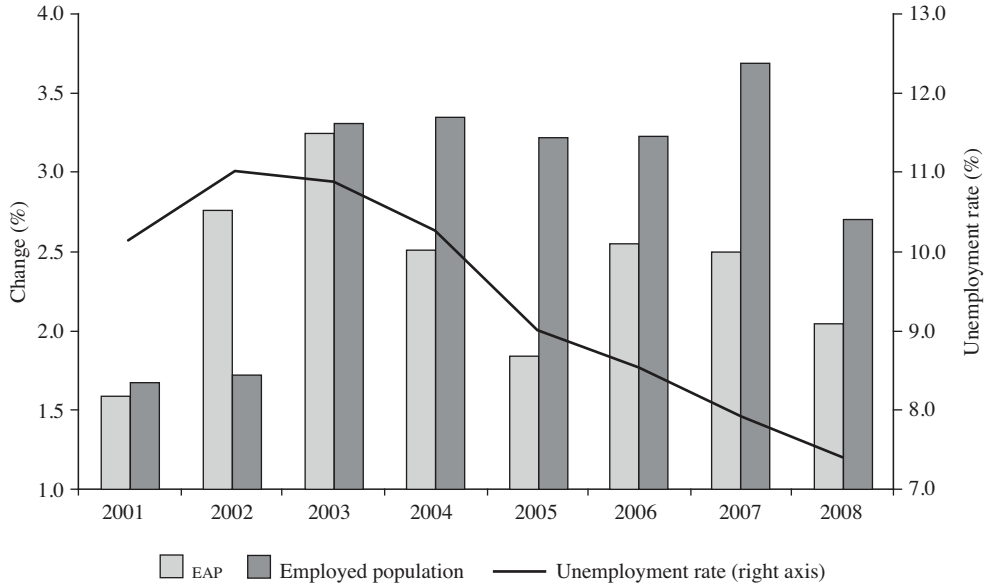
Short-term external debt and international reserves
(Millions of dollars and percentages)



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

FIGURE 7

Latin America and the Caribbean: economically active population (EAP), employment and unemployment



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

was sharply up by 2002. As noted above, however, employment picked up along with economic growth, causing the unemployment rate to fall. The labour supply has been rising in recent decades as a result of the sharp increase in the female participation rate, not only in urban areas but also in rural ones, where it has traditionally been low.[3]

Job creation began to accelerate in 2003, along with the economy; in the 2005-2007 period particularly, the expansion of own-account working stalled as a result of growth in the economy and in wage employment that was unprecedented for the region, at least by the standards of the past 25 years.[4] Although own-account employment growth accelerated in 2008, it was still outpaced by wage employment, and this was true of five of the six years of economic expansion (see figure 8).

Economic growth and improving labour market indicators in the 2003-2008 period of expansion had a positive effect in terms of poverty reduction and also, although only incipiently, of income distribution. Poverty and indigence rates fell by 10.4 and 6.4 percentage points, respectively, from their levels of the beginning of the decade.[5]

A recent ECLAC study (ECLAC, 2008b) states that one of the main causes for the decline in poverty and indigence rates between 2002 and 2007 was the so-called "growth effect" or increase in mean household incomes. In a number of the region's economies, however, improving income distribution, or the "distribution effect", was the main factor in the reduction of poverty and indigence.[6] It is important to appreciate that both effects contributed simultaneously to the reduction of poverty in nine of the region's countries, albeit to differing degrees (see figure 9). Interestingly, the rise in average incomes in the lowest-income households was mainly due to higher labour incomes, as opposed to non-work income sources (public and private

[3] At the regional level, the participation rate has generally behaved procyclically (Machinea, Kacef and Weller, 2008).

[4] This appears to indicate that the increase in informal working in the 1990s was not due to a preference for this type of employment; rather, workers had no choice given weak demand for labour in the formal sector.

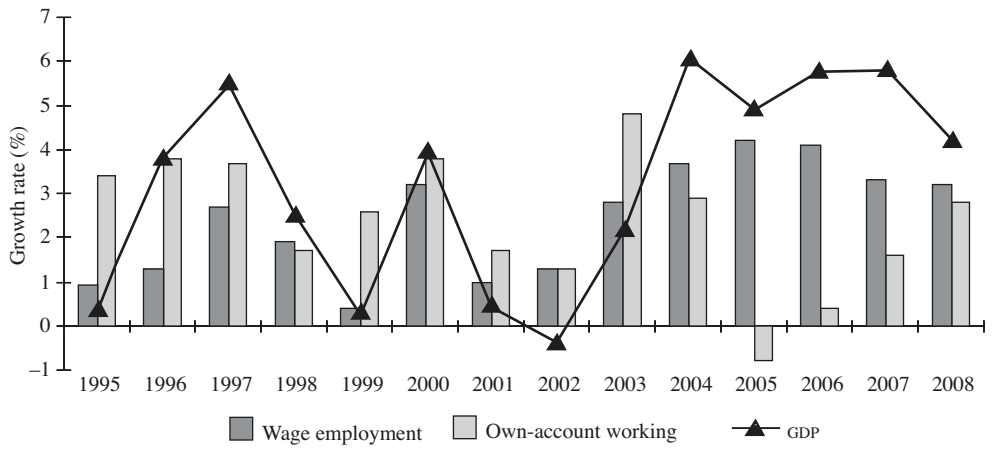
[5] Indigence increased slightly in 2008, even though poverty continued to fall. This divergence was due to the large increase in food prices in the first half of 2008.

[6] This analysis is based on the decomposition of changes in poverty and indigence rates developed by Datt and Ravallion (1992), averaging out the effects calculated using the different base years (as suggested by Kakwani, 1997) to avoid the residual and not have to depend on a single base year. See ECLAC (2008b, box I.7) for a fuller description of the methodology.

transfers, capital income and other income). Of the seven countries where poverty declined most rapidly (Argentina, Brazil, Chile, Ecuador, Mexico, Panama and the Bolivarian Republic of Venezuela), higher labour incomes accounted for an average of 77% of the rise in total income in poor households and 69% of income in indigent households. As analysed earlier, this occurred against a background of both qualitative and quantitative improvements in the region's labour indicators overall.

FIGURE 8

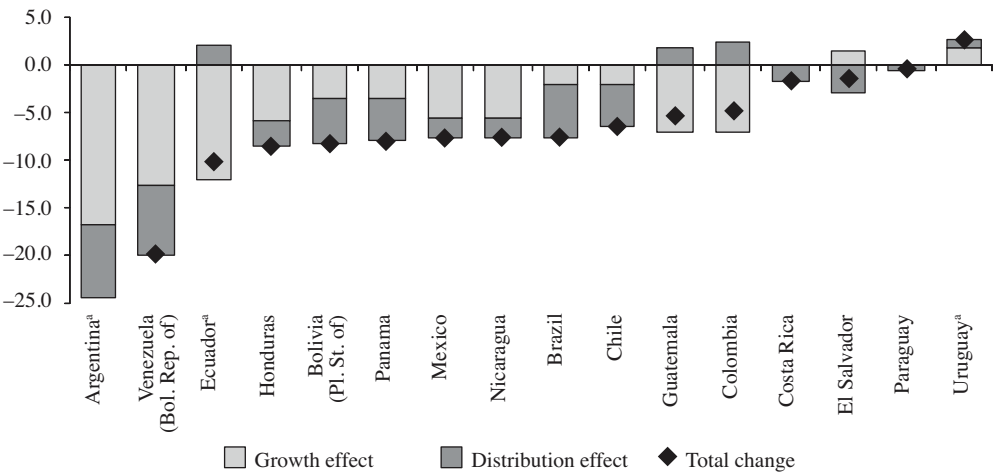
Economic growth and job creation, 1995-2008



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

FIGURE 9

Effects of growth and distribution on the poverty rate, 2002-2007



Source: Economic Commission for Latin America and the Caribbean (ECLAC), Social Panorama of Latin America, United Nations publication, Chile, 2008.

[a] 2002-2006.

III

The contribution of macroeconomic policy during the boom

1. Fiscal policy

The central government fiscal accounts of the Latin American countries have improved greatly in recent years. Not only has the overall deficit been reduced, but since 2004 there has been a primary surplus, calculated in both cases as a simple average. This average primary surplus reflects a good fiscal performance throughout the region. Of the 19 countries analysed, 14 had a primary surplus in 2008 (only Guatemala, Haiti and Honduras still had a primary deficit). This is in great contrast to 2002, when only seven countries ran a surplus.

Meanwhile, the positive evolution of the fiscal accounts in a context of rapid economic growth made it possible to reduce the debt-to-GDP ratio, whose regional average fell from 58.4% in 2002 to 28% in 2008. The region's countries also took advantage of the favourable macroeconomic conditions in the period to apply active liability management policies, reducing their financial vulnerability.

The good performance of the public accounts over six years prior to the crisis contrasts with what has happened in other recent episodes of growth (see figure 10a). During the 2002-2008 period, the primary surplus grew by 1.8 points of GDP thanks to a large increase in total revenues equivalent to 3.4 points of national output, while spending increased by only 1.6 percentage points. In the two growth periods of the 1990s (1991-1994 and 1995-1998), by contrast, fiscal revenue growth was not so strong and in both cases failed to keep pace with primary spending growth as a share of GDP, as a result of which the region's average primary surplus decreased. It is nonetheless interesting to observe the evolution of the main fiscal indicators during the recent period of expansion. Whereas the improvement in the primary surplus between 2003 and 2004 was due to higher fiscal revenues and the fact that spending grew by less than output in the region, the rise in the primary surplus in 2005 and 2006 was due to a surge in revenues, easily outstripping the growth of public spending as a share of GDP (see figure 10b). From 2007 onward, primary spending accelerated while the rate of growth in total revenues as a share of national output tailed off. This caused the public accounts to deteriorate in 2007 and again in 2008.

As the above analysis shows, continuing fiscal revenue growth and a more restrained spending policy during the 2003-2006 period accounted for much of the improvement in the primary surplus as a share of GDP during the period of expansion. The countries whose fiscal revenues grew most are those whose export product prices rose most strongly.

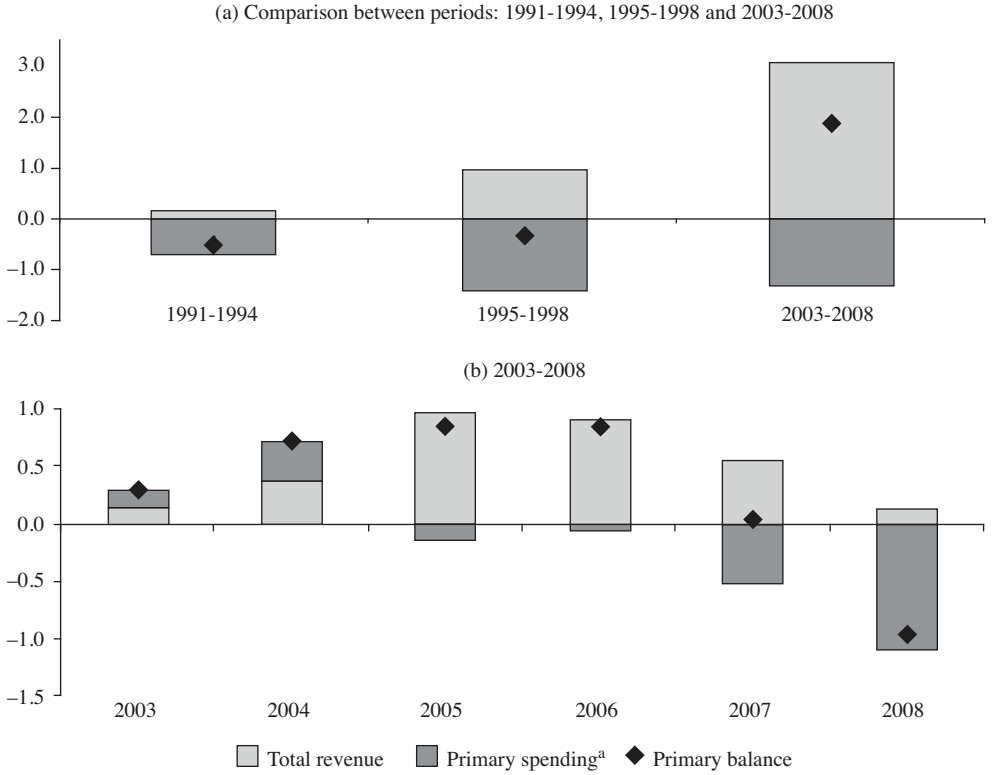
The effects of the fiscal boom in the region depended on the origin of the extraordinary resources received by the countries. In Central America, national income growth was mainly due to emigrant worker remittances received by the private sector. In almost all the South American countries and Mexico, on the other hand, most of the improvement was due to the terms-of-trade effect, even though Mexico is the largest recipient of remittances in absolute terms. In countries where exporting is largely carried out by State-owned enterprises, a large share of the resources generated by the terms-of-trade improvement went to the public sector.[7] This is generally the case with exports of oil and certain metals, including copper. Where exporters are not public-sector firms, the resources go to private-sector firms, and the State only receives a portion of them in the form of taxes.

Where the fiscal repercussions of rising remittances and export prices are concerned, it is possible to distinguish between three stylized situations with differing effects on the public accounts. When production is carried out by the private sector, remittances and higher export prices have positive effects on the public accounts because tax revenues rise, directly in the case of higher export prices (via profit or export taxes) and indirectly through the effects of higher remittances and export prices on domestic demand. An important difference is that remittances tend to boost consumption, while private firms may invest some of their profits or increase

[7] See Jiménez and Tromben (2006) for an analysis of the effects of export price changes on tax revenue.

FIGURE 10

Fiscal indicators: primary balance and contribution of revenue and spending
(Changes in points of GDP)



Source: prepared by the authors on the basis of official figures.

[a] A negative contribution means a rise in primary spending.
GDP: Gross domestic product.

the amounts they remit abroad, an effect that was analysed earlier. When the producing and exporting firms are State-owned, the effects on fiscal revenues are greater, while the consequences for demand will depend on public policy decisions as to whether to save the surplus or increase spending. This alternative gives fiscal policy a greater stabilization capacity and the option of channelling resources into higher investment spending, whether on infrastructure or on human capital.

As already mentioned, meanwhile, fiscal indicators showed a marked acceleration of primary spending as a share of GDP in the last two years of the growth period. Whereas capital spending accounted for a larger share of the increase in outgoings in 2007, in 2008 current primary spending grew more strongly than capital spending. This increase in primary spending can be interpreted as a consequence of the large fall in public spending during the stabilization programmes of the early part of the decade, combined with the expansion of social spending, which followed the upward trend already in evidence for part of the 1990s.[8] From this perspective, the rise in social spending can be considered appropriate and indeed necessary, given the high levels of poverty and inequity in the region. By contrast with what used to happen, the rise in spending over recent years has taken place in a context of fiscal consolidation throughout the region, albeit with some differences between countries. As already discussed, this consolidation is largely explained by the strong increase in fiscal revenues and is reflected in the shrinking of the overall fiscal deficit and the generation of a growing primary surplus, at least up until 2007.

[8] After falling sharply in the 1980s, social spending increased by 40% in real terms between 1991-1992 and 2002-2003.

2. Monetary and exchange-rate policy

Broadly speaking, one thing that characterized most of the growth period in Latin America was an increase in inflationary expectations as a result of the steady expansion in activity and rising commodity prices, especially for energy and some foods. After a decline in the regional average during the 2003-2006 period, inflation worsened again in 2007 and reached double digits in 2008 (see figure 11).

From 2004 to 2006, nine countries out of a total of 19 had annual inflation rates in excess of 6%, whereas in 2008 this benchmark was exceeded by 16 countries. Rising prices were not an exclusively Latin American phenomenon but occurred in a context of higher inflation around the world, driven by the same causes as in the region: higher levels of activity and rising commodity prices. This is borne out by the fact that the number of emerging economies with inflation rates of more than 6% a year rose from an average of 42 countries in the 2004-2006 period to over 70 in 2008.

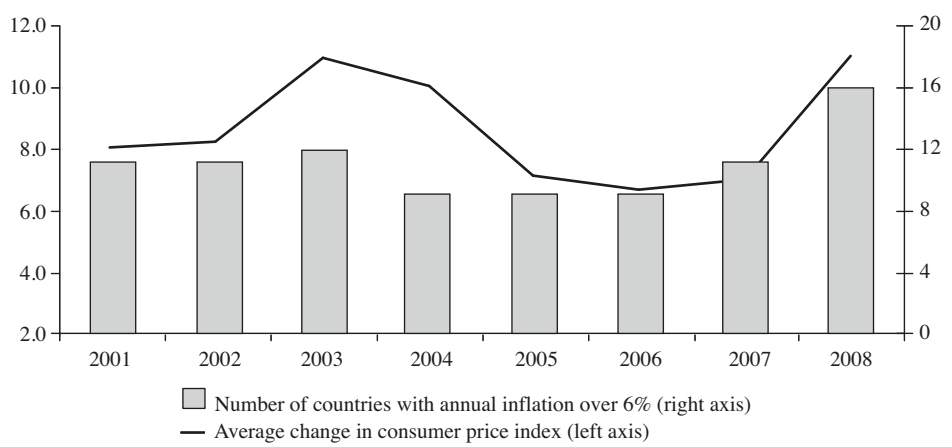
Meanwhile, an initial stage of sharp depreciation in the real effective exchange rates of the region's countries was followed in the latter years by a pattern of quickening real appreciation, particularly in the South American countries. This led many of the region's central banks to step up the pace of intervention in currency markets, building up large international reserves (see figure 12).

While policy continued to be based on inflation targeting, concerns about the real exchange rate led the monetary authorities of Brazil, Colombia and Peru to intervene in the currency markets. The same happened in Chile, with the Central Bank deciding to intervene in April 2008 with a view to strengthening the liquidity position of the Chilean economy in anticipation of a worsening external environment. This measure was considered to be consistent with the assessment that the long-term real exchange rate of the Chilean currency was stronger than its equilibrium level. There was also large-scale currency-market intervention in Argentina, the Plurinational State of Bolivia, Costa Rica and Paraguay. If the increase in reserves over recent years is added to that seen during the initial phase in 2003-2005, the total build-up of reserve assets in six years was in excess of US$ 327.5 billion in the region as a whole, equivalent to 11.3% of average GDP.

For all the efforts made by central banks, this was a time when the dollar was depreciating against other currencies, and the real effective exchange rates of most of the region's countries appreciated relative to their average levels in the 2003-2005 period (see figure 13). Improving terms of trade, rising demand for some of the region's export products and growing inflows of emigrant workers' remittances were all factors in the appreciating tendency of the region's real exchange rates. Increased external liquidity was also a factor to a lesser degree, by contrast with the

FIGURE 11

Latin America and the Caribbean: simple average of inflation rates and number of countries with annual inflation over 6%
(Percentages)

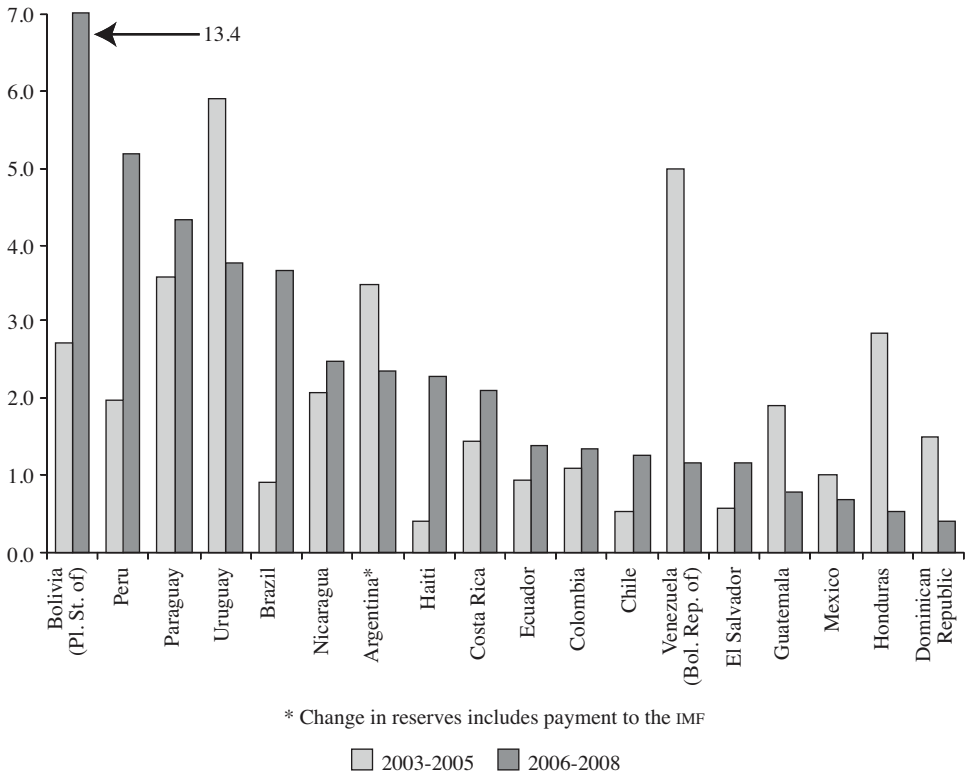


Source: prepared by the authors on the basis of official figures.

FIGURE 12

Latin America and the Caribbean: average change in international reserves in the 2003-2005 and 2006-2008 periods

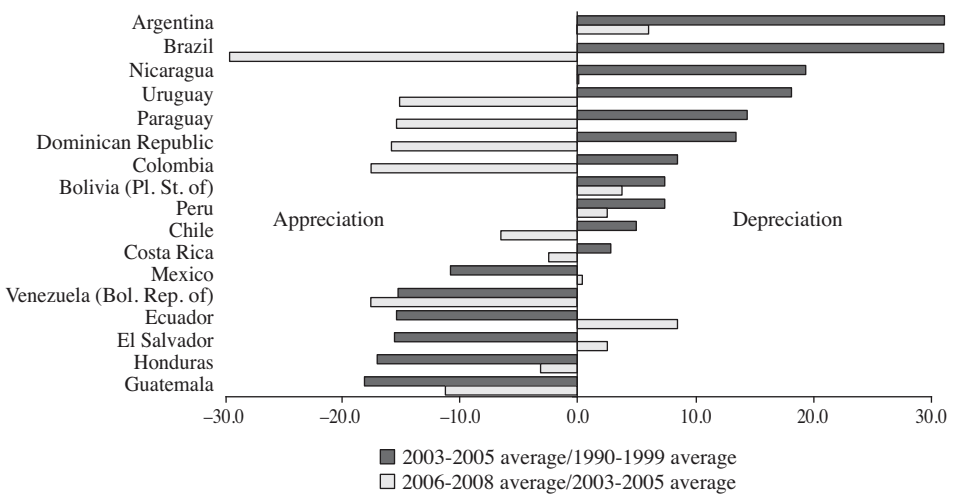
(Percentages of GDP)



Source: prepared by the authors on the basis of official figures.
GDP: Gross domestic product.

FIGURE 13

Latin America and the Caribbean: real effective exchange rate



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

1990s. In summary, excess supply in the currency market created pressure for real exchange rates in the region to appreciate in the years leading up to the international crisis. The strength of this effect differed from one country to another, but did not depend on the scale of efforts made by monetary authorities to hold exchange rates steady by intervening in the currency markets.

Currency-market intervention was matched by an increasing effort to sterilize currency issuance, in a context of rising inflationary expectations. The region's countries applied absorption policies via open market operations, entailing costs of different kinds and leading to a variety of results. To cite just a few examples, the Central Bank of Brazil bought reserve currency to hold the exchange rate steady, paying a high price in terms of interest rates on the neutralization instruments to avoid jeopardizing the monetary programme; as we have seen, though, these efforts did not prevent appreciation of the real. Much the same happened in Colombia. In Argentina, on the other hand, the Central Bank also purchased foreign currency and was more successful in stabilizing the exchange rate, but there was a high cost in terms of control over monetary policy.

The central banks of the two countries cited in the first instance also kept interest rates high, which encouraged capital inflows, whereas in Argentina domestic demand was increasing strongly, partly because of public spending growth. The element common to all three cases is that the costs associated with the currency market intervention strategy (and its outcome) were largely determined by a general economic policy context with characteristics that conflicted with the decision to stabilize the real exchange rate.

IV

The repercussions of the crisis for the Latin American macroeconomy[9]

The global economic crisis cut short the longest and most vigorous period of economic growth in the region since the 1970s. As mentioned in the previous section, this growth took place against the background of a worldwide economic expansion that was strongest from 2003 until mid-2007, when the problems originating in the United States subprime mortgage market gradually began to spread around the world. The impact was felt in financial systems worldwide and significantly affected goods and labour markets, particularly from September 2008 onward. This built up into a global economic shock of unusual severity, with similarities to the Great Depression of the 1930s that have elicited comparisons with that episode.[10]

The repercussions of the crisis for the economies of Latin America were manifested through the real sector, negatively affecting the performance of what until recently had been the main engines of regional growth. Exports fell significantly in both volume and value from the second half of 2008, reflecting the fall-off in world trade (see figure 14). Where services are concerned, the contraction in tourism was particularly damaging, as this accounts for a large share of economic activity in Central America and the Caribbean.

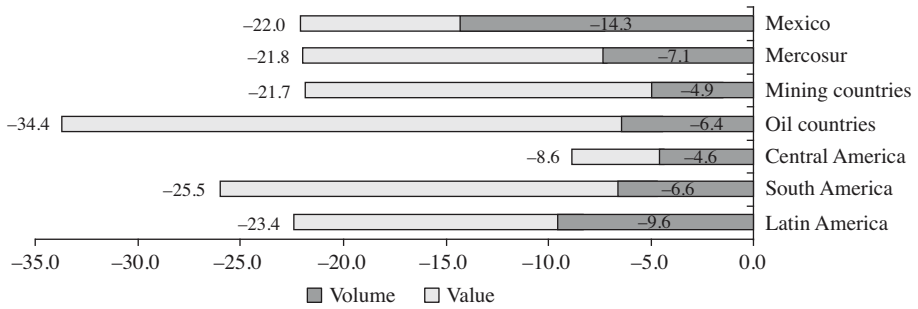
The sharp decline in global activity and the reduction in trade flows had a negative effect on commodity prices, and thus on the region's terms of trade. Following the rise in the first half of 2008, the crisis impacted international goods markets quite severely following the collapse of Lehman Brothers in September. While international commodity prices tended first to stabilize and then to recover from their sharp decline in the early part of 2009, the averages for the year were considerably down on 2008 levels, so that the terms of trade for the region as a whole deteriorated by about 4%. This primarily affected South America, most particularly countries producing oil and hydrocarbons and metals and, to a lesser extent, those specializing in food production. Conversely, the terms of trade for Central America are estimated to

[9] This section is based on Kacef (2009). See also Machinea (2009) and Lopes (2008) for an analysis of the international crisis from a Latin American perspective.

[10] See Eichengreen and O'Rourke (2009) and Krugman (2009) for a discussion of the similarities between the Great Depression and the recent crisis.

FIGURE 14

Changes in FOB goods exports, by value and volume, 2009
(Percentages)



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

have improved, since it imports these types of goods, although without fully offsetting the deterioration of earlier years.

The fact that most Latin American emigrants work in the United States and Spain, two of the countries worst affected by the crisis, explains why remittances fell so sharply. The data available suggest annual declines of some 10% in certain Central American countries such as El Salvador and Guatemala, and even more in the cases of Colombia, Ecuador and Mexico.

While we have stated that, on the whole, the consequences of the international crisis were felt primarily through the real channel, in some cases there were impacts on financial systems that may have had substantial repercussions on activity levels. Thus, while trade shocks were a greater factor in the region than capital flow reversals, there were three important exceptions to this rule: Brazil, Chile and Peru, countries whose financial systems presented the greatest degree of external exposure relative to the rest of the region as of late 2008.[11]

As figure 15 shows, the situation was manifested in these countries' financial systems by way of a sharp real-term contraction in private-sector bank lending. As will be seen later on, the public banking system took on an active role in many countries as part of the countercyclical strategies implemented. However, with the exception of Brazil, where the public banking system accounts for a large proportion of total lending, its ability to offset the reduction in lending by private-sector banks was relatively modest in the region.

In our judgement, this factor played a fundamental role in the relative weakness of the Chilean economy between late 2008 and the third quarter of 2009, despite the country's sound macroeconomic fundamentals and active State intervention through countercyclical policies. The evidence set out in figure 16 on the scale of lending as a proportion of GDP reveals the greater effect that the contraction in private-sector bank lending may have had on activity levels in the Chilean economy as compared to the Brazilian and Peruvian economies and those of the rest of the region in general.

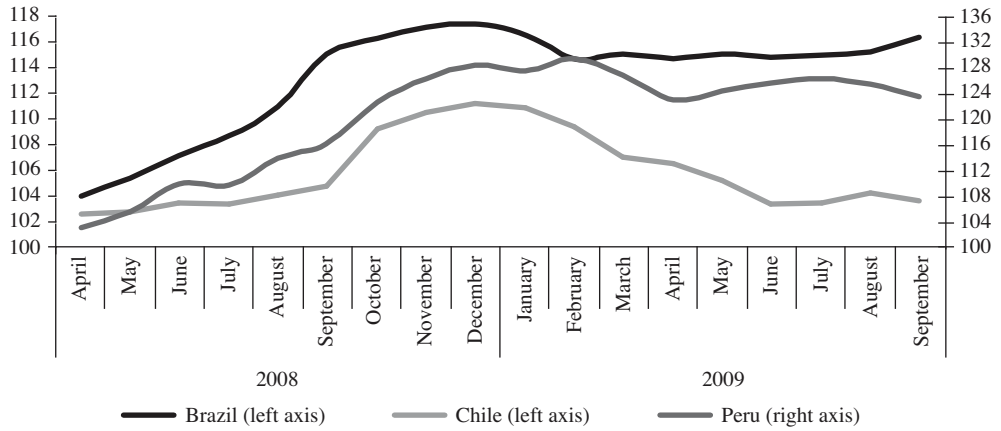
Broadly speaking, and particularly in late 2008 and early 2009, there was a deterioration in consumer and business expectations that was reflected by a decline in both consumption and investment in the private sector. The latter was exacerbated by the drop in foreign direct investment, estimated by ECLAC at between 35% and 40% in 2009.[12] As figure 17 shows, only public-sector consumption recorded positive growth in the early part of the year, thanks to the leeway many of the region's countries had at the time to implement countercyclical policies that partially offset the negative evolution of the other components of domestic demand and accelerated the recovery process in the latter part of 2009, something that will be analysed further on.

[11] According to ECLAC estimates (see ECLAC, 2008a), only these three countries showed signs of a sudden stop in capital flows associated with the effects of the crisis. In the region's other countries, the information analysed suggests a trade shock caused by an export decline that was considerably greater than would have been expected in a typical cyclical movement. These shocks, however, were strongly associated with the behaviour of commodity prices, which means that they cannot be dissociated, in either their origins or their effects, from a shock of a financial kind.

[12] See ECLAC (2009a).

FIGURE 15

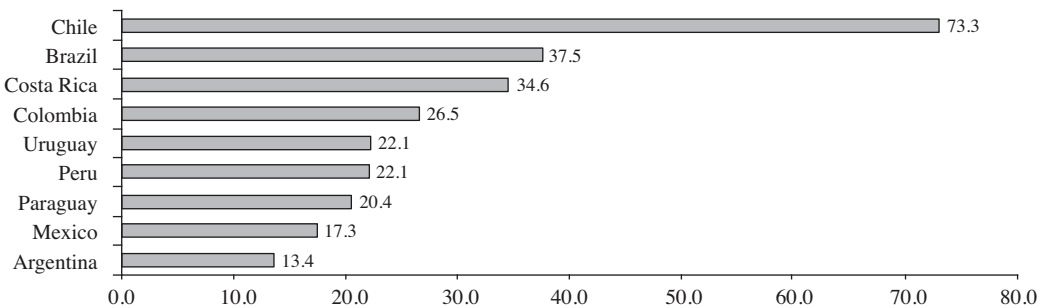
Private-sector bank lending in Brazil, Chile and Peru
(Index: first quarter of 2008=100)



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

FIGURE 16

Latin America (selected countries): financial system lending
(Percentages of GDP)

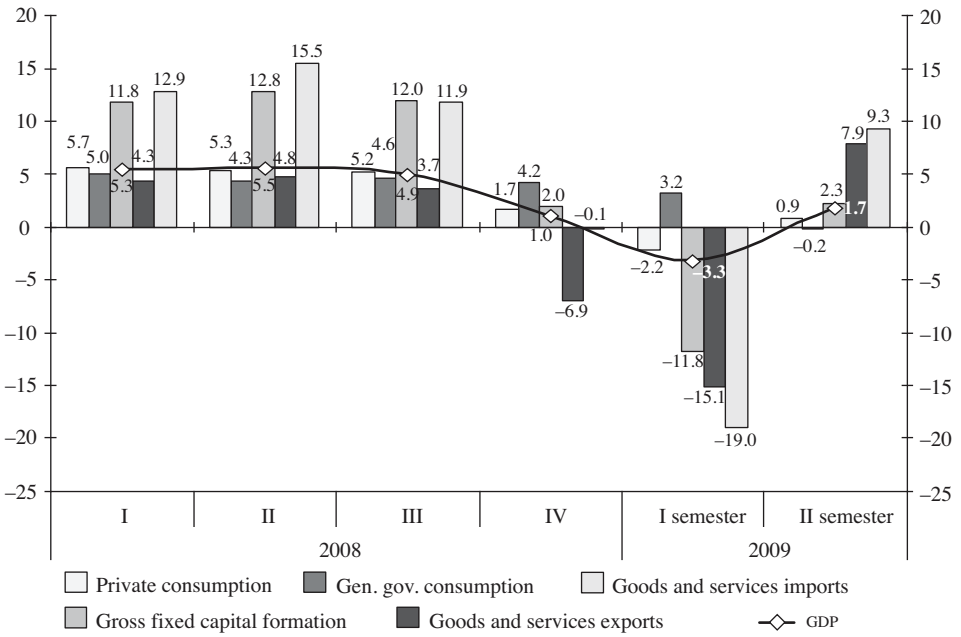


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.
GDP: Gross domestic product.

FIGURE 17

Composition of total supply and demand

(Percentage change compared to same period the previous year)



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

V

Macroeconomic policy space to dealwith the crisis

While the situation differs from one country to another, in recent years there has been a change in macroeconomic behaviour in the region so that it contrasts with what was seen in earlier episodes of expansion, as discussed in section III. In the pre-crisis period, increased rates of saving in the region resulted in a lessened dependence on external financing and, in many cases, in a reduction of external liabilities in the public sector, easily offsetting the greater use of international credit by the private sector. This process was accompanied by the large build-up of international reserves referred to earlier, as a result of the decision to accumulate external assets in order to reduce dependence on international financing in the event of any liquidity problems.[13] This self-insurance approach embodied a decision to pay a price equivalent to the opportunity cost of the external resources accumulated, owing to recognition of the procyclical character of the international credit supply and the desire to avoid conditionalities tied to financing from multilateral sources.

This not only represented a major change from the financial difficulties the region's countries were

[13] The efforts of the region's countries would look even more impressive if international reserves calculations included the savings built up by a number of them in sovereign wealth funds financed out of fiscal surpluses.

accustomed to facing in similar episodes, but created greater latitude for public policy implementation. Nonetheless, more recent developments, shaped by the repercussions of the crisis, have reduced the leeway for policies to increase domestic demand and have intensified conflicts between objectives that compete for the use of government instruments and resources.[14]

Figure 18 shows the parallel evolution of two factors that are crucial constraints on the scope for applying economic policy as analysed from a flow perspective: the balance of the current account and the balance of the public accounts. The boom period from 2003 to 2007 was accompanied by a parallel improvement in both balances that ultimately led to Latin America as a whole posting unprecedented twin surpluses in 2006 and 2007.

However, much of the improvement in the fiscal situation in recent years was due, as noted earlier, to rising commodity prices between 2002 and the first half of 2008, so that the decline since mid-2008, although it has recently eased, has reduced the countries' fiscal space once again. Thus, in 2009 the overall effect for Latin America was a loss of revenues estimated at 1.4% of GDP (simple average), leading to an average overall deficit of 2.8% of GDP for the region.

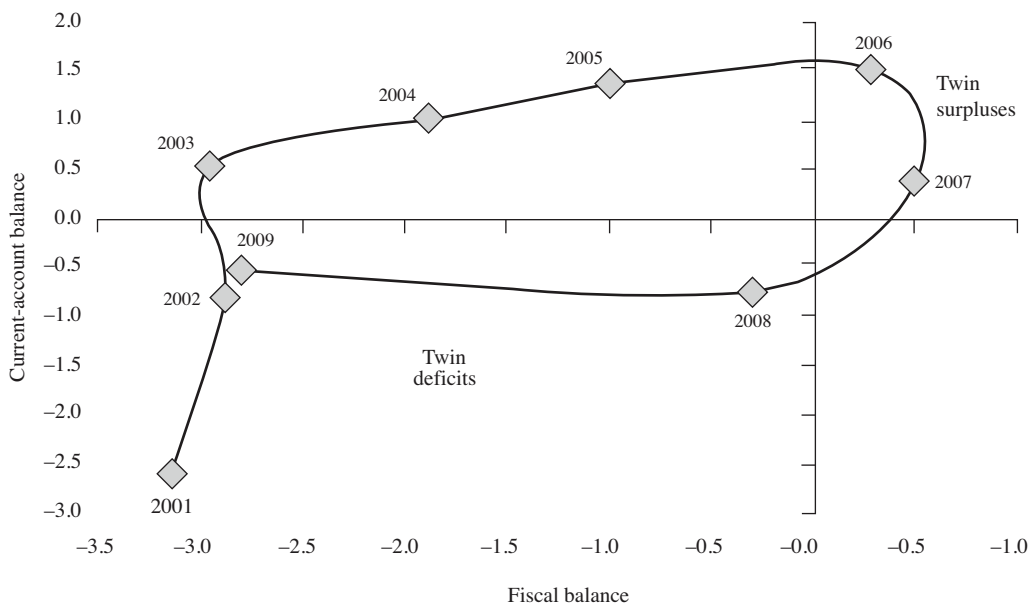
As regards the region's current-account deficit, this was 0.7% of GDP in 2008 and a further deterioration was expected, but falling domestic demand and thus imports more than offset the contraction in exports and remittances, with the result that the deficit actually narrowed to about 0.5% in 2009. Collapsing consumption and investment caused imports to plummet by almost 25% in current values, offsetting the drop of about 23% in the region's external sales.

Besides the constraints on the availability of resources for countercyclical intervention that may result from the dynamic of the public accounts and the external accounts, the characteristics of the region's economies mean that there are other factors which may influence the capacity of macroeconomic policy. In particular, over and above the importance of preserving sufficient liquidity to allow financial systems to operate smoothly, the effectiveness of monetary policy is constrained in countries that have limited monetization and financial depth. Moreover, situations of elevated uncertainty affect the mechanisms

[14] See Fanelli and Jiménez (2009).

FIGURE 18

Latin America: current account and central government fiscal balance, 2001-2009
(Percentages of GDP)



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

of transmission between expansionary monetary policy measures and growth in the credit supply, and between these and the effective utilization of the available financing to increase demand for goods. In some cases, the existence of a public-sector banking system with a large share of domestic lending made it possible to stimulate and replenish lending at times when private-sector banks were cutting theirs because of the elevated uncertainty.

In crisis situations, when credit markets tend to segment, fiscal policy has a crucial role to play in maintaining aggregate spending flows.[15] The countries of the region are sometimes faced, however, with institutional constraints (and limited implementation capacity in the public sector) that reduce the scope for using fiscal policy flexibly for macroeconomic stabilization purposes. Although tax-cutting decisions can be implemented fairly simply, their effects may be limited in countries where taxation levels where low to begin with, and in conditions of uncertainty higher disposable income does not necessarily feed through into greater demand, particularly if the groups favoured by tax cuts belong to the upper strata of the distribution.

Increasing public spending poses greater institutional and administrative challenges. Expanding public investment takes time, particularly since the countries do not usually have enough projects that have been evaluated and are ready for implementation. Likewise, providing subsidies to the sectors in greatest need can be highly effective, but not all the countries have developed mechanisms for identifying and reaching potential beneficiaries of social programmes. Although more closely targeted policies are more efficient than universal measures, in many cases this option is limited by the lack of institutional development, making across-the-board subsidies the only option. In short, the availability of resources is not the only precondition for implementing countercyclical policies; the institutional framework also needs to provide access to a sufficient array of instruments for goals to be effectively achieved.

1. Monetary, financial and exchange-rate policy

Faced with the changing international situation in the last four months of 2008, which entailed major credit constraints in the developed countries and an end to the inflationary pressures of recent years, monetary authorities in the region took steps to ensure adequate liquidity in order to facilitate the functioning of domestic financial markets.[16] The measures taken included cuts in reserve requirements, shortening of payment periods or the suspension of operations to reduce liquidity, and creation or expansion of special lines of credit for discount and repurchase operations. As figure 19 shows, most of the region's central banks cut their monetary policy rates several times during 2009 in response to the slowing of inflation that began in late 2008. As in the developed countries and China, lower interest rates provided greater liquidity to reactivate the economy in coordination with fiscal measures.

Even an expansionary monetary policy, however, could not prevent a loss of dynamism in the credit market. The lending slowdown in 2009 was mainly seen in the private-sector banking system, with some countries experiencing a contraction from 2008 levels (Chile, Colombia, Mexico and Uruguay). This loss of dynamism was due both to a lessening of the supply from private-sector banks and to lower demand, owing to the decline in activity and increased uncertainty. To counteract the lesser availability of credit from private-sector banks, however, public-sector banks in a number of the region's countries increased their lending as part of government-led countercyclical strategies (see figure 20). As already noted, the effectiveness of such strategies depended on the share of total financial system lending accounted for by public-sector banks, something that was very significant in the case of Brazil, where lending by public-sector banks accounts for about 35% of the total.

After the crisis worsened in late 2008, and despite the loss of reserves, the currencies of a number of the region's countries depreciated substantially following three years of appreciation. Intervention by the authorities took a range of forms, including operations in both the spot and forward markets.[17] These movements were partially reversed in the first half of 2009 when, despite a round of interest rate cuts by the region's central banks, currencies tended to appreciate in nominal terms, reflecting better conditions

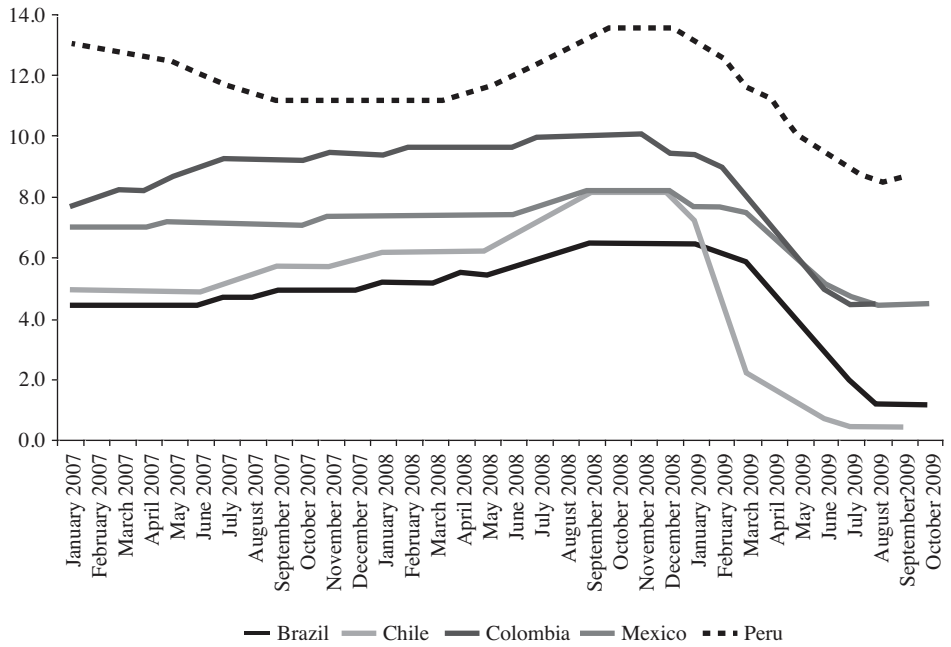
[15] See Baldacci, Gupta and Mulas-Granados (2009) on the effectiveness of fiscal policy in a financial crisis.

[16] The pick-up in inflation in 2007 and the first half of 2008 complicated monetary policy management and posed a challenge for central banks seeking to meet inflation targets.

[17] See Jara, Moreno and Tovar (2009).

FIGURE 19

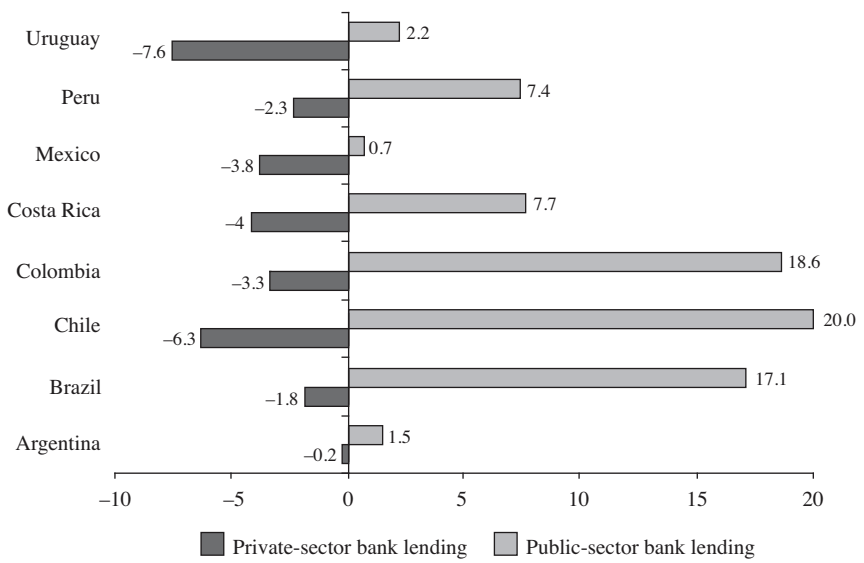
Latin America and the Caribbean (countries with inflation targets): monetary policy rates
(Percentages)



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

FIGURE 20

Latin America (selected countries): public- and private-sector bank lending, change between December 2008 and September 2009
(Percentages)



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

in international financial markets. Selling intervention in the currency markets progressively diminished over the period and eventually ceased.[18]

2. Fiscal policy

Faced with the crisis, the challenge for fiscal policy was to implement countercyclical measures in a context of declining revenues, whilst protecting certain types of expenditure (education, social protection and infrastructure) that were vital to prevent poverty from rising and to lay the groundwork for future growth. Although the region's governments have retained some capacity to buttress their economies with fiscal intervention, in practice the room for fiscal manoeuvre has differed greatly from one country to another, being dependent on the existence of savings built up in the good times, the degree of spending rigidity, the duration of the crisis and the scope for prudent borrowing.

The crisis placed the public finances of the Latin American economies in a complex situation. Fiscal revenues fell substantially as a result of lower activity levels and falling commodity prices. In addition, the countries undertook fiscal measures to stimulate their economies and offset the distributional costs of the crisis, which resulted in a further deterioration of their fiscal balances. In many cases, furthermore, this deterioration took place against the background of serious external financing constraints that affected the scope for applying countercyclical fiscal policies.

The effects of the international crisis on fiscal revenues differed from one country to another depending on their tax structures and revenue levels and the different current financing sources they used.[19] Thus, exposure to the crisis was greater in countries that had a low tax burden or relied heavily on funding from non-tax or natural resource revenues, and in those that were very open to trade, particularly if their exports went mainly to developed countries. Conversely, countries where the tax burden was large and where the share of income tax and the productivity of value added tax (VAT) were high seem to have been less exposed.

From the expenditure point of view, rising outlays are explained by growth in both current spending and infrastructure investment spending, especially on new housing. Current spending rose strongly in the first nine months of 2009 and so, to a lesser extent, did capital spending, implementation of which is generally slower (see figure 21). While extra spending measures predominated over measures to cut taxes or increase revenues, a number of the region's countries did apply taxation measures. In fact, 11 countries brought in personal income tax reductions (by changing the system of deductions, reducing rates or extending exemptions), two of them on a temporary basis, while the same number of countries announced changes in corporate income tax (new exemptions, deductions or accelerated depreciation systems), which were temporary in four cases. Brazil deserves a special mention: although total spending growth was less than in other countries, measures were taken to reduce tax rates for industrial products (temporarily for vehicles, household appliances and construction materials) and the financial operations tax; income tax rates for lower-income individuals were also changed.[20]

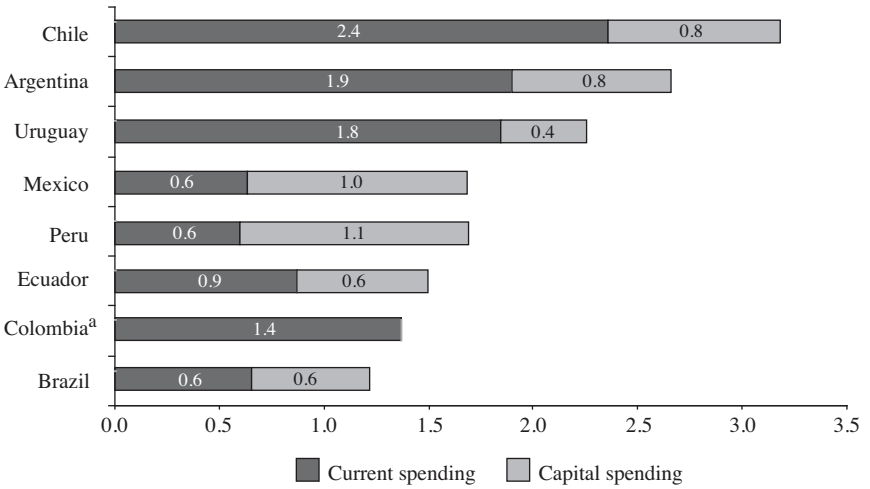
When social measures are broken down by subregion, their composition reveals a large difference of approach. In South America and Mexico, three quarters of the measures announced were designed to support poor families, whereas in Central America the distribution was more balanced, half of the measures announced being consumption subsidies while the other half consisted of support for lower-income families.[21] As noted earlier, this reveals a divergence in countries' institutional capacity to implement such policies, since targeted measures, while more effective, involve a greater institutional effort. While consumption subsidies are more straightforward to apply, they reach a larger number of people and can create a regressive bias in favour of those who consume most.

Where the effects of the measures are concerned, the difficulties of quantifying and measuring the impact of tax deductions and incentives (usually called "tax expenditure") in the region are well known.[22] There are also question marks over the duration of

[18] The exception was Argentina, where the peso gradually depreciated from mid-2008.
[19] Gómez Sabaini and Jiménez (2009) quantify the degree to which the various countries' fiscal revenues are exposed to different variables, dividing them into three groups by exposure level: high, medium and low.
[20] The effect of these tax measures is estimated at 0.8% of GDP.
[21] See ECLAC (2009b and 2009c) for further details of crisis measures applied in the region.
[22] See Jiménez and Podestá (2009) for further information on the use of tax expenditure in the region.

FIGURE 21

Latin America (selected countries): change in public spending, nine months in 2008 - nine months in 2009
(Percentages of GDP)



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

[a] Change in total spending.

measures and the ability of some governments to sustain the level of spending that these policies entail. Furthermore, while these measures were taken by central governments, many of them have required resources from subnational governments, which introduces a need for greater intergovernmental coordination and a new source of vulnerability for fiscal policy in the crisis.[23]

VI

Some post-crisis macroeconomic policy considerations

Albeit to a lesser degree than on other occasions, the region was affected by the crisis, which cut short six consecutive years of growth and improving social indicators. Regional output fell in 2009, chiefly owing to the sharp recession in the Mexican economy, which has had negative repercussions on employment and poverty. As noted earlier, growth in the 2003-2008 period was accompanied by higher and better-quality employment, and poverty and inequality diminished as a result. The opposite happened in 2009: low or even negative growth was accompanied by rising unemployment and informal working, a decline in employment with social protection coverage and a contraction in full-time employment (ECLAC/ILO, 2009). This combination of factors drove poverty and indigence levels higher.

It is to be expected that the incipient recovery seen in late 2009 will consolidate in 2010 and that Latin America will start growing again, although probably at lower rates than in the period of strong

[23] Although subnational levels of government have improved their accounts in recent years, this improvement has largely been due to the increasing scale of transfers from national governments, which rose by two points of national output from 1997 to 2007. In some cases, meanwhile, the public debts of subnational governments are large and account for a significant proportion of total public debt.

growth cut short by the crisis. The expected growth could be inadequate in terms of demand for labour, which will impede any rapid recovery in the quantity and quality of jobs, and thus in social indicators.

Lower investment has not just had an immediate negative effect on demand for goods and activity levels, but has impaired the region's capacity for future growth. It is often argued that it took Latin America 14 years to return to the level of per capita GDP it had prior to the 1980s debt crisis and 25 years to bring the poverty rate back down to what it was before that crisis. As section II pointed out, the region has never recovered its investment rates of the 1970s, measured as a share of GDP. The Latin American countries have sought to increase investment rates in recent years, but this effort was cut short before the level needed to sustain a higher rate of growth could be achieved.[24]

The crisis is also highly likely to lead to profound changes in the international situation, resulting in an environment less favourable to growth than the one the region became used to between 2003 and 2008. In the first place, it is possible that the post-crisis world may be characterized by lower global growth owing to a decline in the dynamism of aggregate demand in the developed countries, partly offset by higher aggregate demand in developing countries.[25]

In consequence of this, the expectation must be that emerging economies will play more of a leading role in global growth, but against a background of slowing trade flows. Lower demand for imports in developed economies has been reducing the scope for emerging economies to sell their products into those markets, intensifying competition and at the same time providing incentives for growth strategies oriented mainly towards domestic markets, at least in larger economies.

At the same time, the global financial crisis has revealed the need for deep reforms in the international financial architecture, particularly regulation and oversight systems, to ensure greater global financial stability. The crisis exposed the fact that institutional mechanisms for controlling systemic risk had not kept pace with financial liberalization and globalization. There will therefore be a need for changes in the approach and reach of regulation and oversight in domestic financial systems, accompanied by a greater effort to coordinate regulation at the global level. These changes will probably result in an expansion of the scope of regulation and oversight of the different financial instruments and different market participants. The expectation is that the banking model will shift towards one that is more transparent and has fewer incentives for risk-taking and lower levels of leverage, implying a reduction in international financial flows and thence a partial reversal of the financial integration that had been taking place until the crisis.

To recapitulate, Latin America is faced with the renewed challenge of raising its growth rate to be able to accommodate needs arising from a challenging social situation which it is increasingly urgent to resolve. Growing more means investing more, however, and what this implies in the region is higher demand for reserve currency to purchase capital goods, as most of these are imported. The question must be, then, what role the region is going to create for itself in a world characterized, first, by reduced economic dynamism in developed countries and greater participation by developing countries in global growth and, second, by financial systems subject to stricter regulation and oversight, less dynamic lending markets and higher interest rates.

It is not the purpose of this paper to give an exhaustive response to these questions, which ultimately turn on the need to achieve sustained economic growth based on higher productivity and greater distributional equity. All that is proposed here is to offer some suggestions for macroeconomic policy design that may help to consolidate the link, traditionally an uncertain one in Latin America, between growth and equity.

Macroeconomic stability is a necessary condition for the region to enhance growth and improve its distribution, but stabilization needs to be understood broadly as a goal that goes beyond low and stable inflation. This is unquestionably a central objective of macroeconomic policy, but the economic history of Latin America shows many examples of the high costs that real-term instability can entail. This highlights the importance of sustainable macroeconomic management, guided by expected trends in the main variables that can provide a benchmark for decision-making whose horizons extend beyond the short term.

It is crucial for macroeconomic policies to be designed to cope with the fluctuations associated with economic cycles, but this capability needs to be developed at times of economic expansion for use in recessionary phases, thereby avoiding excessive fluctuations both in the level of public service provision

[24] It is estimated that to sustain growth of 6% a year, the region would require an average investment rate of between 24% and 27% of GDP. See ECLAC (2006).
[25] See Rogoff (2009).

and in the real exchange rate and interest rates. This is an important lesson that has been emerging from the crisis, as the benefits to the region of the countercyclical policies which various countries implemented, to different degrees, have become apparent.

This has not always been so, however. On the contrary, a comparative review of the past 30 years shows that fiscal policy has been procyclical in most Latin American countries, by contrast with the developed countries, where it has been countercyclical or at worst acyclical.[26] Despite the recent improvement, the region still displays very high levels of real volatility that entail large costs in terms of welfare.[27]

The implementation of countercyclical policies is obviously not without its strains and conflicts, largely because of the difficulty of identifying the long-term trend in many of the region's economies, although they can also derive from the conflicting preferences of different economic agents in specific situations. Thus, sectors with the capacity to save or with access to financing are very likely to differ in their interests from the poorer sections of society, whose spending is highly constrained because they lack the capacity to save and have only very limited access to the financial market.[28] Countercyclical macroeconomic management is particularly important for the less well-off, and therefore policy measures are important, from the distributional point of view, during phases of expansion to build up the capacity needed to cope with the downswing of the cycle.

Broadly speaking, macroeconomic policy affects growth and distribution by the way it balances the management of variables that are at least partially under the control of the economic authorities, such as the amount and type of taxes collected, the level and composition of public spending, interest rates and the exchange rate. The way these instruments are used influences production and accumulation decisions and the incomes of different groups or sectors. The set of instruments available and the nature and strength of their effects depend on the structure of the economy, its institutional configuration (the ownership of natural resources, for example) and its history (experiences that may affect demand for domestic assets and financial system depth, for example).

In Latin America, the tax burden is too low in most countries to fund the spending demands made on the State. Not only does the region collect little, however, but it collects it badly.[29] Particular problems are the low share accounted for by income taxes and the fact that the taxation structure is based mainly on regressive indirect taxes.[30] The region's tax systems are among the factors keeping income distribution unequal and thereby perpetuating poverty and indigence, since taxation policy has placed other goals ahead of that of improving distributional equity. The great challenge in this area is not only to increase the amount of resources collected but also to improve their impact on income distribution by increasing the burden on the sectors that can best afford it.

Where spending is concerned, there can hardly be an area of the public budget that is not being reformulated in some way, which shows how dissatisfied society is with the scale and approach of government intervention.[31] Where social spending in particular is concerned, reforms must be expected to play a central role in the construction of more cohesive societies while at the same time enhancing the legitimacy of public policies and thus of the taxation required to pay for them. However, demands for more public spending are not confined to the social area but include, for example, public investment in infrastructure which, over and above its impact on activity in other sectors and its role as an economic catalyst, has a very substantial effect in raising competitiveness and shaping the production profile.[32]

The objective, then, is to secure sustainable financing for a range of different types of State provision that are required in pursuit of higher and more inclusive growth. While this need directly involves different aspects of fiscal policy, it also transcends it to become the basis for a new fiscal covenant, an issue that will only be touched on here, as a proper discussion would require it to be given an article to itself.

Monetary policy, meanwhile, should aim to achieve the lowest and most stable inflation rate possible; there is a high degree of consensus on this

[26] See López-Monti (2009b) for a comparative analysis of the cyclicality of fiscal policy in Latin America and the developed countries.
[27] See López-Monti (2009a) for estimates of the welfare cost of cyclical fluctuations in Latin America using different models.
[28] See Krusell and Smith (2002).
[29] On this point, see Cetrángolo and Gómez Sabaini (2007).
[30] This could also influence the effectiveness of automatic stabilizers. See Sescún (2007).
[31] See Cruces, Rovner and Schijman (2007) for an assessment of how social plans are perceived in Argentina. An interesting conclusion of this study is the need to consider issues associated with the flow of information on programme content and evaluations, as a way of enhancing their legitimacy.
[32] On this subject, see Lucioni (2009).

in a region that has passed through some very difficult periods as a result of very high inflation. It must not be forgotten, however, that the choice of monetary and exchange-rate regime determines a crucial variable, the exchange rate. The real-term volatility characteristic of Latin American economies is closely associated with excessive real exchange-rate variability, and this negatively affects investment, especially in internationally tradable goods, which means that preventing large and sudden oscillations in the real exchange rate ought to be a goal of macroeconomic policy, irrespective of whether the nominal price of currencies fluctuates according to market conditions or is set by the economic authority.[33]

The difficulties involved in reducing exchange-rate volatility in a region exposed to strong external shocks are not trivial, but it is clear that the low prices for tradable goods resulting from excessive appreciation tend to create a production and investment profile which is an impediment to export diversification and growth.[34] Again, these relative prices give rise to mistaken perceptions of spending capacity (measured in foreign currency), ultimately leading to large external imbalances and unsustainable borrowing levels.

Consequently, economic policy, and central banks in particular, should make it their "second objective" to maintain a stable and competitive real exchange rate. The tools available for this may range from direct interventions and "dissuasion" to restrictions on short-term capital inflows when these are large. Of course, more active monetary policies to support the real exchange rate need to be matched by greater fiscal discipline. However, maintaining the real exchange rate at any cost can give rise to inflationary pressures in certain circumstances, thus militating against the main objective of monetary policy.

In any event, the difficulties this can create need to be resolved by strengthening policy coordination arrangements to make it possible to assess the costs and benefits associated with any trade-offs the economic authorities have to make between target variables. Given the importance of the real exchange rate as a macroeconomic signal for production, investment, demand and financing decisions, it does not seem advisable to treat this as a "residual" variable for economic policy purposes.[35]

In these paragraphs we have sought to identify some factors that ought to be taken into account in the design of a macroeconomic policy oriented towards mitigating volatility. The multiplicity of objectives this might entail means there is a need to create independent instruments, something that in turn involves acting on the structural constraints limiting policy autonomy: institutions, the availability of tax resources and the quality of the State machinery.

Economic development is a complex enterprise that entails far more than just quantitative shifts and step changes in scale, and that needs to be seen as a process of continuous transformation in production and social structures. The difficulty faced by economies like those of Latin America here stems from the absence of certain markets (like those for long-term local-currency lending), the imperfect competition characterizing others, the asymmetrical distribution of information (in credit and technology markets, for example, and in relation to investment opportunities) and failures of coordination. All this highlights the importance of a State presence, which means that creating and expanding opportunities for public policy implementation by developing instruments and enhancing different coordination arrangements are essential tasks from the standpoint of growth and development.

The need to achieve sustained economic expansion based on higher productivity and greater equity highlights the importance of reducing volatility to enhance growth, generate more employment and reduce the vulnerability of the least protected segments of the population. To sum up, as Prebisch pointed out 60 years ago: "Anti-cyclical policies must be included in any programmes of economic development if there is to be an attempt, from a social point of view, to raise real income. The spread of the cyclical fluctuations of the large centres to the Latin-American periphery means a considerable loss of income to these countries. If this could be avoided, it would simplify the problem of capital formation. Attempts have been made to evolve an anti-cyclical policy, but it must be admitted that, as yet, but little light has been thrown on this subject" (Prebisch, 1950).

(Original: Spanish)

[33] Bastourre and Carrera (2004) find a negative relationship between exchange-rate policy flexibility and real volatility.

[34] Aghion and others (2006) show that currency volatility has a negative effect on growth in economies with underdeveloped financial systems, like those of Latin America.

[35] See Eichengreen (2008), Rodrik (2007) and, from a Latin American perspective, Barbosa-Filho (2006) and Frenkel (2009) on the importance of the exchange-rate instrument for emerging economies.

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KEYWORDS

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The economics of climate change in Latin America and the Caribbean: stylized facts

Luis Miguel Galindo and Joseluis Samaniego

This article aims to provide an overview of the main regular patterns in the economic impacts of climate change in Latin America and the Caribbean, including the corresponding adaptation and mitigation processes. The key results show that the economic costs of those impacts in Latin America and the Caribbean are significant, heterogeneous, nonlinear and growing over time; and that there are specific thresholds beyond which irreversible losses occur. The available evidence also reveals a positive relation between the trends of per capita emissions, energy consumption per capita and income per capita. Projections are for per capita emissions to continue to grow regionwide, with the levels for individual countries converging in absolute terms; and at the same time emissions will gradually become decoupled from economic activity.

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I
Introduction

Climate change is one of the key challenges of the twenty-first century. The available scientific evidence shows that greenhouse gas emissions —caused essentially by human activities— are generating large-scale climate changes, involving a rise in global temperature, changes in rainfall patterns, shrinking ice caps and retreating glaciers, rising sea levels and increases in the intensity, frequency, or both, of extreme weather events (IPCC, 2007). These climate changes can be expected to have significant repercussions for human activities and the planet's ecosystems. In particular, economic activities will face the simultaneous challenge of adapting to new weather conditions and implementing major mitigation processes to avoid the most extreme climatic scenarios.[1] The scale of the economic costs expected in this century suggests that climate change will be an additional constraint on economic growth for the countries of Latin America and the Caribbean.

The economic analysis of climate change is therefore essential for designing and implementing a consistent adaptation and mitigation strategy, to reduce or avoid the most extreme economic costs arising from this phenomenon and optimize the use of available resources. Nonetheless, this is a complex task in which the long-term costs and benefits of each public-policy alternative need to be weighed, and appropriate risk management implemented in a context of high uncertainty (Pearce and others, 1996; Stern, 2007; Mendelsohn and Neumann, 1999; Tol, 2002). Not surprisingly, this involves an intense ethical and international political debate over the distribution of costs between countries, and between sectors and economic groups, with emphasis on adaptation and vulnerability, or on mitigation and compliance mechanisms and the respective sanctions (see, for example, *Oxford Economic Review of Economic Policy*, 2008).

The key aim of this article is to present a long-range overview of the main regular patterns observed between economic activities and climate change in the region. It thus attempts to contribute to discussions aimed at defining the best adaptation and mitigation alternatives to tackle the problem of climate change from the Latin American and Caribbean standpoint, and to improve understanding of the consequences that the various types of international agreements could have for the region.

The economic analysis of climate change is surrounded by major uncertainty, since it includes a wide variety of factors in which the transmission channels and scale of the effects are not sufficiently understood. It is a very long-term phenomenon with feedback processes, and it includes complex risk-management procedures. Hence, the projections set forth in this article only represent potential scenarios which are highly uncertain and should not be taken as point forecasts.

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[1] Mitigation processes involve reducing greenhouse gases.

II

The evidence for climate change

Atmosphere and climate models, supported by the available evidence, show the presence of globally discernible climate changes that can only be correctly simulated by including factors of natural and anthropogenic forcing (IPCC, 2007), such as:

i) A gradual but continuous rise in global temperature, although with significant differences across the regions of the world. This shows a discernible rise in temperature of 0.7ºC between the periods 1850-1899 and 2001-2005. This is also consistent with evidence of a reduction in the number of cold days, an increase in the number of extremely warm days, and a rise in sea temperature.

ii) Significant changes in rainfall patterns, which are intensifying current hydrological cycles; for example, heavier rainfall in very humid areas and less rainfall in dry areas.

iii) Changes in the types, patterns and frequencies of extreme weather events, although doubts remain regarding future changes in the probability distributions of such extreme events (Vincent and others, 2005; Aguilar and others, 2005; Kiktev and others, 2003).

iv) A rise in sea level of 0.17 m in the twentieth century, as a result of the melting of the cryosphere, among other factors.

v) Significant collateral climate effects, such as changes in patterns of evapotranspiration, changes in ocean salinity and also in wind patterns and ocean currents.

Climate projections (IPCC, 2007) for the twenty-first century suggest an increase in temperature of between 1º and 6º C, depending on the emissions scenario considered, a rise in sea level averaging roughly 0.50 m, changes in rainfall patterns, a shrinking of the cryosphere and retreat of glaciers, and changes in the type, intensity and frequency of extreme events.

The evidence available for Latin America and the Caribbean is consistent with global trends, with even more intensive effects in some regions. For example, projections show greater temperature increases in tropical or warm regions, more frequent extreme events in the Caribbean and Central America, changes in climate patterns, such as the El Niño and La Niña phenomena, and changes in rainfall which in the future could vary between increases of 5% and 10%, and decreases of between 20% and 40% (ECLAC, 2009a).

III

The methodology of the economic analysis of climate change

The economic analysis of climate change is a complex subject that calls for a wide variety of techniques and economic methods (Nordhaus and Boyer, 2000; Stern, 2007; Galindo, 2009; ECLAC, 2009a), drawing on various sciences and approaches. There is intensive debate over the importance of the topic, the public policies needed and the best time to implement them. In principle, the economic analysis of climate change starts by identifying and defining a baseline, inertial or habitual path, representing business as usual (BAU). This is used as a benchmark comparator for the economic effects and also for adaptation and mitigation processes (ECLAC, 2009a) (see figure 1).

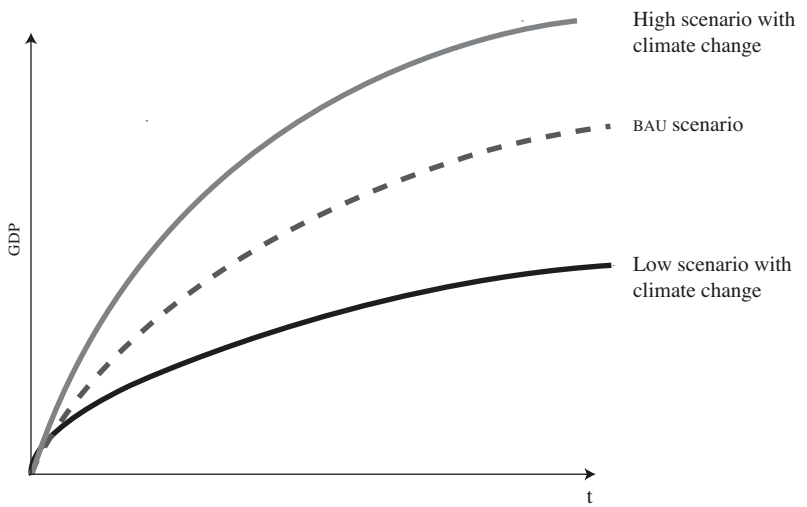
In this context, climate change also has specific characteristics that condition the results of economic analysis, including:

1. Climate change is a phenomenon that unfolds over long periods of time, with high levels of uncertainty. It is therefore necessary to construct very long-term scenarios based on the best information currently available; but these do not represent specific predictions. It also needs to be recognized

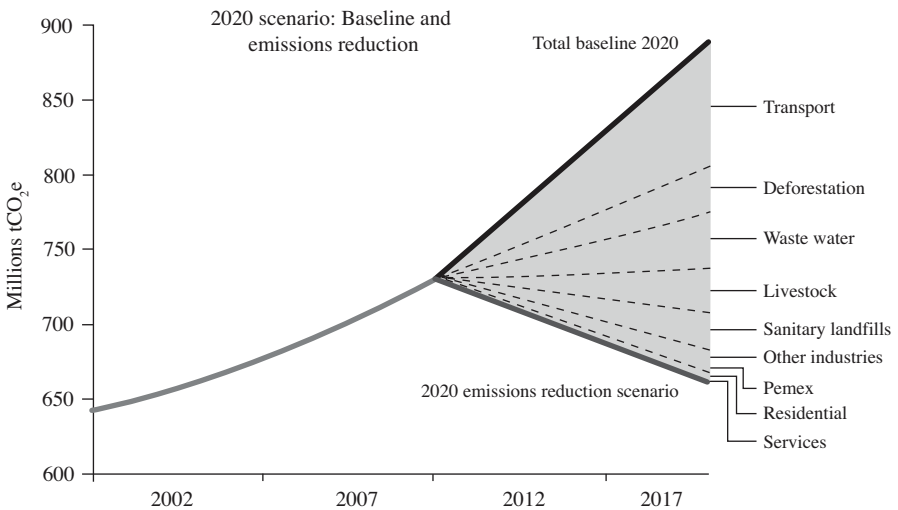
FIGURE 1

Emissions scenario and abatement wedges

(a) Impact scenarios



(b) Mitigation scenarios



Source: Prepared by the authors on the basis of Economic Commission for Latin America and the Caribbean (ECLAC), *Economics of climate change in Latin America and the Caribbean. Summary 2009* (LC/G.2425), Santiago, Chile, November 2009; and Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007. The Physical Science Basis: Working Group I Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge, Cambridge University Press, September 2007.

t: Time.
GDP: Gross domestic product.
BAU: Business as usual
Pemex: Petróleos Mexicanos.
tOC:$_2$e: Tons of CO_2 equivalent.

that there is very limited capacity to make relatively precise projections 100 years into the future. In fact, the available econometric theory (Clements and Hendry, 1999) shows that optimum forecasts can only be obtained with a correctly specified model with stationary time series and without structural changes —assumptions that are unlikely to be fulfilled in the economic analysis of climate change.

2. Climate change is a non-linear phenomenon in which there is a considerable component of risk regarding the likely occurrence of extreme weather events. Designing and implementing an adequate strategy against climate change requires, from the economic perspective, implementation of appropriate risk management; in other words, it is necessary to "take out insurance" against the possibility of the most extreme weather events occurring, but which have a low likelihood of occurrence. Nonetheless, risk management by most of the population displays a number of biases that lead to inefficient management. For example, it has frequently been noted that the population incorrectly estimates the likelihood of certain phenomena occurring; that it assigns a different weight to alternatives that depend not only on economic considerations but also on ethical or moral factors; or that economic agents are strategic but shortsighted, since they do not have an infinite horizon and only consider a finite number of interactions (Dixit and Nalebuff, 1993; Levitt and Dubner, 2005; Bernstein, 1998). In this regard, the construction of appropriate risk management should be based on identifying the long-term probabilities of climatic phenomena occurring, and estimating their respective economic costs and benefits.

3. The economic analysis of climate change therefore calls for a weighting of the potential economic costs and benefits of various public policies between different groups of society and between generations, and even between ecosystems. To achieve this, cost-benefit analysis is commonly used as a general framework. This makes it possible to compare aggregate economic costs and benefits at different points in time, normally using the concept of net present value, and applying a chosen discount rate (Nas, 1996; Johansson, 1993; Hanley and Spash, 1995; Layard and Glaister, 1994). Choosing the discount rate is not exclusively a technical problem, but includes important ethical and equity considerations. For example, it reflects an ethical opinion of the importance to be given to future generations and conservation of the current environment for the future. Cost-benefit analysis uses an intergenerational social welfare function, which should be maximized through time (Hanley and Spash, 1995).[2]

This generational welfare function represents a compound index of the set of goods and services available to each generation, which is needed to make comparisons between generations that will obviously consume different baskets of goods and services. It is defined as follows:

$$Wt = F(U_{1t} + U_{2t} + \ldots + U_{nt}) \; i = 1,2,\ldots, n \qquad (1)$$

where each U_i represents the social welfare function of each generation in time t. In the conventional theory, welfare is maximized when marginal utilities are equal over time. This requires the utilities of the different generations to be comparable, for which it is essential to apply a pure discount rate (δ), known as the pure time-preference rate, to the respective welfare functions. The intertemporal utility function can then be represented continuously (Hanley and Spash, 1995; Johansson, 1993) as:

$$W = \int_{t=o}^{n} e^{-\partial} U_t(ye_t)dt \qquad (2)$$

where, for simplicity, welfare is made a function of equilibrium income (ye_t) or consumption; and an increase in income is deemed to reduce marginal utility through time.[3] Thus, the net present value of monetary flows at different points in time can be estimated with the following equation:

$$VPN_t = -INV_o + \sum_{n=o}^{n} \frac{VN_t}{(1+r)^n} \qquad (3)$$

where NPV is net present value, INV_0 is the initial investment at time zero, VN_t is the net value at different moments in time, and r is the discount rate. In this context, a high (low) discount rate obviously involves giving less (more) importance to the future. The discount rate can be defined using the well-known Ramsey equation (equation (4) (Ramsey, 1928; Blanchard and Fischer, 1989), which includes:

[2] Discussion on intergenerational welfare functions naturally includes other aspects (see, for example: Johansson (1993); Mishan and Quah (2007); Layard and Glaister (1994).

[3] The existence of a social welfare function has been strongly criticized (Mishan and Quah, 2007).

— The pure time preference rate (δ)
— The elasticity of the marginal utility of income or consumption (α)
— The rate of growth of equilibrium income or consumption (g)

$$r = \delta + \alpha g \quad (4)$$

where the first two parameters are not observable. Thus, the pure rate of time preference, or temporal discount rate, estimates the importance attached to the welfare of future generations and reflects impatience for income or consumption, such that future income or consumption are valued less than current consumption. The second parameter is the declining rate of marginal utility of income, and represents the value attached to an additional unit of income; for that reason, this rate is multiplied by the growth rate of equilibrium income (ye) to estimate the total impact. Future generations with a higher level of income will thus have a lower marginal utility than one unit of income, for which reason future risk needs to be weighted by income level (Nordhaus, 2008). In that way, this term reflects the generations' inequality aversion. A low level of (α) means that whether the future is richer or poorer is seen as relatively unimportant; in contrast, a high (α) means that whether the future is richer or poorer matters a lot to the present generation. In short, choice of the discount rate is a description of how economic agents currently respond, and how they view the future, together with their value judgments (Hanley and Spash, 1995; Mishan and Quah, 2007; Stiglitz, 1983; Layard and Glaister, 1994). Thus, deciding what discount rate to use is both a technical estimate and an ethical decision. Moreover, when evaluating the conditions of sustainable development, the appropriate discount rate is usually different from the rate that would be used to evaluate a specific project. In any event, the economic analysis of climate change needs to recognize that results are highly sensitive to the interest rate chosen, given the long periods of analyses involved (Campbell and Brown, 2003).

In the economic analysis of climate change, a social preference rate is often applied that is different and usually lower than the market interest rate, for three reasons (Hanley and Spash, 1995; Sen, 1997):

— There is a sense of great responsibility towards future generations, which needs to be reflected in the discount rate used.
— The population has a dual role to the extent that is more concerned for future generations than about its role as consumers.
— The solitary effect, in other words the fact that individuals on their own save less than collectively.

IV

The repercussions of climate change on economic activities in Latin America and the Caribbean

The available evidence shows that climate change will have considerable effects on economic activities this century (Stern, 2007; Nordhaus, 2008; Galindo, 2009; ECLAC, 2009a and 2009b). These economic costs are generally significant, heterogeneous, nonlinear, irreversible and increasing through time; and, in many cases, they display asymmetric behaviour and exert greater effects on the less developed regions, which have less capacity to adapt. The magnitude of these effects means that the expected costs in Latin America and the Caribbean this century will represent a large proportion of current gross domestic product (GDP) and will force changes in the behaviour patterns of economic agents. Moreover, the costs rise as temperature increases and could breach specific thresholds causing faster or irreversible losses. The trend of these costs is also expected to differ widely between regions, so there are geographic areas that obtain temporary economic gains, for example the with a temperature increase below the 2ºC threshold, or through the cultivation of specific products.

On the whole, the available evidence suggests that the most significant economic repercussions are concentrated in the following areas (ECLAC, 2009a):[4]

— Smaller crop yields as a result of rising temperatures and changes in rainfall patterns. There are also temporary gains (usually up to temperature increases of 2ºC) related to the expansion of the agricultural frontier in the more temperate Latin American and Caribbean countries. In contrast, in tropical regions and in Central America, temperature increases will have direct negative effects. In addition, there is evidence (Ecuador) that these climate impacts will be more intensive in the lowest-income sectors whose adaptation capacity is less (see figure 2) (ECLAC, 2009a).
— Intensification of land degradation and desertification processes. Projections up to 2100 suggest that between 22% and 62% of total land area will suffer degradation in countries such as Chile, Ecuador, Paraguay, Peru and the Plurinational State of Bolivia (see figure 2) (ECLAC, 2009a).
— Changes in land use and more frequent forest fires, with a likely intensification current trends (see figure 2).
— Retreat of glaciers, which will affect the availability of water for human consumption, hydroelectric power generation and water supply for economic activities. In addition, changes in rainfall patterns generate changes in the availability and provision of water (ECLAC, 2009).
— Significant biodiversity losses, particularly in a number of forest and tropical regions and in Central America. For example, there is a serious risk of loss of the coral reef in Mexico and Central America, and of a number of endemic species in the region (see figure 2) (ECLAC, 2009a).
— An increase in the frequency of extreme weather events, particularly in Central America and the Caribbean, but also in a number of South American countries, owing to the effects of El Niño and La Niña (ECLAC, 2009a).
— A rise in sea level, which will destroy mangrove swamps in countries such as Brazil, Colombia and Ecuador; flooding in coastal zones such as Río de la Plata; a deterioration of fishing activities and physical infrastructure; an increase in socioeconomic and health problems in certain regions (Magrin and others, 2007; ECLAC, 2009a).
— Propagation of diseases and pests in the region; in particular, an increase in diseases such as dengue fever and malaria and the effects of heat waves.

A sample of the economic costs related to climate change projecting to 2100 is summarized in tables 1 and 2, which reveal significant differences across countries, in this case between Chile and Mexico.[5]

These disparities in economic costs between countries reflect significant differences in terms of climate predictions and conditions, geographic and orographic conditions, productive structures, relative price vectors and institutional and regulatory arrangements (Galindo, 2009; ECLAC, 2009b).

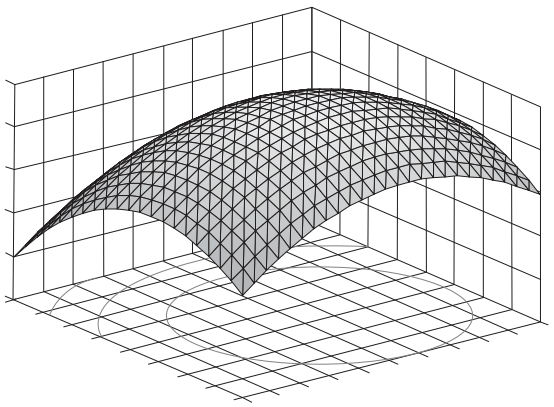
[4] This subsection is based essentially on analyses made in regional studies of the economics of climate change in Latin America and the Caribbean, coordinated by ECLAC and summarized in ECLAC (2009a).

[5] The scenarios used by the Intergovernmental Panel on Climate Change to project CO_2 emissions, consist of six scenarios A1F1, A1T, A1B, A2, B1, B2, which include indicators of the key demographic, economic and technological determinants of greenhouse gas emissions. The A1 family of scenarios is foresees rapid economic growth, a world population that reaches its peak value in mid-century and a rapid introduction of new technologies. This A1 scenarios include A1F1, characterized by intensive use of fossil fuels, A1T which features the use of non-fossil energy sources, and A1B which maintains a balanced use of all types of energy source. The A2 scenario family describes a highly heterogeneous world, in which economic development is basically oriented towards the regions and where economic growth and technological change are slower than in the other scenarios. Scenario B1 envisages a converging world with economic structures changing towards a services and information economy, involving less intensive use of materials and the introduction of clean technologies with successful exploitation of resources. Scenario B2 is oriented towards economic, social and environmental sustainability, with intermediate levels of economic development and slower and more diverse technological changes than in scenarios B1 and A1.

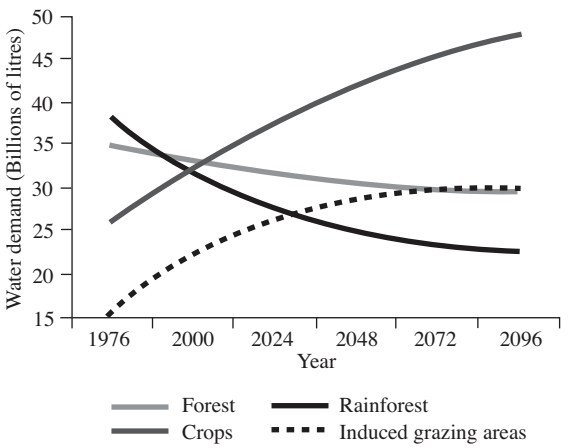
FIGURE 2

Economic trends and repercussions of climate change

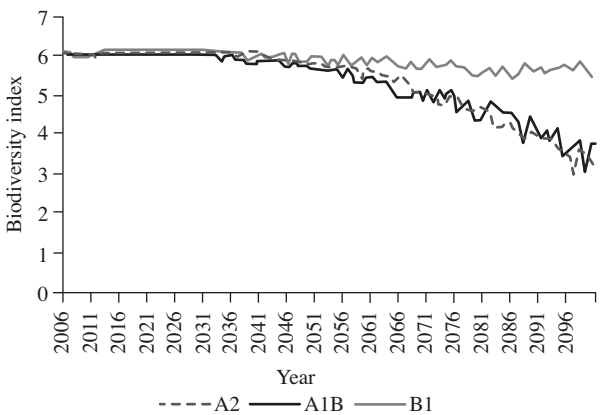
Central America: Crop yields



Mexico: Coverage projections based on the transition observed between 1976 and 2000



Mexico: Biodiversity index under various climate change scenarios



Estimated losses caused by land degradation in certain countries

	Degraded area (Km^2)	Percentage of territory	Degraded area 2100	Percentage of territory 2100
Bolivia (Pl. St. of)	60 339	5.49	243 979.4	22.2
Chile	77 230	10.2	312 277.8	41.2
Ecuador	40 136	14.15	162 289.0	57.2
Paraguay	66 704	16.4	269 716.2	66.3
Peru	197 211	15.34	797 418.4	62.0

Source: Luis Miguel Galindo, *La economía del cambio climático en México: síntesis*, Mexico City, Ministry of Finance and Public Credit/Secretariat of the Environment and Natural Resources, 2009; and Economic Commission for Latin America and the Caribbean (ECLAC), *Economics of Climate Change in Latin America and the Caribbean: Summary 2009* (LC/G.2425), Santiago, Chile, November.

TABLE 1

Chile: Costs of climate change, 2100
(Percentages of GDP)

	Discount rate 0.5%		Discount rate 2%		Discount rate 4%	
	A2	B2	A2	B2	A2	B2
Total direct impacts	0.78	0.02	0.68	0.09	0.57	0.18
Total indirect impacts	0.31	–0.1	0.28	–0.04	0.25	0.05
Total impacts	*1.09*	*–0.09*	*0.96*	*0.06*	*0.82*	*0.23*

Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Economics of Climate Change in Latin America and the Caribbean: Summary 2009* (LC/W.288), Santiago, Chile, December 2009.

Note: Scenarios A and B represent socioeconomic scenarios defined by the Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007. The Physical Science Basis: Working Group I Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge, Cambridge University Press, September 2007.

TABLE 2

Mexico: Costs of climate change, 2100
(Percentages of GDP)

	Discount rate 0.5%				Discount rate 2%				Discount rate 4%			
Sector	B1	A1B	A2	Average	B1	A1B	A2	Average	B1	A1B	A2	Average
Farming	7.5	11.2	11.1	9.9	3.3	4.8	4.6	4.3	1.4	1.9	1.7	1.7
Water	18.9	18.9	18.9	18.9	9.4	9.4	9.4	9.4	4.5	4.5	4.5	4.5
Land use	–0.4	–0.3	–0.2	–0.3	–0.1	–0.1	0.0	–0.1	0.0	0.0	0.0	0.0
Biodiversity	0.2	0.7	0.7	0.5	0.1	0.2	0.2	0.2	0.0	0.1	0.1	0.0
International tourism	0.1	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Total	*26.2*	*30.6*	*30.6*	*29.2*	*12.7*	*14.5*	*14.3*	*13.8*	*5.9*	*6.5*	*6.3*	*6.2*
Livestock breeding	3.8	5.3	5.2	4.7	1.7	2.3	2.2	2.1	0.7	0.9	0.9	0.8
Biodiversity - indirect	3.6	8.5	7.6	6.6	1.4	3.0	2.6	2.3	0.4	0.8	0.7	0.6
Total ((including livestock and biodiversity- indirect)	*33.6*	*44.4*	*43.4*	*40.5*	*15.8*	*19.8*	*19.1*	*18.2*	*7.0*	*8.2*	*7.9*	*7.7*

Source: Luis Miguel Galindo, *La economía del cambio climático en México: síntesis*, México, D.F., Ministry of Finance and Public Credit/Secretariat of the Environment and Natural Resources, 2009.
Note: Scenarios A and B represent socioeconomic scenarios defined by the Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007. The Physical Science Basis: Working Group I Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge, Cambridge University Press, September 2007.

V

Regular emission patterns

The climate simulations undertaken (see table 3) suggest that a concentration level of 450 parts per million (ppm) of CO_2e (CO_2 equivalent)[6] means a 78% probability that temperature will rise by 2ºC with respect to current levels, and an 18% chance that it will rise by up to 3ºC (ECLAC, 2009a). With concentrations of 550 ppm, there is a 99% chance that temperature will rise by 2ºC, a 69% likelihood of its rising by 3ºC, and a 24% probability that it will increase by 4ºC. In this context, a mitigation strategy that seeks to stabilize emissions at current levels already entails significant climate effects, which should be considered inevitable and require an adaptation strategy.[7] Nonetheless, it needs to be recognized that the option of stabilizing at 450 ppm substantially reduces the most severe climate effects that will occur following temperature increases of 2º or 3ºC, and it also reduces the economic costs of mitigation (Stern, 2007). In contrast, a strategy of stabilization at 550 ppm involves significant economic costs, since it allows for the possibility of a significant increase in extreme weather events and feedback climate processes that could cause even higher temperature increases (Stern, 2007). To appreciate the scale of this scenario, it is sufficient to note that an average global temperature increase of between 3ºC and 4ºC would very likely involve the partial collapse of the Amazon (Hepburn and Stern, 2008).

The economic costs of climate-change mitigation processes include the costs of reducing emissions produced by the use of fossil-based energy and fuels, or changes in land use. The magnitude of these costs depends on the amount by which emissions are to be cut, the time period and the time path chosen for the reduction, and even the specific place in which the mitigation process will be deployed. Mitigation targets proposed internationally involve different efforts and paths that could also be differentiated by countries and regions.[8] Thus, to reduce emissions by between 450 and 500 ppm involves cutting current emissions by roughly 50% by 2050 (see figure 3). The scale of this target can be appreciated by considering that total annual emissions are currently between 40 and 50 gigatons of CO_2 equivalent ($GtCO_2e$).[9] With a world population of 6 billion, this means an average of roughly 7 tons per capita (Hepburn and Stern,

[6] Parts per million (ppm) is the measurement unit in which a number of air pollutants are expressed. It indicates one particulate of a given substance for every 999,999 of another substance.
[7] This involves an expected temperature increase of 2º C, in addition to other climate effects.
[8] See, for example, the documents for the 15th International Conference on Climate Change held in Copenhagen on December 2009.
[9] $GtCO_2e$: gigaton of carbon equivalent. One gigaton of CO_2 is equivalent to 1,000 million tons.

TABLE 3

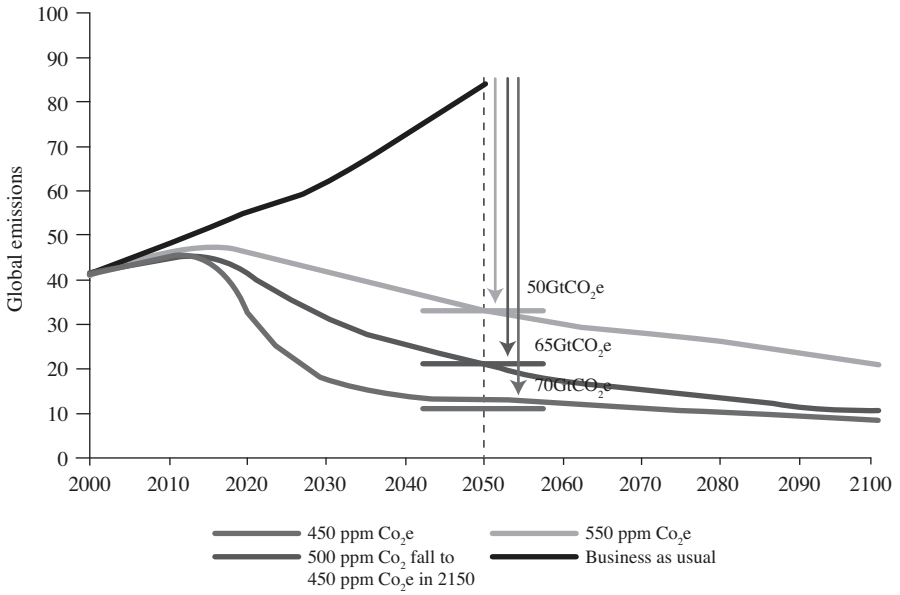
Probabilities of attaining selected average temperature increases
(Percentages)

Stabilization level (ppm CO_2e)	2ºC	3ºC	4ºC	5ºC	6ºC	7ºC
450	78	18	3	1	0	0
500	96	44	11	3	1	0
550	99	69	24	7	2	1
650	100	94	58	24	9	4
750	100	99	82	47	22	9

Source: Hadley Centre: J.M. Murphy and others, "Quantification of modelling uncertainties in a large ensemble of climate change simulations", *Nature*, vol. 430, New York, Nature Publishing Group, 2004.
Note: ppm CO_2e means parts per million of CO_2 equivalent.

FIGURE 3

Stabilization paths and emissions under the business-as-usual (BAU) scenario for 450-550 ppm CO_2e



Source: Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007. The Physical Science Basis: Working Group I Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge, Cambridge University Press, September 2007.
Notes: (i) ppm CO_2e means parts per million of CO_2 equivalent. (ii) $GtCO_2e$: Gigatons of carbon equivalent.

2008); so a 50% reduction means reaching a total emissions level of 20 $GtCO_2e$ by 2050, which, with an estimated population of 9 billion inhabitants, is just over 2 tons per capita (Hepburn and Stern, 2008). This entails reducing emissions by between 70% and 75% per unit of output in developed countries and setting specific mitigation targets, albeit naturally, less stringent ones, for the other countries of the world. The above is based on the historical principle of shared, but differentiated, responsibility.

Setting emissions reduction targets to be attained by 2050 and 2100, for all Latin American and Caribbean countries, poses a significant challenge. Naturally, there are ethical issues to be considered, for while the region has not historically contributed to the stock of greenhouse gas emissions, it suffers a major part of the repercussions of climate change. Moreover, the region's adaptation capacities are less than those of developed countries, given its per capita income levels. Nonetheless, future international mitigation agreements are bound to include some type of binding commitment for Latin American and Caribbean countries.

It is therefore is important to identify the main characteristics of greenhouse gas emissions in the region:

— Greenhouse gas emissions from Latin America and the Caribbean currently represent a small proportion of total global emissions; and they actually declined between 1990 and 2000.[10,11] The South American share of emissions dropped from

[10] Greenhouse gas emissions are expressed in CO_2 equivalent, using the 100-year global warming potentials contained in the Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC, 1996). The greenhouse gases included are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and gases with high global warming potential: hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulphur hexafluoride (SF_6). According to the country reports filed submitted to the United Nations framework Convention on Climate Change, they encompass the energy sectors, industrial processes, agriculture, changes in land use and forests and waste. The energy sector is subdivided into electricity and heating, transport, manufacture and construction, other types of fuel burning and escaped gases (ECLAC, 2009a).

[11] The database used for emissions is that of the World Resources Institute, which allows for historical comparisons between countries.

11.5% of the total in 1990 to 9.7% in 2000; while Central America's contribution decreased from 0.94% to 0.71%, and the Caribbean share increased marginally from 0.28% to 0.30% (see figure 4). These figures reveal two contrasting trends in Latin America and the Caribbean: a continuous rise in emissions from energy consumption and cement production, and a recent overall reduction in the trend of emissions arising mainly from changes in land use (ECLAC, 2009a).

— The composition of emissions in Latin America and the Caribbean, compared to the world average, shows a smaller energy-component share and greater importance of emissions associated with changes in land use (ECLAC, 2009a). Nonetheless, this could change in the future if current trends in terms of larger emissions from fossil-fuel energy consumption are maintained, and if emissions associated with changes in land use are brought under control (see figure 4) (ECLAC, 2009a).

— Total emissions by individual countries are concentrated fundamentally in Brazil and Mexico, the Bolivarian Republic of Venezuela, Argentina, Peru and Colombia (ECLAC, 2009a).

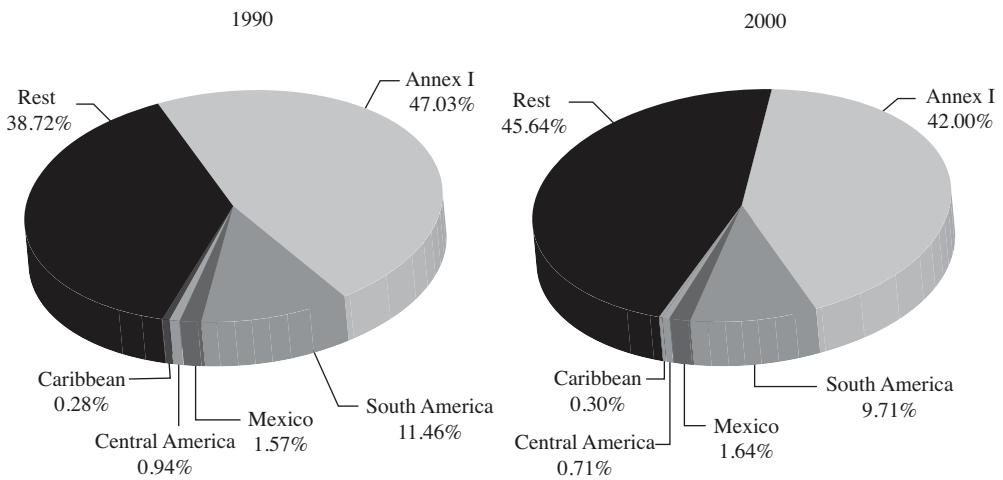
— Total emissions per capita across the region are highly heterogeneous, although generally below the world average (ECLAC, 2009a).

— Greenhouse-gas emissions originating in the energy and cement sectors in Latin America and the Caribbean still represent a small share of total global emissions, despite growing continuously in recent years (ECLAC, 2009a).

This evidence as a whole shows that greenhouse-gas emissions from Latin America and the Caribbean arising from changes in land use should decline further, but emissions from energy consumption are likely to continue their rising trend. Thus, the region's participation in an international mitigation agreement needs to take special account of the trend of emissions linked to energy consumption.

FIGURE 4

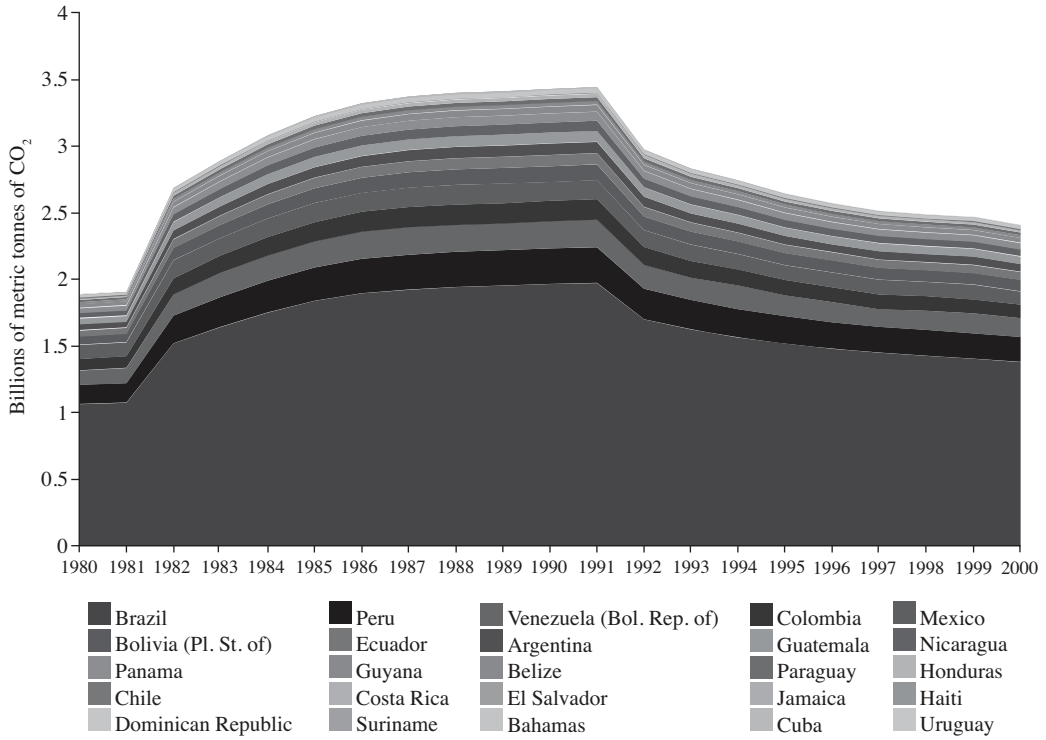
Latin America and the Caribbean: Share of total greenhouse gas emissions, including changes in land use, 1990 and 2000
(Percentages)



Source: Prepared on the basis of Economic Commission for Latin America and the Caribbean (ECLAC) *Economics of Climate Change in Latin America and the Caribbean: Summary 2009* (LC/G.2425), Santiago, Chile, November 2009; and World Resources Institute (2009), *Climate Analysis Indicators Tool (CAIT)* version 6.0., Washington, D.C., 2009.
Notes: (i) Includes CO_2 (carbon dioxide), NH_4 (ammonia), N_2O (nitrous oxide), PFCs (perfluorocarbons), HFC_s (hydrofluorocarbons), SF_6 (sulphur hexafluoride). (ii) Data on changes in land use are not available for Antigua and Barbuda, Barbados, Dominica, Grenada, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Saint Lucia and Trinidad and Tobago.

FIGURE 5

Latin America and the Caribbean: CO_2 emissions associated with changes in land use, 1980-2000
(Billions of metric tons)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Economics of Climate Change in Latin America and the Caribbean. Summary 2009* (LC/G.2425), Santiago, Chile, November 2009. CO2= Carbon dioxide.

VI

Emissions and energy consumption in Latin America and the Caribbean

The relation between CO_2 emissions and energy consumption and cement production displays several regular patterns,[12] which can be analysed in the context of the well-known Kaya identity (Kaya, 1990) or the IPAT identity (O'Neill and others, 2003; Perman and others, 2003; Yamaji and others, 1991; Bongaarts, 1992).[13] The latter, expressed in equation (5), shows that per capita emissions in each country tend to track per capita GDP trends, the ratio between energy consumption and GDP (energy intensity) and the ratio between CO_2 produced by energy consumption and energy consumption itself (carbon intensity). Thus, in a growing economy it is common for emissions rise in line with GDP per capita.[14] Nonetheless, the possibility of controlling or reducing emissions corresponds to the capacity to reduce energy intensity or the ratio between emissions and energy intensity. Moreover, as

[12] Some of these results are published in ECLAC (2009a).
[13] The IPAT identity is also commonly used with growth rates, and additively, in both absolute and per capita terms. The variables are expressed in logarithmic form and only represent an approximation.

[14] Maintaining a linear relation.

identity (5) shows, energy intensity and the intensity of emissions with respect to energy can be summarized as the intensity of emissions in relation to GDP. Thus, the trend of the two latter terms is fundamental for understanding an economy's mitigation capacity, which is encapsulated in the ratio between emissions and GDP and normally evolves through time.

$$\Delta\left[\frac{CO_2}{POB}\right]=\Delta\left[\frac{GDP}{POB}\right]X\Delta\left[\frac{ENERG}{GDP}\right]X\Delta\left[\frac{CO_2}{ENERG}\right] \quad (5)$$

$$\Delta\left[\frac{CO_2}{GDP}\right]=\Delta\left[\frac{ENERG}{GDP}\right]X\Delta\left[\frac{CO_2}{ENERG}\right] \quad (6)$$

where CO_2 represents CO_2 emissions, GDP is gross domestic product, POB stands for population, and ENERG represents energy consumption. The available evidence on the regional trend of emissions and energy consumption, in the context of the IPAT identity, can be summarized in the following points:[15]

[15] The ECLAC database was used (ECLAC, 2009a).

i. For Latin American and Caribbean countries as a whole, CO_2 linked to energy consumption and cement production displays a simple average growth rate of 2.6% for the period 1990-2005 (see figure 6), albeit with significant variations between countries.[16]

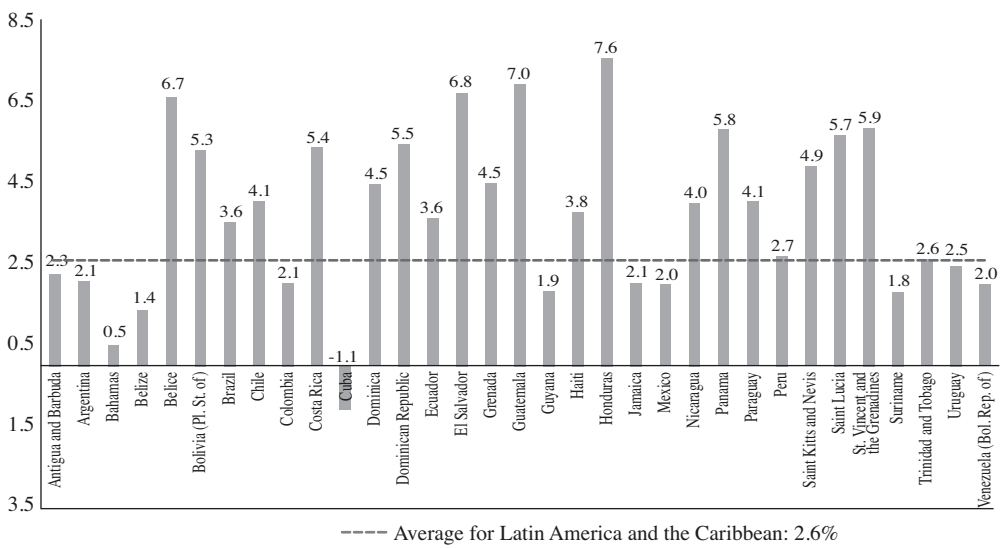
ii. Energy consumption in Latin America and the Caribbean is very dynamic, with an simple average growth rate of 3.1% per year, compared to a world average of 2.11% for the period 1970-2007, albeit with different growth rates in individual countries (see figure 7).

iii. There is a positive relation between the trends in per capita emissions, per capita energy consumption, and income per capita (see figures 8 and 9). This reflects the extent to which the economies of Latin American and Caribbean depend on energy consumption, and it underscores the difficulties of achieving an international mitigation agreement that

[16] CO_2 emissions are measured as the mass of carbon dioxide (CO_2) produced during the combustion of solid, liquid and gas fuels, cement manufacture, and the burning of gases. The estimates do not include fuels in the bunkers used international transport. (World Resources Institute, 2009).

FIGURE 6

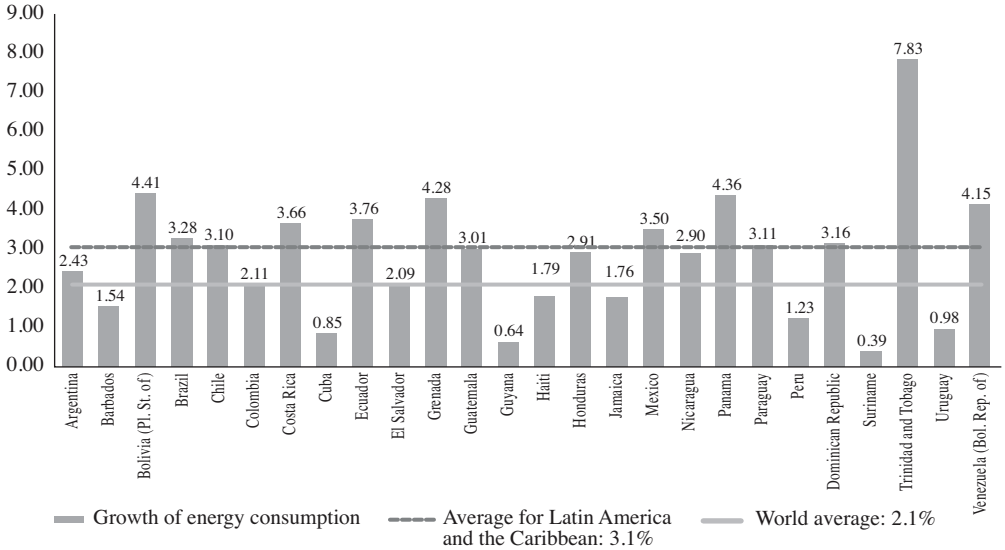
Latin America and the Caribbean: Annual average growth rate of CO_2e emissions, 1990-2005
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), using data from World Resources Institute, *Climate Analysis Indicators Tool (CAIT) version 6.0*, [online] www.cait.wri.org.

FIGURE 7

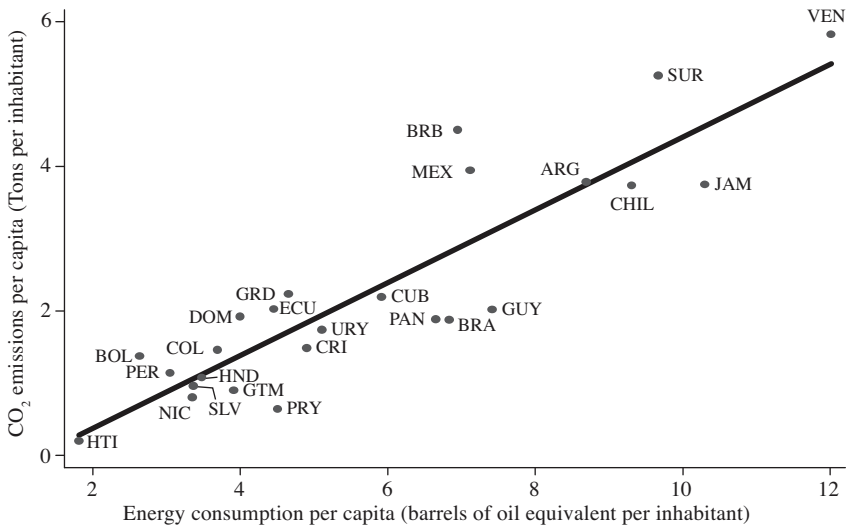
Latin America and the Caribbean: Annual average growth rate of energy consumption, 1970-2007
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Latin American Energy Organization (OLADE) and the Energy Economics Information System (SIEE).
Note: The annual average growth rate for the world is calculated on the basis of data from World Development Indicators, published by the World Bank at www.worldbank.org.

FIGURE 8

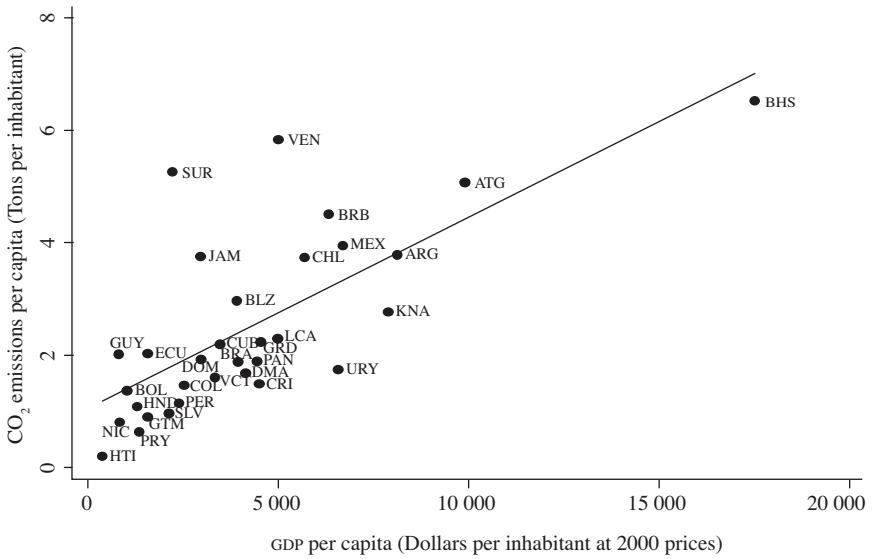
Latin America and the Caribbean: CO_2 emissions per capita and energy consumption per capita in 2005



Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Economics of Climate Change in Latin America and the Caribbean. Summary 2009* (LC/G.2425), Santiago, Chile, November 2009, using CO_2 emissions of statistics from the World Resources Institute, *Climate Analysis Indicators Tool (CAIT) version 6.0*, Washington, D.C., 2009.
Notes: (i) CO_2: carbon dioxide. (ii) The statistics on total energy consumption were obtained from the Energy Economics Information System (SIEE) of the Latin American Energy Organization (OLADE). (iii) HND: Honduras, GTM: Guatemala, SLV: El Salvador, CRI: Costa Rica, GRD: Grenada, BOL: Plurinational State of Bolivia, DOM: Dominican Republic, CHL: Chile, NIC: Nicaragua, PRY: Paraguay, BRA: Brazil, ECU: Ecuador, PER: Peru, TTO: Trinidad and Tobago, URY: Uruguay, ARG: Argentina, COL: Colombia, JAM: Jamaica, MEX: Mexico, VEN: Bolivarian Republic of Venezuela, GUY: Guyana, SUR: Suriname, BRB: Barbados, CUB: Cuba, HTI: Haiti, PAN: Panama.

FIGURE 9

Latin America and the Caribbean: CO_2 emissions per capita and GDP per capita in 2005



Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Economics of Climate Change in Latin America and the Caribbean. Summary 2009* (LC/G.2425), Santiago, Chile, November 2009,using statistics on CO_2 emissions from World Resources Institute, *Climate Analysis Indicators Tool (CAIT) version 6.0*, Washington, D.C., 2009.
Notes: (i) The figures for gross domestic product (GDP) at constant 2000 prices were obtained from the ECLAC Economic Indicators and Statistics Database (BADECON). (ii) HND: Honduras, GTM: Guatemala, SLV: El Salvador, CRI: Costa Rica, GRD: Grenada, BOL: Plurinational State of Bolivia, DOM: Dominican Republic, CHL: Chile, NIC: Nicaragua, PRY: Paraguay, BRA: Brazil, ECU: Ecuador, PER: Peru, TTO: Trinidad and Tobago, URY: Uruguay, ARG: Argentina, COL: Colombia, JAM: Jamaica, MEX: Mexico, VEN: Bolivarian Republic of Venezuela, GUY: Guyana, SUR: Suriname, BRB: Barbados, CUB: Cuba, HTI: Haiti, PAN: Panama.

sets specific limits on such consumption for the region (ECLAC, 2009a).

iv. The ratios between energy consumption and per capita GDP by country (Destais, Fouquau and Hurlin, 2007) display an inverse relation with GDP per capita (see figure 10). Thus, higher per capita income normally means less energy intensity with respect to GDP per capita. Nonetheless, this reduction in energy intensity is insufficient to halt the absolute increase in the growth of energy consumption and emissions in the region.

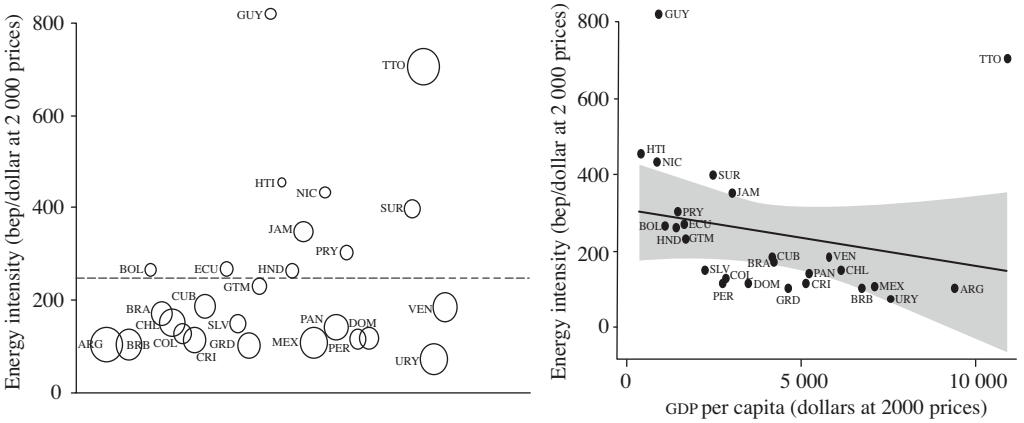
v. In terms of CO_2 intensities in relation to energy, the countries of Latin America and the Caribbean display a mixed trend in the period 1990-2005. In 17 countries, carbon intensity increases: Barbados, the Plurinational State of Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Paraguay, Peru, Suriname and Uruguay; whereas it decreases (decarbonization rate) in Argentina, Chile, Ecuador, Grenada, Haiti, Jamaica, Panama, Trinidad and Tobago, and the Bolivarian Republic of Venezuela (see figure 11).[17] In this context, only in two of the region's countries did energy intensity and carbon intensity simultaneously decline between 1990 and 2005 (ECLAC, 2009a).

vi. Per capita emissions from energy consumption and cement production in Latin America and the Caribbean are still below developed-economy levels, although varying greatly between country; and they are growing fast. This can be seen by simulating per capita emissions in Latin America and the Caribbean in the IPAT identity, considering energy intensity with respect to GDP and CO_2 in relation to energy in other regions of the world (ECLAC, 2009a) (see figure 12). It is thus clear that the emissions that would be generated with an energy matrix similar to China's, for example,

[17] Antigua and Barbuda, Bahamas, Belize, Dominica, Saint Kitts and Nevis, Saint Vincent and the Grenadines and Saint Lucia were not considered because they did not have data available on energy consumption.

FIGURE 10

Latin America and the Caribbean: GDP per capita and energy intensity, 2007



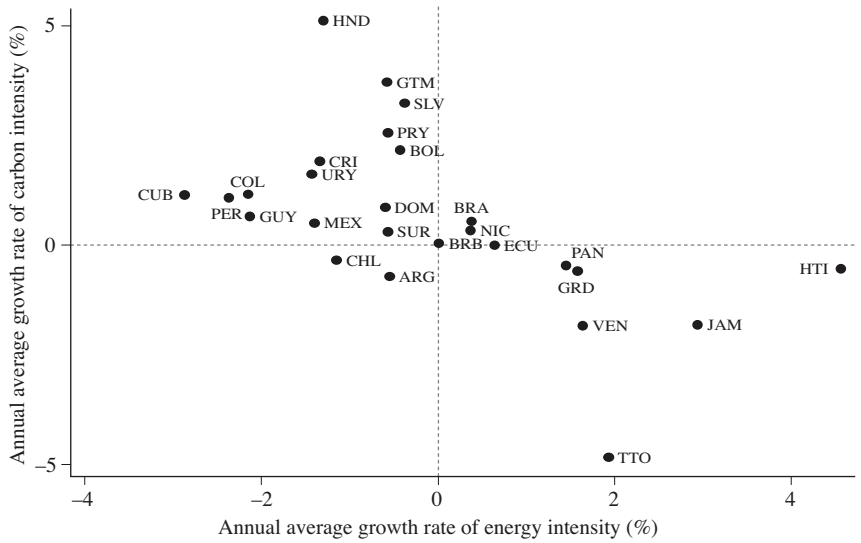
Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Economics of Climate Change in Latin America and the Caribbean. Summary 2009* (LC/G.2425), Santiago, Chile, November 2009, using total energy consumption statistics from the Energy Economics Information System (SIEE) of the Latin American Energy Organization (OLADE). The shaded area represents the standard deviation.

Notes: (i) The figures for gross domestic product (GDP) per capita at constant 2000 prices were obtained from the ECLAC Economic Indicators and Statistics Database (BADECON). (ii) bep: Barrels of petroleum equivalent, (iii) the size of the circumference is related to the country's GDP per capita. The shaded area represents the standard deviation. (iv GUY: Guyana; TTO: Trinidad and Tobago, HT: Haiti, NIC: Nicaragua, SUR: Suriname, JAM: Jamaica, PRY: Paraguay, BOL: Plurinational State of Bolivia, ECU: Ecuador, HND: Honduras, GTM: Guatemala, SLV: El Salvador, BRA: Brazil, CUB: Cuba, VEN: Bolivarian Republic of Venezuela, PER: Peru, COL: Colombia, DOM: Dominican Republic, PAN: Panama, CHL: Chile, CRI: Costa Rica, GRD: Grenada, BRB: Barbados, MEX: Mexico, URY: Uruguay, ARG: Argentina.

FIGURE 11

Latin America and the Caribbean: Annual average growth rate of energy intensity vs. annual average growth rate of carbon intensity, 1990 - 200

(Percentages)

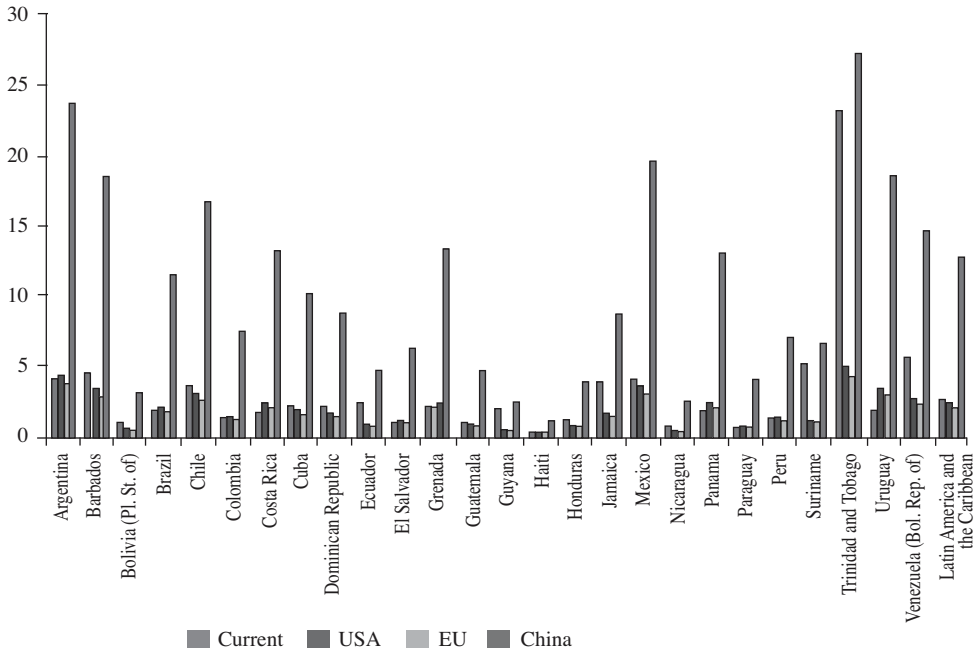


Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Economics of Climate Change in Latin America and the Caribbean. Summary 2009* (LC/G.2425), Santiago, Chile, November 2009, using total energy consumption statistics from the Energy Economics Information System (SIEE) of the Latin American Energy Organization (OLADE).

Notes: (i) HND: Honduras, GTM: Guatemala, SLV: El Salvador, PRY: Paraguay, BOL: Plurinational State of Bolivia, CRI: Costa Rica, CUB: Cuba, COL: Colombia, URY: Uruguay, PER: Peru, GUY: Guyana, MEX: Mexico, DOM: Dominican Republic, BRA: Brazil, SUR: Suriname, NIC: Nicaragua, BRB: Barbados, ECU: Ecuador, CHL: Chile, ARG: Argentina, PAN: Panama, GRD: Grenada, HTI: Haiti, VEN: Bolivarian Republic of Venezuela, JAM: Jamaica, TTO: Trinidad and Tobago. (ii) The figures for gross domestic product (GDP) per capita at constant 2000 prices were obtained from the ECLAC Economic Indicators and Statistics Database (BADECON).

FIGURE 12

Latin America and the Caribbean: CO_2 emissions per capita using energy and carbon intensity of the United States, the European Union and China



Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Economics of Climate Change in Latin America and the Caribbean. Summary 2009* (LC/G.2425), Santiago, Chile, November 2009, using total energy consumption statistics from the Energy Economics Information System (SIEE) of the Latin American Energy Organization (OLADE).
Notes: (i) The figures for gross domestic product (GDP) per capita at constant 2000 prices were obtained from the ECLAC Economic Indicators and Statistics Database (BADECON). (ii) Statistics for the United States, the European Union and China were obtained from World Resources Institute, *Climate Analysis Indicators Tool (CAIT) version 6.0*, Washington, D.C., 2009.

are way above current levels in the region. This reflects the use of cleaner energy-generation sources in Latin America and the Caribbean, compared to those of China. Nonetheless, when the region's emissions are simulated on the basis of the ratios between energy and GDP and between emissions and energy in developed countries, the differences are much smaller, and are even negative for some countries. From this standpoint, there is room for manoeuvre in the region which should be exploited; but the situation could deteriorate rapidly.

vii. Emissions per capita in Latin America and the Caribbean display an absolute convergence process, known as β convergence, or convergence in the dispersion of CO_2 per capita emissions (σ convergence) (Barro and Sala-i-Martin, 1992).[18] In other words, per capita emissions in countries with lower per capita emissions are growing faster than those of countries with higher per capita emissions (see figure 13).

viii. The available evidence indicates that per capita emissions are converging in absolute terms across countries, as seen in the estimates based on equation (7), which is commonly used to analyse absolute convergence processes in per capita GDP between countries (Barro and Sala-i-Martin, 1992; Sala-i-Martin, 1996; Durlauf, Johnson and Temple, 2006; Maddala and Wu, 2000).

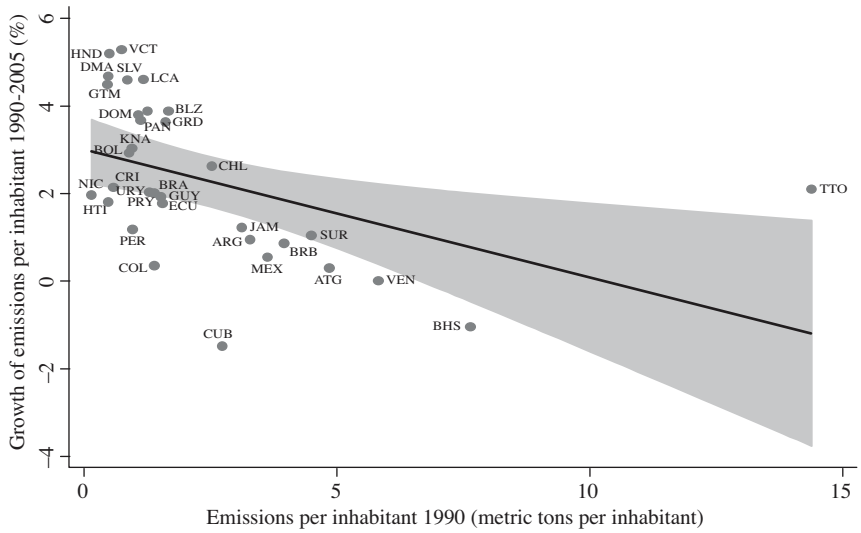
$$\Delta y_{it} = \alpha_i + \beta y_{i,t-1} + \varphi x_{it} + u_{it} \qquad (7)$$

where a coefficient $\beta<0$ indicates an absolute convergence process. The α coefficient captures specific effects by country, and x_{it} represents a set of additional factors, which, if included, make it possible to identify the possible presence of conditional convergence. The

[18] This point is based on the analysis of convergence processes in GDP per capita (Sala-i-Martin, 1996).

FIGURE 13

Latin America and the Caribbean: Emissions per inhabitant and growth of emissions per inhabitant, 1990-2005
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Economics of Climate Change in Latin America and the Caribbean. Summary 2009* (LC/G.2425), Santiago, Chile, November 2009, using CO_2 statistics obtained from World Resources Institute, *Climate Analysis Indicators Tool (CAIT) version 6.0*, Washington, D.C., 2009.
Notes: (i) Population data were obtained from the ECLAC Database on Social Statistics and Indicators (BADEINSO). (ii) The shaded area represents the standard deviation. (iii) HND: Honduras, VCT: Saint Vincent and the Grenadines: Dominica, LCA: Saint Lucia, BLZ: Belize, KNA: Saint Kitts and Nevis: Guatemala, SLV: El Salvador, PRY: Paraguay, BOL: Plurinational State of Bolivia, CRI: Costa Rica, CUB: Cuba, COL: Colombia, URY: Uruguay, PER: Peru, GUY: Guyana, MEX: Mexico, DOM: Dominican Republic, BRA: Brazil, SUR: Suriname, NIC: Nicaragua, BRB: Barbados, ECU: Ecuador, CHL: Chile, ARG: Argentina, PAN: Panama, GRD: Grenada, HTI: Haiti, VEN: Bolivarian Republic of Venezuela, JAM: Jamaica, TTO: Trinidad and Tobago, BHS: Bahamas, ATG: Antigua.

subscript i represents the country and t represents the year in question. The estimation of equation (8) —based on the cross-section database (equation (9)) and panel data (equation (10)) (Wooldridge, 2001; Baltagi, 2008) for the group of Latin American and Caribbean countries in the period 1990-2005— shows that per capita emissions in the region as a whole will increase in the coming decades within an absolute convergence process. The econometric estimations also do not reject the null hypothesis of the Hausman test (Hausman, 1978) in equation (9), so the fixed effects specification is not rejected. Furthermore, the statistical significance of the dummy variables for countries reflects the existence of significant regional differences (Romer, 1989; Barro, 1991). The t-statistics in parentheses are robust to the possible presence of heteroscedasticity (Wooldridge, 2001; Baltagi, 2008).

$$\frac{\log\left[\left(\left[\left[\left(CO_2n\right]\right]_{i2005}\right)\right)\right]}{\left(\left[\left[CO_2n\right]\right]_{i1990}\right)} = 0.40 - 0.15 * \log\left(CO_2n_{i1990}\right) + u_i \qquad (8)$$

(9.90) (-3.99)

$$\frac{\log\left[\left[\left[\left(CO_2n\right]\right]_{it}\right)\right]}{\left(\left[\left[CO_2n\right]\right]_{it-1}\right)} = 0.16 - 0.23 * \log\left(CO_2n_{it-1}\right) + u_i \qquad x^2\left(1\right) = 71.50\left(0.00\right) \qquad (9)$$

(2.19) (-2.04)

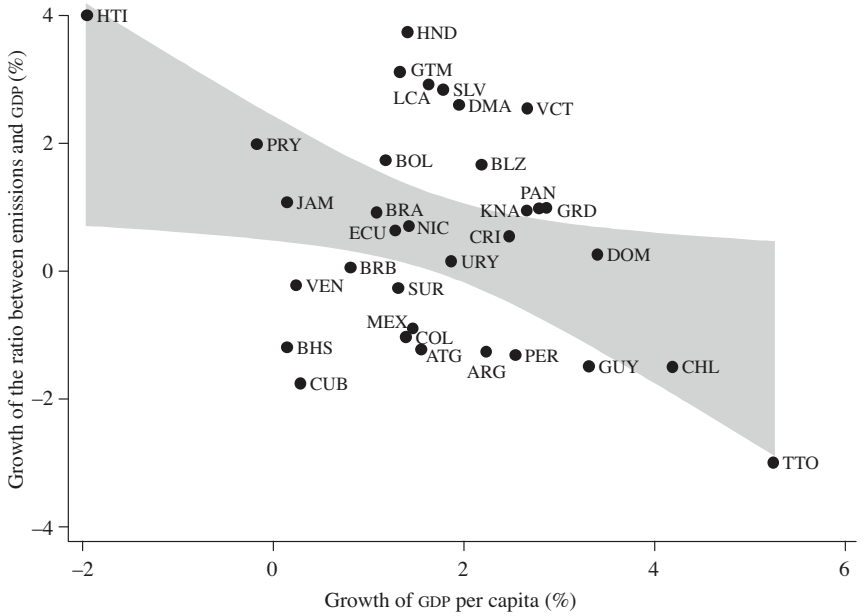
ix. There is an inverse relation between the rate of decoupling of emissions and GDP and the rate of growth of per capita GDP (Vivid Economics, 2009). In other words, countries with a faster growing GDP per capita are also those that reduce their emissions per unit of GDP most aggressively (see figure 14). This shows that a high rate of economic growth is not necessarily inconsistent with the capacity to reduce emissions per unit of output. So it is possible, within certain ranges, to reconcile dynamic economic growth with a transition to a lower carbon economy, although the pace of reduction is still insufficient to contain emissions in absolute terms (ECLAC, 2009a).

x. CO_2 emissions caused by energy consumption and cement production can projected using the IPAT identity.[19] The set of simulations performed (Samaniego and Galindo, 2009) in the BAU scenario shows that it is highly likely that greenhouse gas emissions linked to energy consumption and cement production will continue to rise in Latin America and the Caribbean. Specifically, the region's CO_2 emissions per capita could grow at a simple average rate of around 2%

[19] These simulations assume A trend GDP per capita growth are estimated with or autoregressive integrated moving average (ARIMA) models and data on population growth from the Latin American and Caribbean Demography Centre (CELADE) - Population Division of the United Nations, and assuming for each country its historical average growth rate of energy and carbon intensity (ECLAC, 2009a).

FIGURE 14

Latin America and the Caribbean: GDP growth and the rate of decoupling between CO_2 emissions and GDP, 1990-2005
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Economics of Climate Change in Latin America and the Caribbean. Summary 2009* (LC/G.2425), Santiago, Chile, November 2009,, using CO_2 statistics obtained from World Resources Institute, *Climate Analysis Indicators Tool (CAIT) version 6.0*, Washington, D.C., 2009.
Notes: (i) The shaded area represents the standard deviation. (ii) The decoupling rate is defined as the inverse of the rate of growth of the ratio between CO_2 emissions and GDP, in other words a reduction (increase) of this ratio means an increase (decrease) in the decoupling rate. (iii) Data on gross domestic product (GDP) per capita at constant 2000 prices were obtained from the ECLAC Economic Indicators and Statistics Database (BADECON). (iv) Population data were obtained from the ECLAC Database on Social Statistics and Indicators (BADEINSO). (v) HND: Honduras, VCT: Saint Vincent and the Grenadines: Dominica, LCA: Saint Lucia, BLZ: Belize, KNA: Saint Kitts and Nevis: Guatemala, SLV: El Salvador, PRY: Paraguay, BOL: Plurinational State of Bolivia, CRI: Costa Rica, CUB: Cuba, COL: Colombia, URY: Uruguay, PER: Peru, GUY: Guyana, MEX: Mexico, DOM: Dominican Republic, BRA: Brazil, SUR: Suriname, NIC: Nicaragua, BRB: Barbados, ECU: Ecuador, CHL: Chile, ARG: Argentina, PAN: Panama, GRD: Grenada, HTI: Haiti, VEN: Bolivarian Republic of Venezuela, JAM: Jamaica, TTO: Trinidad and Tobago, BHS: Bahamas, ATG: Antigua.

per year under a BAU scenario. This is the result of the process of emissions convergence in absolute terms and the historical trends of energy intensity with respect to GDP and of emissions in relation to energy in the region.

These simulations show that economic growth in Latin America and the Caribbean will be accompanied by an increase in CO_2 emissions from energy consumption and cement production; but there will also be a relatively gradual process whereby emissions become decoupled from trend GDP. This can be explained by a development strategy that combines higher levels of income per capita with higher productivity and the control or reduction of emissions.

VII

Emissions per capita and income per capita: some regularities

Emissions from energy consumption and cement production per unit of GDP are different for each of the countries of Latin America and the Caribbean, although they are generally below the world average (see figure 15). In addition, the response or sensitivity of the rate of emissions with regard to income in the face of changes in GDP per capita differs across countries and displays complex and non-dynamic behaviour patterns (see figure 16). These changes in response sensitivities between emissions and GDP and GDP per capita could be related to various factors, such as changes in the composition of the productive structure (the hypothesis proposed by Linder, 1961), changes in relative prices, technological innovation processes, more efficient development of economies and the imposition of more stringent regulations (Gupta and others, 1997). This could correspond, generically, to a type of environmental Kuznets curve (Kuznets, 1955; Grossman and Krueger, 1995; Torras and Boyce, 1998; Selden and Song, 1994; McConnell, 1997; Rothman and de Bruyn, 1998) or a V-shaped curve, where economic growth is accompanied by gradual environmental improvements following an initial deterioration.[20] Thus, under the Kuznetz hypothesis, or V-shaped curve, the intensity of emissions with respect to GDP per capita increases in the initial stages of economic development, before reaching a peak and then gradually declining (Rothman, 1998; Stern, Common and Barbier, 1996; Ekins, 1997).[21]

The presence of a V-shaped relation or inverted Kuznetz curve can be obtained by assuming, firstly, that per capita emissions are a direct function of output per capita, or that per capita emissions remain constant according to the coefficient ϕ_1:

$$EMPC_{it} = \phi_o + \phi_1 YPC_t + u_t \qquad (10)$$

where $EMPC_t$ are emissions per capita, YPC_t is output per capita and ϕ_1 is the coefficient associated with emissions. Assuming then that the coefficient that relates emissions to income per capita is also a function of income per capita, the following relation is obtained:

$$\phi_1 = \phi_2 + \phi_3 YPC_t \qquad (11)$$

Substituting equation (11) in (10) gives:

$$EMPC_{it} = \phi_o + (\phi_2 + \phi_3 YPC_t)YPC_t + u_t = \phi_2 YPC_t + \phi_3 YPC^2_t + u_t \qquad (12)$$

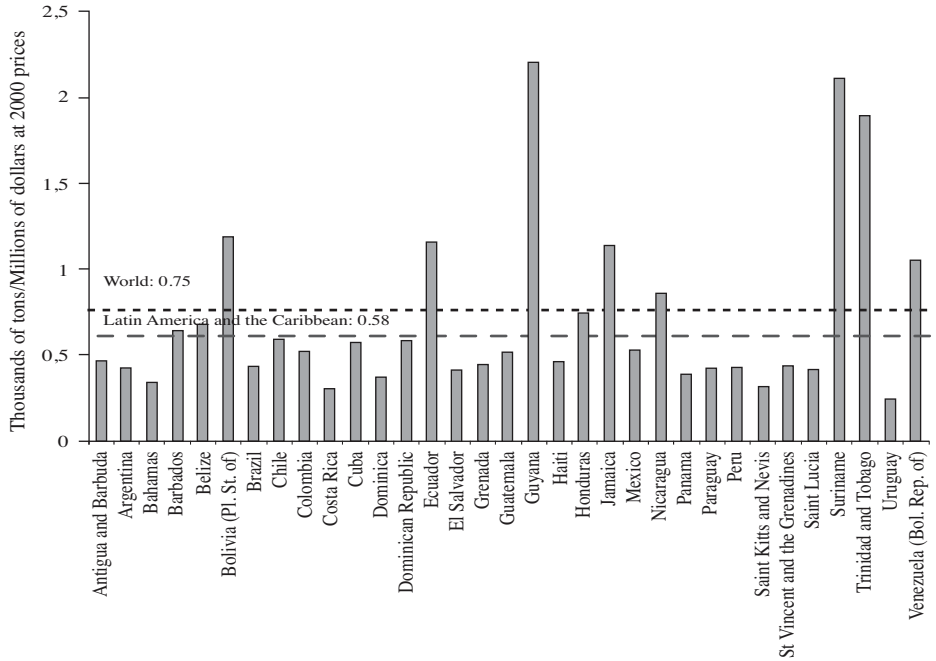
Equation (12) shows that emissions are sensitive to variables that include an income per capita squared term, which generates a nonlinear effect of the reduction of emission intensities. The Kuznets curve

[20] The V-shape can be obtained, for example, from an overlapping generations model (John and Pecchenino, 1994), or an optimization model (Stokey, 1998) or else from a constrained consumer preferences model (Jaeger, 1998).

[21] The economic causes of this behaviour are grouped, in the context of the Kuznetz curve, in three effects: scale, composition and technology (Rothman, 1998; Stern, Common and Barbier, 1996; Ekins, 1997; Grossman and Krueger, 1995).

FIGURE 15

Latin America and the Caribbean: CO_2 emissions per unit of GDP, 2005



Source: Prepared by the Economic Commission for Latin America and the Caribbean (ECLAC), using CO_2 statistics obtained from World Resources Institute, *Climate Analysis Indicators Tool (CAIT) version 6.0*, Washington, D.C 2009.
Notes: (i) Data on gross domestic product (GDP) per capita at constant 2000 prices were obtained from the ECLAC Economic Indicators and Statistics Database (BADECON). (ii) Population data were obtained from the ECLAC Database on Social Statistics and Indicators (BADEINSO).

then represents a reduced form that reflects extremely complex processes that lead to nonlinear effects.[22]

Thus, initially, the intensity of emissions per capita with respect to GDP per capita can be estimated econometrically under a linear specification (Ang, 1987; Zilberfarb and Adams, 1981; Shrestha, 2000), for panel data (Wooldridge, 2001; Baltagi, 2008) such as:

$$empc_{it} = \beta_0 + \beta_1 ypc_{it} + u_{it} \qquad (13)$$

where the lowercase variables represent the natural logarithm of the series. The presence of changes in the intensity of emissions with respect to GDP per capita over time, combined with non-linear effects, can be included in a quadratic reduced form that could correspond to the hypothesis of the Kuznetz curve (Judson, Schmalensee and Stoker, 1999; Destais, Fouquau and Hurlin, 2007):

$$empc_{it} = \beta_0 + \beta_1 ypc_{it} + \beta_2 ypc_{it}^2 + u_{it} \qquad (14)$$

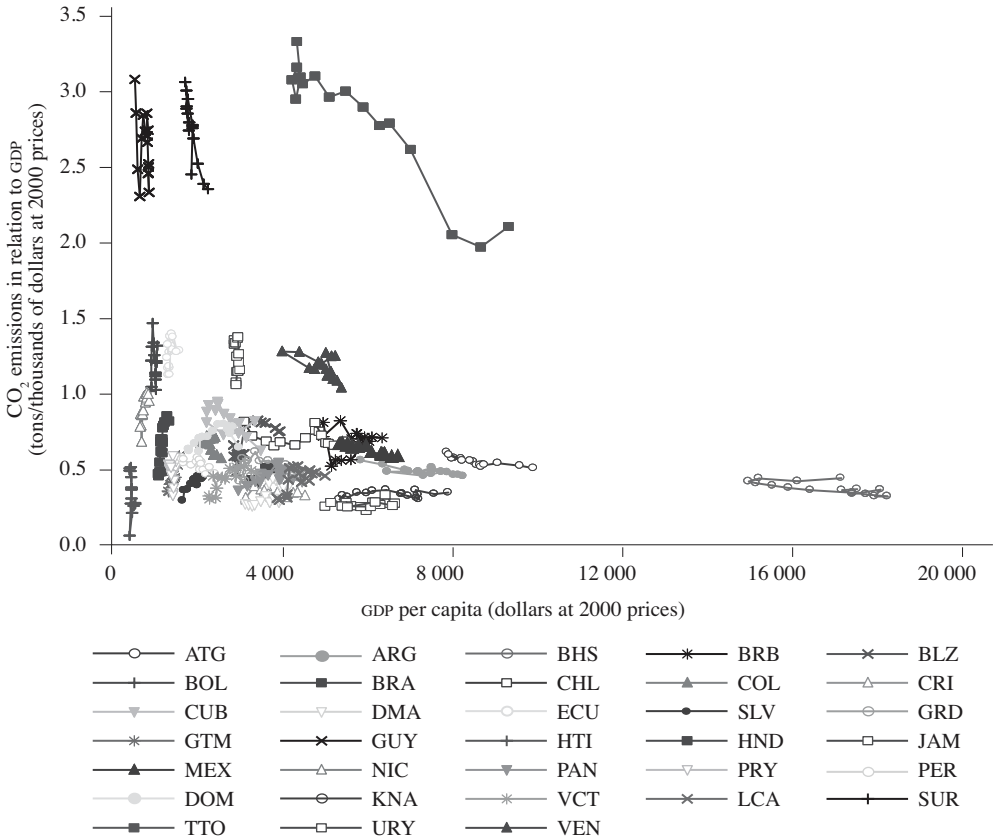
In this way, the non-linear effects were obtained with a β_2 coefficient that is smaller, in absolute terms, than β_1, and negative, because when income per capita increases, this coefficient becomes more important. This type of specification can either assume that all parameters are the same, or else consider changes by country or types of country, using panel estimation through the fixed or random effects method. Nonetheless, in this type of model it is only possible to incorporate differences in the constant term.

To incorporate changes in the parameters over time a Panel Smooth Threshold Regression (PSTR) model can be used (González, Teräsvirta and van

[22] The variables included are only *proxies*, so there could be a problem of omitted variables. (Torras and Boyce, 1998).

FIGURE 16

Latin America and the Caribbean: GDP per capita and CO_2 emissions with respect to GDP



Source: Prepared by the Economic Commission for Latin America and the Caribbean (ECLAC), using CO_2 statistics obtained from World Resources Institute, *Climate Analysis Indicators Tool (CAIT) version 6.0*, Washington, D.C 2009.
Notes: (i) Data on gross domestic product (GDP) per capita at constant 2000 prices were obtained from the ECLAC Economic Indicators and Statistics Database (BADECON). (ii) Population data were obtained from the ECLAC Database on Social Statistics and Indicators (BADEINSO). (iii) ATG: Antigua, BOL: Est. Plurinational State of Bolivia, CUB: Cuba, GTM: Guatemala, MEX: Mexico, DOM: Dominican Republic, TTO: Trinidad and Tobago, ARG: Argentina, BRA: Brazil, DMA: Dominica, GUY: Guyana, NIC: Nicaragua, KNA: Saint Kitts and Nevis, URY: Uruguay, BHS: Bahamas, BHS: Bahamas, CHL: Chile, ECU: Ecuador, HTI: Haiti, PAN: Panama, VCT: Saint Vincent and the Grenadines: VEN: Bolivarian Republic of Venezuela, BRB: Barbados, COL: Colombia, SLV: El Salvador, HND: Honduras, PRY: Paraguay, LCA: Saint Lucia, BLZ: Belize, CRI: Costa Rica, GRD: Granada, JAM: Jamaica, PER: Peru, SUR: Suriname.

Dijk, 2005; Granger and Teräsvirta, 1993; Teräsvirta, 1994).[23] In this model, the response sensitivities are changed when they pass a certain limit and can transit smoothly to the other regime (Aslanidis and Xepapadeas, 2006). This model for emissions per capita with just two regimes and a single transition function can be specified as follows (Destais, Fouquau and Hurlin, 2007):

$$empc_{it} = \beta_0 + \beta_1 y_{it} + \beta_2 y_{it} g\left(ypc_{it}\gamma, c\right) + u_{it} \qquad (15)$$

[23] The model is generalized in Destais, Fouquau and Hurlin, 2007.

In this case, the transition function $g(ypc_{it}, \gamma, c)$ is continuous and bounded by the threshold variable defined by ypc_{it}, with γ, c as parameters. The PSTR model for CO_2 emissions per inhabitant and for income per capita specify the logistic transition function (González, Teräsvirta and van Dijk, 2005; Granger and Teräsvirta, 1993; Teräsvirta, 1994) as:

$$g\left(ypc_{it};\gamma,c\right) = \left[1 + \exp\left(-\gamma \prod_{z=1}^{m} ypc_{it} - c_z\right)\right]^{-1} \qquad (16)$$

where the vector $c = (c_1,\ldots,c_n)'$ denotes an n-dimensional vector of location parameters, and the parameter γ is

the gradient of the transition function that determines the smoothness or speed of regime change in the value of the logistic function. In extreme cases, the PTSR model allows the change of regime to be abrupt (Hansen, 1999). This specification makes it possible to identify two regimes, one for when the transition variable is either below the first threshold or above the second threshold; and the other for when the transition variable lies between the two thresholds. The model can thus be interpreted as an inverted Kuznets curve, where a low elasticity is expected at low per capita income levels, but when income per capita rises, elasticity also increases up to a maximum before falling back again. The calculation method initially eliminates the means of individual effects (the u_{it} terms) and then estimates the non-linear least squares model using a standard parameter search procedure (Aslanidis and Xepapadeas, 2006):[24]

The estimations summarized in equation 18 show that elasticity is low when income per capita is below the first threshold (US$ 936 [=antilog(6,84)]) and again when it is above the second threshold of US$ 3 848 [=antilog(8.24)].[25] In both cases, the elasticity is greater (t-statistics in brackets):

$$CO_2 n_{it} = 1.31 y_{it} - 0.05 y_{it} g\left(y_{it}, 3.81; 6.84; 8.24\right) + u_{it} \quad R^2 = 0.62 \tag{17}$$

(41.46) (-9.84) (1.70) (30.41) (20.44)

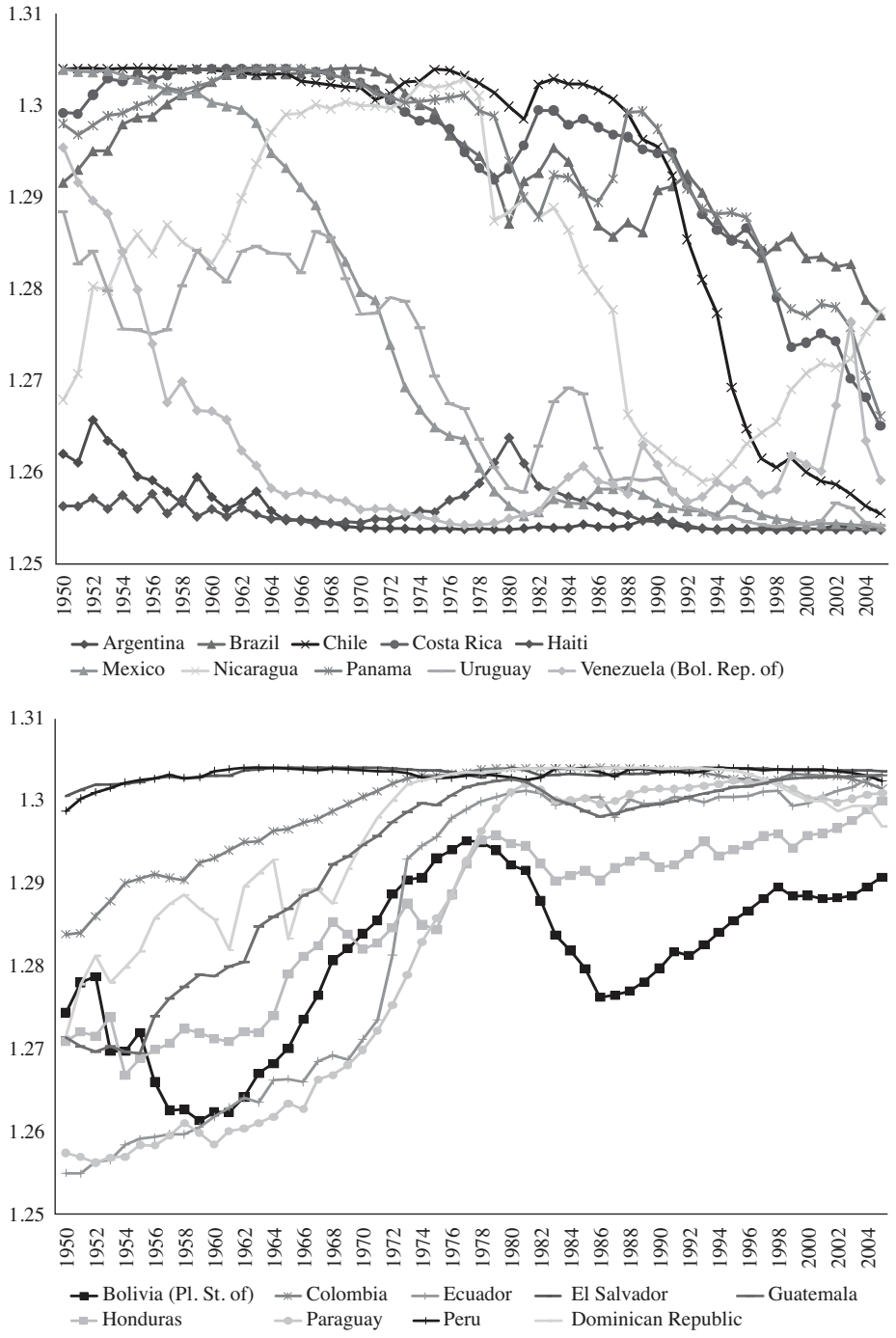
The dynamic of the elasticities is illustrated in figure 17, which divides the countries into two panels. The first contains countries where elasticity has declined, which assumes that they are at a either very low or very high development level by regional standards. For example, both Argentina and Haiti have the lowest elasticities —because Argentina was above US$ 3 848 per capita throughout the period, whereas Haiti did not achieve US$ 936 per capita. The other countries start with income per capita above US$ 936 but below US$ 3 848, but surpass the latter threshold in the 1970s; so elasticity, which was initially high, starts to fall, to reach minimum levels in the 1990s. Lastly, Nicaragua's per capita income is more than double the first threshold, but has not yet passed the second. The second panel includes countries whose elasticity has increased, because they are above the first threshold, but below the second. For example, the Plurinational State of Bolivia and Honduras both started the sample period with per capita incomes below US$ 936; and when they surpass this level elasticity rises and stays high because they have not reached the US$ 3848 threshold. Thus, depending on their initial per capita income, as countries grow, the elasticity of their CO_2 emissions per capita increases with respect to GDP per capita. When they reach a certain development level, however, the trend goes into reverse. This makes it possible to explain the presence of the absolute convergence process in emissions per capita, and suggests an explanation for the non-linear trend of the response sensitivities of per capita emissions with respect to income per capita.

The smooth transition autoregressive (STAR) model thus makes it possible to identify the presence of non-linear behaviour in the response sensitivities of emissions with respect to income per capita, which is consistent with earlier studies that claimed the presence of a V-shaped relation or inverted Kuznets curve (Aslanidis and Xepapadeas, 2006; Grossman and Krueger, 1995; Torras and Boyce, 1998; Selden and Song, 1994; McConnell, 1997; Rothman and de Bruyn, 1998; Rothman, 1998; Stern, Common and Barbier, 1996; Ekins, 1997). This suggests that economic growth is not incompatible with a simultaneous process of emissions reduction. Nonetheless, it needs to be recognized that the current pace of emissions reduction is still unsustainable in relation to any reasonable target for keeping global warming below a 2ºC temperature increase.

[24] The estimations can be found in Teräsvirta (1994); González, Teräsvirta and van Dijk (2005); Hansen (1999).
[25] GDP per capita is obtained from the ECLAC Economic Indicators and Statistics Database (BADECON).

FIGURE 17

Central America and South America: Elasticity of CO_2 emissions per inhabitant with respect to income per capita, 1950-2005



Source: Prepared by ECLAC using CO_2 statistics obtained from World Resources Institute, *Climate Analysis Indicators Tool (CAIT) version 6.0*, Washington, D.C., 2009.
Notes: (i) data on gross domestic product (GDP) per capita at constant 2000 prices were obtained from the ECLAC Economic Indicators and Statistics Database (BADECON). (ii) Population data were obtained from the ECLAC Database on Social Statistics and Indicators (BADEINSO).

VII
Conclusions

Climate change is the result of a set of anthropogenic activities that are closely related to economic activities. In economic terms, climate is a public good, so climate change is a global negative externality (Stern, 2007). Consequently, any strategy to solve the problem, and the public policies to be applied, need to have solid economic foundations.

The available evidence shows that the climate changes observed in Latin America and the Caribbean have substantial economic repercussions on various economic activities. Nonetheless, the costs are heterogeneous (there even temporary gains in some cases) and non-linear; and there are specific thresholds beyond which irreversible losses occur. There is also is a positive relation between the trends of per capita emissions, per capita energy consumption and income per capita. This is consistent with the international evidence (Stern, 2007) and suggests the need to substantially alter the current development strategy to move on to a sustainable development path.

In this regard, projections suggest that per capita emissions will continue to grow regionwide, with the rates for individual Latin American and Caribbean countries converging in absolute terms. Beyond a certain level of per capita income, however, the increase will be less, both in emissions arising from changes in land use and in those caused by energy consumption and cement production. In other words, emissions gradually become decoupled from economic activity beyond certain level of income per capita. In particular, the economic estimations show that the response sensitivities of emissions caused by energy consumption and cement production are low when per capita income is also low. Then, once a certain threshold has been passed, the response sensitivities increase, before gradually falling back again. Nonetheless, these reductions are not sufficient to contain the absolute increase in emissions.

As a whole, the results show that climate change is an additional constraint on the region's economic growth; but it is possible, within certain ranges, to reconcile economic growth with a transition to a low-carbon economy. Building this strategy is a complex task, involving keen debate (Stern, 2007; Nordhaus, 2008; Nordhaus and Boyer, 2000; Pearce and others, 1996; Mendelsohn and Neumann, 1999; Tol, 2002). It has major public-policy consequences, and also raises political, ethical, and international-policy issues concerning the distribution of the costs between countries, with emphasis on adaptation and vulnerability, or on mitigation and compliance mechanisms and the respective sanctions (see, for example, *Oxford Economic Review of Economic Policy*, 2008).

The construction of a strategy to transit to a low-carbon development path should not be seen as an alternative to economic growth. On the contrary, climate change is already putting an additional constraint on that growth. Nonetheless, the transition to a low-carbon economy is an extremely complex process that involves substantive changes in economic development styles.

(Original: Spanish)

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KEYWORDS

Globalization
Syndicalism
Economic development
International trade
Employment
Income distribution
Developing countries

Trade unions in the "South" in the era of globalization

Joseph Ramos

This article examines the effects of globalization on the trade union movement in developing countries (the "South"). It concludes, first, that globalization has been asymmetrical: much further-reaching for trade in goods than for capital flows, weak for technology transfer and very limited in migratory flows. Second, it examines the role and economic repercussions of labour unions. It finds that, contrary to the orthodox view, these have little negative impact on employment but do significantly reduce wage inequalities. In view of the shift in the South since the 1980s away from development strategies based on import substitution aimed at domestic markets and towards export-oriented strategies, the final section proposes new tasks and priorities for unions that are more consistent with this strategic reorientation, both at the national and international levels as well as within firms.

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I
Introduction

Trade unionism, as traditionally understood, probably peaked as a major force in the economy shortly after the Second World War. Unions then accounted for a large proportion of the workforce, had considerable negotiating power and were highly influential in national politics. For different reasons, their power began to diminish. Their influence may be under even greater threat in today's world, characterized by "globalization" in which economic decision-making is increasingly shifting from the national to the international sphere.

The aim of this article is to examine the implications of globalization for trade unions, and most especially for those in the countries of the Third World (the "South"). What threats are looming? What opportunities, if any, are emerging? What adjustments will unions have to make in the way they operate if they wish to continue being important actors in their own countries and internationally?

This article will not scrutinize the merits or otherwise of globalization but will set out from the premise that this is, broadly speaking, here to stay and if anything is likely to advance further. What will be considered, rather, is how the trade union movement can modify those trends in globalization that most seem to threaten its interests, or accelerate those that are potentially most favourable to it. The view taken is that trade unionism is a vital institution in society, whose future depends to a great degree on its continuing to be able to successfully represent workers' interests, but in a way that is attuned to the future needs of our society.

Following this Introduction, the second section will examine globalization and the debates surrounding it, and will highlight five key facts characterizing it. The third section will analyse the traditional roles of trade unions and the way these have been evolving, the perception of globalization among workers, and international trends (generally declining) in unionization and their effects. The fourth and last section will consider the impact of globalization on unions in developing countries (the "South"), especially Latin America, and will try to elucidate the implications of globalization for the trade union movement, with a view to its continuing to be an influential agent in society.

II
The trend towards globalization

1. What is meant by globalization?

Globalization has been succinctly defined as "competing with everyone from everywhere for everything". More formally, globalization can be described as the process whereby a country's production comes to depends less on its own economic policies and local conditions as its production system becomes increasingly open to, and dependent upon, factors external to it: capital flows, labour (migration) and technology which, along with rising trade in goods and services, determine what is produced and consumed and what is imported and exported.

2. The debate[1]

The main debate about the tendency towards globalization turns on whether it is a good or bad thing. One criticism is that it forces countries to "compete downward", i.e., that the need to compete internationally obliges countries to lower their national standards to the lowest standards

[1] A good introduction to the globalization debate can be found in Micklethwait and Wooldridge (2000). Gray (1998) and Stiglitz (2003) provide some of the sharpest, although still measured, criticism. Bhagwati (2004) offers a staunch defence of globalization.

prevailing in the world. The result is competition to cut wages (or at least not raise them), reduce labour and environmental standards and tax firms less. This economic criticism is accompanied by a cultural one to the effect that globalization threatens to put an end to each nation's idiosyncrasies, resulting in the predominant culture, that of the United States, prevailing over local cultures. This is what is called the "McDonaldization" of the world.

The defenders of globalization, on the other hand, say that it is a process which benefits all countries, not just developed ones but also, and particularly, those in the developing world, since it will help to accelerate their growth. In defence of their viewpoint, they argue that multinationals usually pay better wages than local firms, apply higher environmental and employment standards than are required by national laws, comply more punctiliously with their obligations in these matters and evade taxes less often than local firms. The free trade that globalization has brought with it, meanwhile, has given local consumers access to cheaper, better-quality products. Regarding the cultural aspect, they insist that local culture still dominates the media (television programmes), while foreign culture is secondary and is usually a source of diversity that has an enriching rather than a homogenizing effect.

The debate is too heated and involved to be settled in this article. We would venture two general opinions, however. First, while there may be attractions to investing in the South to take advantage of its lower labour and environmental standards, this situation is likely to be temporary. Sooner or later, globalization itself will tend to raise standards in the South, as the developed countries will increasingly make this a condition for keeping their markets open to exports from the South. Consequently, the countries of Latin America will be required to comply with environmental and labour legislation and not treat it as a dead letter, as sometimes happens, by turning a blind eye to violations.

Secondly, both sides of the debate exaggerate greatly. Globalization may not be a positive sum game, as its proponents claim, but neither is it a negative sum game, as some of its detractors suggest. In the debate about the North American Free Trade Agreement between Mexico and the United States, for example, detractors argued that the inhabitants of both countries would lose out. The fear of many in the United States, like the presidential candidate Ross Perrot, was that United States firms would set up in Mexico to take advantage of its much cheaper labour. Consequently, the Agreement would hurt the United States and benefit Mexico. Meanwhile, many Mexicans had the opposite fear: how were Mexican firms going to survive if they had to compete with imports produced by far more productive United States firms? Consequently, the Agreement would benefit the United States at the expense of Mexico. Clearly, the two arguments are contradictory and cannot be generally true.[2]

Defenders of globalization who present it almost as a panacea for emerging countries also overstate their case. However important market opening may be for the economic development of the South, the crucial thing is what is done to raise their dismal productivity. This does not come from outside but essentially depends on an internal effort.

Let it be repeated that, while there can be no question of resolving this debate in the present article, it is important to bear it in mind when analysing the key issues of globalization that we shall highlight, as it contextualizes and partially determines the possible implications.

3. Five key facts

The huge disparities in income and productivity between the developed countries of the "North" and the developing countries of the "South" are notoriously due to the fact that the North has an abundance of capital and modern technology and a scarcity of labour. The "South", meanwhile, has the opposite characteristics: capital is in short supply and outdated technologies prevail, while labour is relatively abundant. In theory, closing these divides means taking capital and technology from the North to the South and moving labour from the South to the North. This can be done directly by flows of capital, labour and technology, and also indirectly through trade in goods, with the South exporting its surplus labour in the form of highly labour-intensive goods.

[2] The truth of the matter seems to be that United States firms whose productivity advantage outweighs the pay differential with Mexico export to the latter, while Mexican firms whose productivity disadvantage is not as great as the pay differential export to the United States. Thus, more productive firms and activities in each country will expand and less productive ones decline. While the net effect may be positive, there will be gainers and losers in both countries. Furthermore, the two sides will not necessarily gain alike, whence the need for skilful negotiations and a national economic policy that is in keeping with development needs.

It is true that globalization tends in this direction. To anticipate the conclusions that will follow, however advanced globalization may be, current flows are much less than are needed to rapidly close these income and productivity gaps. Furthermore, we shall observe a large asymmetry between the different flows, as some are very substantial (trade in goods), some are scant (migration and technology flows) and others are somewhere in the middle (capital flows).

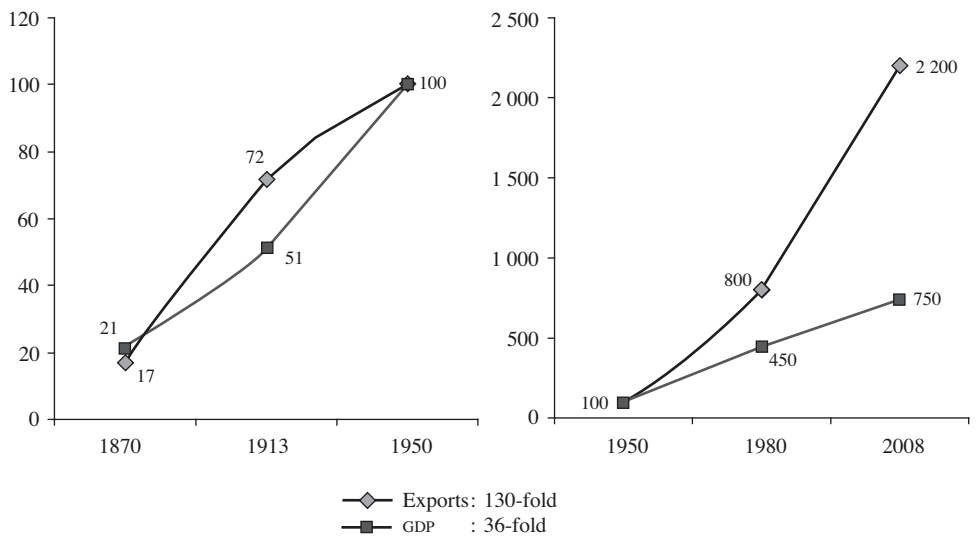
The first fact is the growing importance of international trade, i.e., flows of goods between countries. Figure 1 shows the growth in the world's export volumes and gross domestic product (GDP) since 1870: first from 1870 to 1950, then from 1950 to the present. From 1870 to 1950, exports and GDP grew at similar rates, with both more or less quintupling over the period. However, in the second period, from 1950 to the present, exports have exploded. They have increased 22-fold, compared to a large (7.5-fold) but lesser increase in GDP. Thus, taking the entire period from 1870 to the present, we find that while global GDP has multiplied 36-fold in those 138 years, i.e., at a rate of about 2.6% a year, exports have grown 130-fold, i.e., at a rate of some 3.6% a year.

Consequently, exports as a share of GDP have more than quadrupled from 5% of GDP in 1870 to 23% in 2008 (see figure 2). Although this represents extraordinary growth, the fact remains that three quarters of what is produced each year continues to be consumed domestically, and the reason for this is that much of this annual production consists of goods that are difficult or impossible to export. In practice, the great bulk of spending on health, education, government, commerce, services and construction, typically making up 60% of each country's GDP, is not tradable internationally.

This increase in international trade has been due to a whole range of factors. Among the most important are large reductions in transport costs, both between 1870 and 1950 and from 1950 to the present day. Second, there is the process of economic integration in Europe since the Second World War, culminating in its common market and single currency. Third, and once again since 1950, there have been the different rounds of multilateral tariff cuts promoted by the General Agreement on Tariffs and Trade (GATT), following large tariff increases in the period between the two world wars. Lastly, there

FIGURE 1

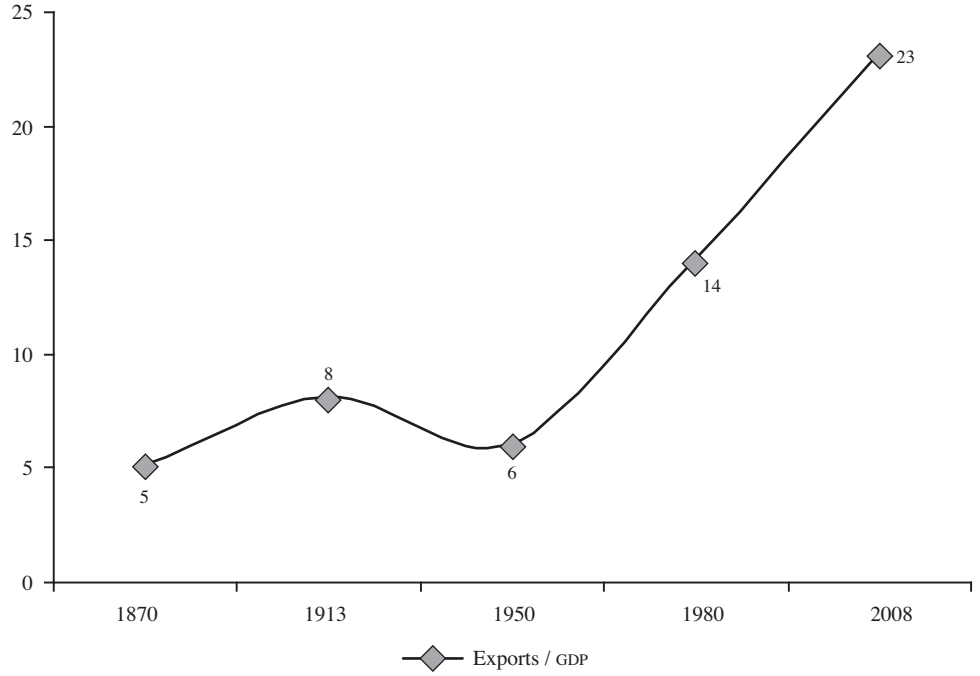
World export and GDP growth, 1870 to present
(Index: 1950=100)



Source: Angus Maddison, *The World Economy: A Millennial Perspective*, Paris, Organisation for Economic Co-operation and Development (OECD), 2001, and author's information from 1998 onward.
N.B.: The 1870-1950 and 1950-2008 periods are separated for presentation purposes.

FIGURE 2

Exports as a percentage of GDP, 1870 to present



Source: Angus Maddison, *The World Economy: A Millennial Perspective*, Paris, Organisation for Economic Co-operation and Development (OECD), 2001, and author's information from 1998 onward.
N.B.: The 1870-1950 and 1950-2008 periods are separated for presentation purposes.

are the numerous bilateral and subregional economic integration agreements concluded in the late twentieth and early twenty-first centuries.

In Latin America, this increase in trade has been partly driven by the trade liberalization policies brought in during the 1980s following the external debt crisis. This was a time when the region's countries made a strategic shift from an industrialization strategy based on high tariff protection and import substitution to a low-tariff exporting model. The average tariff in the region dropped from about 30% in the early 1980s to some 10% now (see table 1). Innumerable bilateral and subregional trade agreements have also been signed or given greater depth. As a result, the share of exports in Latin American economies has risen from some 13% of GDP in 1980 to about 25% now.

Nonetheless, most international trade is not between developed countries, which export industrial products, and developing ones, which export raw materials, but consists of different industrial exports from one country of the North to another. Thus, 77% of exports from the North go to other countries in the North (see table 2), with just 23% going to the South. This perhaps unexpected finding is due to the fact that more exports go to markets with greater purchasing power. Again, many of the "comparative advantages" of the North reside not so much in capital-intensive industries as in knowledge-intensive ones; and there can be no doubt that most knowledge is currently generated in the North. It is for these two reasons that the bulk of exports from the North go to other countries of the North.

Precisely because trade in goods leads each country to specialize in whatever it is relatively efficient at, it also allows countries with an abundance of raw materials and labour, such as those of the South, to export some of this abundance to the markets of the North in the form of raw material- and labour-intensive goods. Nonetheless, since much raw material production is capital-intensive (mining and energy, for example), in net terms our exports are not particularly labour-intensive. Thus it is that our exports are a very imperfect substitute for the movement of factors, i.e., for the migration of labour from the South, where it is abundant, to the North, where it is scarce, and for the movement of capital in the other direction,

TABLE 1

Tariff reductions in Latin America, 1980-2006
(Percentages)

Country	Mid-1980s	2006	Reduction (points)
Argentina	28	12	-16
Brazil	52	9	-43
Chile	20	6	-14
Colombia	28	12	-16
Ecuador	28	9	-19
Mexico	12	11	-1
Peru	40	7	-33
Venezuela (Bol. Rep. of)	33	15	-18
Latin America	30	10	-20

Source: World Trade Organization (WTO), *World Tariff Profiles 2008*, Geneva, 2008.

TABLE 2

International trade flows
(Trillions of dollars)

Trade flows	Global imports	Developed-country imports		Developing-country imports (Latin America)
Global exports	13.9	9.8		4.1
				(0.75)
Developed-country exports	9.8	7.5	77%	2.3
	71%			(0.54)
Developing-country exports	4.1	2.3	56%	1.8
	29%			(0.21)

Source: World Bank, *World Development Report 2009*, Washington, D.C., 2009.

from the North, where it is abundant, to the South, where it is scarce.

Without a doubt, the sheer scale of goods and services flows makes exports and trade liberalization the most salient feature of globalization.

The second fact, next after trade in importance, is the flow of capital between countries and, more specifically, foreign direct investment (FDI). Table 3 shows that some US$ 1.8 trillion of capital is invested outside its country of origin each year in the form of FDI. As might be expected, 90% of this investment originates in the developed countries. Perhaps surprisingly, though, the bulk of this investment (two thirds) goes to other developed countries in the North, where capital is also abundant, and not to capital-scarce developing countries, which receive a third of this investment. The reason for this is that FDI is not only deployed to extract natural resources and then process them (which is what FDI is typically for in the South), but is also used, and on an even larger scale, to take advantage of the proximity of large markets, most of them in the North. Thus, the purpose of FDI in the South is usually to extract natural resources, copper for example, and then turn them into industrial products in the North such as electrical cables. Conversely, the usual reason for siting FDI in the North is for a firm to position itself close to large markets, examples being Japanese car plants in the United States and United States car plants in Europe. This explains why most FDI is between developed countries.

It should be noted, however, that FDI in developing countries has been growing rapidly, from US$ 6 billion in Latin America in 1980 to 20 times

TABLE 3

Foreign direct investment (FDI) worldwide, 2007
(Trillions of dollars)

FDI	World receives	Developed countries receive	Developing countries receive (Latin America)
World invests	1.8	1.2	0.6 (0.125)
Developed countries invest	1.7	0.115	0.55
Developing countries invest	0.1	0.05	0.05

Source: World Bank, *World Development Report 2009*, Washington, D.C., 2009.

that amount now (see table 4). This is all the more important considering that FDI is likely to bring with it more and better technology than local investment, so that foreign investment has become an important factor in the development of the South. It must be recognized, however, that this still represents less than a fifth of the investment carried out each year in Latin America and an even lower percentage (a mere 3.7%) of the region's GDP, which shows that international factor mobility falls considerably short of what the textbooks predict.

The fact is that 90% of all investment in the world still has a strongly "insular" tendency, i.e., is carried out within the home country. Although there are probably more investment opportunities in the emerging economies of the South than in the mature markets of the North, the great majority of firms still prefer to invest in their home markets. There are all sorts of reasons for this "non-globalizing" tendency: businesses have a better understanding of opportunities in their own markets, these opportunities are more circumscribed by local legislation, or owners are not willing to capitalize enough to internationalize, as this would dilute their control over the firm.

One consequence of this "under-globalization" of capital from the North, neglecting important investment opportunities in the South, is to lower the potential returns on capital in the North. Those who come off worst, however, are the abundant workers of the South, who, in the absence of strong capital flows from the North, are forced to take employment in local firms with their outdated technology and low capital intensity, and the low wages and productivity that result.

This point is not invalidated by the argument, put forward by many critics of globalization and FDI, that a great many firms come to the South to take advantage of low wages. While this may well be their motivation, the more of them that set up in the South, the greater the demand for labour will be and the stronger the eventual upward pressure on local wages. This is what happened in Japan. The country started out with highly labour-intensive, low-paying industries, but labour became less and less abundant as the years passed and investment increased, and wages (and productivity) rose as a result, so that Japan now pays higher wages than the United States. The same thing happened in the Republic of Korea and Taiwan Province of China, and is happening now in China and India. In the long run, therefore, FDI makes labour less abundant and raises wages, but this effect is neither immediate nor automatic. It depends on national policies, and it needs to be supported by the power of unions.[3]

TABLE 4

Foreign direct investment (FDI) in Latin America, 1980-2007
(Millions of dollars)

	1980	2004	2007
FDI in Latin America	5 700	60 000	126 300
FDI/GDP	0.4%	3.0%	3.7%
FDI/total investment	2.0%	15.0%	17.8%

Source: United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2008* (UNCTAD/WIR/2008), New York, 2008. United Nations publication, Sales No. E.08. II.D.3; and Economic Commission for Latin America and the Caribbean (ECLAC), *Foreign Direct Investment in Latin America and the Caribbean 2008* (LC/G.2406-P), Santiago, Chile, 2008.

[3] This may be why most studies find that wages paid by transnational enterprises in the South are substantially higher than local wages. Either they pay better because they bring higher standards from their home countries, or they do so to increase productivity, allowing our unions to capture part of this rent if they negotiate well. See, once again, Micklethwait and Woolridge (2000) and Brown, Deardorff and Stern (2003).

These effects are produced not only by FDI, of course, but by any kind of investment, be it local or foreign, and all investment is therefore to be encouraged. Since only a relatively small share of FDI goes to the South, however (a third of the total), and most of this is sited in relatively few countries (China and Brazil, among others), there is ample scope for attracting such investment to other countries. Furthermore, FDI usually brings better technology with it, and thus tends to create more productive and better-paid jobs. This is why it is important for the region's unions to encourage both greater investment in general and a larger flow of FDI to the South. More FDI widens the scope for countries of the South and their unions to raise potential productivity and wages, an option that will not exist if these countries receive little in the way of FDI, as has been the case with most of the economies of the South to date.

The third channel of globalization is the migration of labour, which may be potentially the fastest and most direct way of raising incomes and productivity in the world as labour moves from where it is abundant (the South) to where it is scarce (the North). As we shall shortly see, however, it is the channel that is least used and, indeed, least discussed. And when it is discussed, it is perhaps the one that arouses the strongest feelings in both the North and the South.

It is not that there is no migration, but that it is proceeding at a snail's pace. As expected (see table 5), migration takes place mainly from developing to developed countries. It can be seen from table 6, however, that annual migration (legal, that is), while large in absolute terms (2.6 million a year), is low compared to annual population growth: 3.2% of the world's annual population increase and just 3% of the annual increase in the population of the South. To provide an example and a comparison, it is estimated that a third of the increase in population in Europe during the nineteenth century was absorbed by migration to the New World.[4] A comparable figure would require a 10-fold increase in today's level of migration from South to North!

As already mentioned, feelings on the issue run high on both sides. Although today's migration represents only a small percentage of developing countries' population growth, the sharp slowdown of population growth in the North means that 54% of this is accounted for by migration from the South (which actually supplies over 100% of population growth in Europe and Japan, with a much lower percentage only in the United States and Oceania). This is why many in the North resent these workers taking away their jobs and driving down their high wages, and why there is such strong nationalist pressure to halt migration, both legal and, obviously, illegal.

As for the South, it wounds people's pride that so many of their compatriots have to leave their home country in search of a better life abroad. There is also concern in the countries of the South about a "brain drain" depriving them of the resource they have invested most in and have most need of.

Against these legitimate concerns we must set the benefits of migration. First, it usually means a substantial improvement in the living standards of migrants themselves in terms not just of incomes but of health and learning as well. The less skilled the emigrant, the greater the benefit, for while wages in the North are higher than those in the South in all professions and occupations, the gap is particularly large for low-skilled workers, who earn something like subsistence wages in the South but are paid decently in the North by local standards and very handsomely indeed by those of the South. Although there are pay gaps for professionals, they are substantially less, particularly when adjusted for actual differences in the cost of living.

Second, there is a positive effect for those who do not migrate. For one thing, migration reduces competition for the few good jobs available locally. For another, emigrants usually send remittances to their families in the South. Remittances to the South last year are estimated at US$ 328 billion, or 2.5 times the external assistance provided by the countries of the Organisation for Economic Co-operation and Development (OECD).[5] For example, remittances by Indians abroad exceeded FDI in India that year! And remittances are not confined to money, there are also "remittances" of ideas. Indeed, there is evidence of a substantial transfer of knowledge in this way. Some of the success of the information technology production cluster in Bangalore, India, for example, is due to Indian engineers who formerly worked in Silicon Valley and used their knowledge to set up similar businesses in Bangalore. On a smaller scale, similar phenomena can be seen in the case of African and Central American emigrants returning to their

[4] Estimate based on Maddison (2001).

[5] See "Migration and development: the aid workers who really help" in *The Economist*, 10 October 2009.

TABLE 5

Migration, 2000-2005

Recipient country	Immigrants per year	Main countries of origin *(percentages)*				
United States	1 160 000	Mexico	China	Philippines	India	Cuba
		18	7	5	4	3
Spain	405 000	Morocco	Ecuador	Romania	United Kingdom	Colombia
		14	11	10	7	6
Germany	220 000	Poland	Turkey	Romania	Hungary	Italy
		18	7	4	4	2
Canada	210 000	China	India	Philippines	Pakistan	United States
		12	12	8	4	3
United Kingdom	137 000	Australia	France	United States	New Zealand	India
		9	8	7	6	5
World	2 600 000					

Source: United Nations, *International Migration Report 2006: A Global Assessment* (ESA/P/WP.209), New York, 2006.
N.B.: 2000-2005 averages.

TABLE 6

Scale of migration, by development level

	World	Developed countries	Developing countries
Immigration (millions of people a year)	2.6	2.6	-2.6
Population (millions of inhabitants)	6 500	1 200	5 300
Population growth (millions of people a year)	82	5	77
Percentage of population	1.3%	0.4%	1.5%
Immigration (as percentage of population growth)	3.2%	54%	-3%

Source: United Nations, *International Migration Report 2006: A Global Assessment* (ESA/P/WP.209), New York, 2006.

home countries with capital and ideas to make their projects work.

For reasons like the above, the latest Human Development Report of the United Nations concluded that migration yielded a net benefit both for those emigrating and for those remaining in their home countries, and that it was clearly beneficial too for the recipient countries themselves.[6]

Nonetheless, there are large barriers to migration, particularly for the low-skilled, who are precisely the people most likely to benefit from the opportunity to migrate. Migration continues to be seen as something each country may legitimately restrict at will. And by contrast with customs tariffs or barriers to capital inflows or outflows, not only is it unquestioned that countries have the right to restrict migration, but there is little awareness that they might have a duty to remove such barriers to migration. This is why the latest Human Development Report, which advocates reducing and liberalizing barriers to immigration for the low-skilled in particular, is so important.[7] Hitherto,

6 United Nations (2009).

7 See United Nations (2009). The Report advocates a six-pillared package of reforms including, among other things, liberalization and facilitation of immigration for the low-skilled, for both temporary and permanent jobs; guarantees for the basic rights of immigrants in destination countries; and reduction of the transaction costs involved in migration.

there has been no international organization calling for steady reductions in the restrictions on immigration, as there are to encourage trade and capital flows. This is therefore a field that merits determined action by unions in the South, since emigration of low-skilled labour can significantly alleviate the negative pressure on labour markets in the South.

A fourth form taken on by globalization is the imitation, purchase and transfer of best practices and technologies. Over 80% of patents are generated in the developed countries, and much the same is presumably true of unpatented innovations. It is therefore reasonable to assume that the bulk of technology transfer will be from North to South. Furthermore, the enormous productivity gaps between the two suggest that transfer flows ought to be large.

Some of this transfer takes place through the purchase of equipment incorporating technological improvements. Indeed, almost half of all fixed capital investment is in equipment and machinery; expressed as a proportion of GDP, that means that some 10% of GNP consists of imported equipment incorporating modern technology. Another part of the technology flow consists in (smart) imitation and local adaptation of international best practices (the idea of shopping malls or mini-markets, or just-in-time production, for example, can be copied without having to pay anything). Lastly, another element is the payment of royalties for licences and franchises.

Given the huge productivity gaps and technological backwardness of developing countries, these could be expected to buy technology in large amounts. Indeed, as might be anticipated, successful emerging countries such as the Republic of Korea, Portugal and Spain spend 2.5 times as much on technology transfers (some 0.5% of GDP) as the developed countries themselves (see table 7). Conversely, and unexpectedly, the opposite is true of Latin America. It is striking that, other than in Argentina, royalty payments as a share of GDP in the Latin American countries run at only a fifth of their levels in successful emerging countries. Even more surprisingly, technology purchases in the region run at just half the rate seen among developed countries (0.1% of GDP as against 0.2% of GDP in the developed countries).

In other words, technology transfer to Latin America falls well short of what it could be and ought to be for economies like those of the region, lagging as they do so far behind the technology frontier and international best practices. As a result of this slow transfer of technology, the huge gaps in productivity and thus incomes that separate Latin America from the developed economies have tended to persist.

Fifth, late-developing countries have one, and only one, great advantage. It is that once they have dealt with the institutional and endemic limitations of underdevelopment, they have the capacity to grow at much higher rates than the countries that historically were the first to develop. The later a country's development begins, the further behind the technology frontier it is, and thus the more quickly it can grow by bypassing whole stages of development and copying and adapting the modern technologies best suited to it. This is the phenomenon known as "catch-up" (see figure 3). This explains why Japan was able to grow so rapidly from the late nineteenth century; why subsequently, from 1950 onward, the "tigers" grew even faster than Japan during their miracle; and why continental China has been expanding at unprecedented rates since the 1980s, its per capita growth rate of over 7.5% far outstripping anything the "tigers" ever achieved. Nor can there be any doubt that much of the "Chilean miracle" from the mid-1980s to the present has been due to its success in finally capitalizing on this, the one great advantage of being a late-developing country.

TABLE 7

Technology transfer licensing payments

(Percentages)

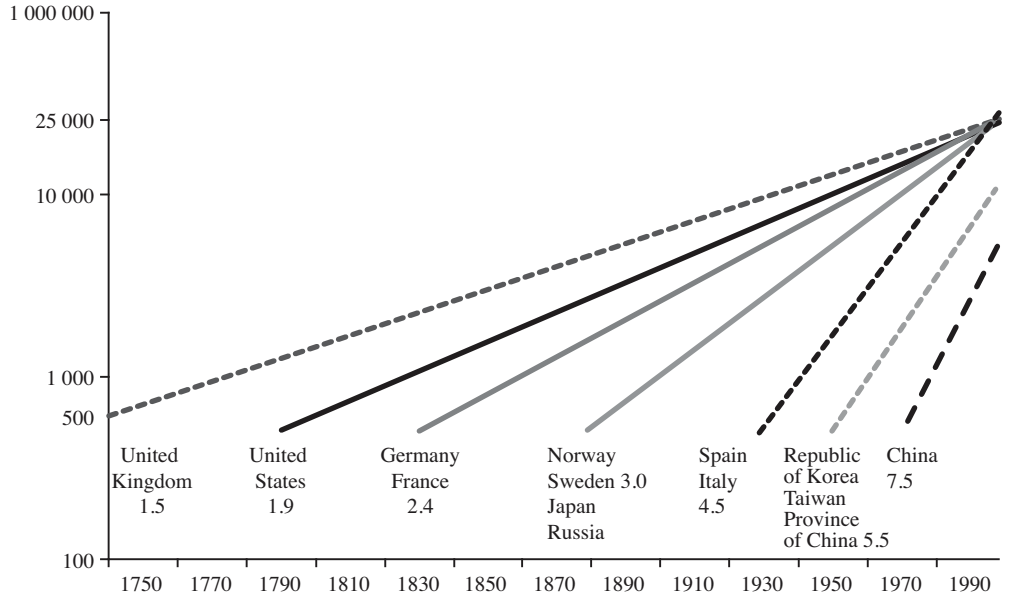
Country/region	Annual licensing payments/GDP
Latin America	
Mexico	0.12
Brazil	0.08
Chile	0.10
Argentina	0.34
Developed countries	
Europe	0.28
Japan	0.20
Canada	0.20
Australia	0.09
Emerging countries	
Republic of Korea	0.50
Portugal	0.60
Spain	0.40

Source: Roberto Álvarez, Gustavo Crespi and Joseph Ramos, "The impact of licenses on a 'late starter' LDC: Chile in the 1990s", *World Development*, vol. 30, No. 8, Amsterdam, Elsevier, August 2002.

GDP: Gross domestic product.

FIGURE 3

Catch-up: the great potential advantage of late development



Source: prepared by the author on the basis of Angus Maddison, *The World Economy: A Millennial Perspective*, Paris, Organisation for Economic Co-operation and Development (OECD), 2001, and author's information.
N.B.: The vertical axis measures per capita income, the horizontal axis years. The values below each of the countries indicate the annual rate of growth of per capita income in that country since its take-off.

Far from closing the technology and best practice gaps with the developed countries, however, productivity in Latin America, with the exception of Chile, has grown by less than that of the developed countries from 1980 to the present, so that the technology frontier has receded even further.[8] This shows how much remains to be done in this field. It must be stressed once again that the possibility of securing decent jobs with decent wages requires productivity levels much higher than are currently the norm in the region's countries.

To attain these goals, the transfer of technology and best practices is an even more vital factor than trade, FDI and migration.[9] This is the potential flow that is there to be exploited in future by developing countries, and Latin America in particular. Indeed, for all his criticisms of globalization, Stiglitz emphasizes that it is this capability – that of identifying the most suitable technologies and practices for their countries and then adapting, assimilating and disseminating them – that ultimately explains the Japanese miracle, that of the "Asian tigers" and those of China and India today. It was this ability to imitate, adapt and assimilate technologies, far more than orthodox neoliberal policies, that he considers to account for their success.[10]

In summary, a review of globalization, like the one conducted so far, yields one great conclusion: globalization has not advanced quickly or slowly so

[8] See Castaldi and others (2009).

[9] None of this is an argument against domestic research and innovation. The region currently invests little in research and development (R&D): some 0.6% of GDP. Although technology transfer will undoubtedly be more important for Latin America than endogenous technological innovation in its current stage of development, some R&D is needed just to be able to assimilate and adapt international technologies and best practices. Again, while most firms in the region are a long way from the technology frontier, some of them, including many natural resource exporters, are close to it, which means that they need to carry out substantial R&D investment if they wish to maintain their elevated rents.

[10] See Stiglitz (2003). Indeed, that author argues that there have been large departures from neoliberal doctrine: some countries have engaged in far-reaching State intervention based on large local enterprises (Republic of Korea); some (Taiwan Province of China) have favoured the development of medium-sized firms for military reasons; others have opted to attract multinationals (Singapore); others again have developed with a large State sector (China) in both the productive economy and, particularly, the financial system. Until recently, furthermore, all these approaches were combined with substantial tariff barriers.

much as asymmetrically, since goods, capital, labour and technology have flowed at very different speeds.

i) So far, globalization has advanced most quickly where trade in goods is concerned, with Latin American exports rising to 25% of GDP. This is followed by FDI flows, which have come to account for 18% of all annual investment. Conversely, globalization has progressed much less in the areas of technology transfer and migration. Unfortunately, these are probably the very two factors that could most quickly and directly improve living standards in the region, with its abundant labour and low-productivity jobs.

ii) There is much more globalization between developed countries (North-North) than between developed and developing ones (North-South). Two thirds of FDI and three quarters of exports are between developed countries.

iii) Only migration takes place mainly between South and North, but it is advancing at rates that are not high in absolute terms (3% of developing countries' population growth) and are much lower than the rates seen in nineteenth-century Europe.

Consequently (see table 8), the developing world, with 81% of the world's population, produces just 26% of global GDP. This is because it accounts for only 19% of all patents each year and 29% of exports, while it is home to just 14% of the world's largest enterprises. The developing world weighs only in terms of population and the percentage of raw materials it exports (37% of the world total).

TABLE 8

International asymmetries

(Developing-country shares, percentages)

1.	Population	81
2.	GDP	26
3.	Percentage of 500 largest firms	14
4.	Patents	19
5.	Exports	36
6.	Raw material exports	37

Source: United Nations Conference on Trade and Development (UNCTAD), *Development and Globalization: Facts and Figures*, Geneva, 2006.
GDP: Gross domestic product.

III

Trade unions

1. Their role

Unions play a multiplicity of roles both within firms and in society as a whole. The focus in what follows will be on their function in collective negotiations with firms. There are many, particularly among proponents of more orthodox economic theories, who see unions simply as actual or incipient monopolies that raise wages for their members at the expense of jobs for those excluded. It is undeniable that a union, especially if it is strong, can produce this effect. But this is an exaggeratedly restrictive view of the typical or average union.

Thus, more sophisticated labour market theories see unions as institutions that improve, or can improve, the workings of the market. First, there are markets with imperfect competition, in which the firm concerned generates rents in excess of normal profitability. In these cases, it will be in the interests of the firm to keep the whole of the rent deriving from its market power, paying its workers on the basis of their opportunity cost (their value to other firms) and not their actual productivity. In these situations, a critical task for the union will be to press for some of these rents to be transferred to its members. In these cases, the distribution of this rent will depend on the negotiating power of the parties and, within wide margins, will have no distorting effect on the allocation of resources.[11]

Secondly, even in fully competitive markets, there is often another type of rent that gives rise to a margin of "legitimate indeterminacy" where wages are concerned. This can be understood better if we begin with the most orthodox analysis of the workings of competitive markets. According to this, the pressure characterizing relationships in competitive markets is known as "exit". In other words, if someone does not like a product, they stop buying it and choose another. This "exit" sends the producer a message that he must improve the quality or price of the

[11] See Benavente, Dobbelaere and Mairesse (2009) for an interesting analysis of how rents are distributed in accordance with the bargaining power of workers in France, Belgium and Chile.

product, or both, or otherwise perish. In the labour market, similarly, anyone dissatisfied with the working conditions of his firm can leave, and his "exit" will put pressure on the firm to adapt its operations to the demands of its workforce.

Exit is undeniably an important form of pressure, but it is not the only one. Particularly in markets with more or less skilled labour, where relationships are deeper and longer-term and where exit costs are high, there is also a place for pressure exerted by means of "voice". Unions provide this voice.[12] Firms are sensitive to such pressure because they know that the effort put in by their staff largely depends on how fairly they believe they are being treated.

There is, then, an area of "legitimate indeterminacy" where wages are concerned. Although the market sets limits or ranges to how much is to be paid for a certain type of labour, this is rarely an exact amount other than in highly exceptional markets. There is normally a range of 5% to 10% around a certain value. This range depends on all the factors that can make the productivity of a worker or group of workers higher in one particular firm than in the general run of firms. Among other factors, for example, their productivity may be greater because they have acquired specific knowledge about the workings of their firm, or because they have forged a good team spirit with colleagues, making the productivity of each greater than it would be in another firm. There is thus a range of "legitimate indeterminacy" corresponding to the greater productivity workers may have in their firm by comparison with the general run of firms. This greater productivity generates a rent that may be appropriated by the worker or by the firm or divided between the two, without greatly affecting the level of employment.[13] This rent is a subject for negotiation, and "voice" is the most efficient way of going about this. Thus, one of the key roles of a union is to express the "voice" of workers as a group.

Third, apart from collective bargaining as such, in medium-sized or large firms there will always be situations that are not covered by employment contracts and require interpretation or new agreements. Employers are obviously attracted by an arrangement in which they take decisions or impose their will without argument. This lends itself to arbitrary behaviour, however, and can ultimately damage labour relations, thereby affecting morale and thence productivity. This is why unions have the function of representing worker interests and legitimizing agreements. Given that labour productivity and performance are known to depend not only on workers' capacities, but on how fairly they feel they are being treated, this legitimizing function of the union benefits both the firm and its workers.

These roles of distributing rents, negotiating ranges of "legitimate indeterminacy", checking arbitrary behaviour and facilitating unanticipated new agreements are vital and positive roles of unions, greatly valued by workers and, in large firms particularly, valued too by the employers themselves. This is why modern theories of labour relations do not regard these as essentially adversarial, with one side necessarily gaining at the other's expense (a "zero sum game"), but treat them as potentially beneficial all round if well conducted. Negotiated working conditions are viewed as fair and thus call forth a greater effort from employees than the same working conditions when they are imposed and employees feel their views have not been considered, since their productivity depends on their motivation, and their motivation depends in part on whether they feel their interests have been taken into account.

2. The view of workers

The above may seem theoretical, but it is amply borne out by experience. In a survey recently carried out by the Equity Commission of the Government of Chile, the following results were obtained:[14]

i. Between 75% and 80% of workers consider a union to be important or very important for securing fair treatment, more of a say in their company's decisions, better wages and more stable employment.
ii. 49% consider that unions have a positive effect on productivity; only 5% believe their effect to be negative.

[12] Originated by Hirschman (1970), this theory has been very usefully applied to the world of unions by Freeman and Medoff (1984), among others. See also Pencavel (2008) and Dussaillant (2008).

[13] Much more may be demanded, in which case there will be a distorting effect, with wages being raised not just at the expense of the firm's rents but at the cost of a lower level of employment. What is meant here by the area of "legitimate" indeterminacy is that which does not distort the allocation of resources but remains within the bounds set by the greater specific productivity of workers in that firm by comparison with the rest.

[14] See Consejo Asesor Presidencial, Trabajo y Equidad (2008). This government-appointed commission was composed of "wise men" from a wide range of political, academic, business and union backgrounds, and many of its conclusions were unanimous.

iii, 81% think it would be desirable to improve workers' collective bargaining capacity.

iv. While 68% feel trust or a great deal of trust in the promises of their company's management, a large percentage (27%) have little or no trust in management, whence the need for an organization like a union to give greater credibility to whatever is agreed upon.

v. By contrast with the ultra-orthodox position that labour relations are a "zero sum game", 66% of workers believe that relations between their union and their firm are cooperative or very cooperative, with only a fraction (20%) regarding them as adversarial or very adversarial.

The same survey also shows that the closer the source of authority is, the better labour relations tend to be, and obviously that the more remote it is, the worse they tend to be. This alone would explain the greater need for a union in large firms, where employment conditions are not set by the immediate supervisor but tend to be more impersonal and distant. For example, whereas 82% of respondents say they have a good or very good relationship with their immediate supervisor, this positive appreciation drops to 65% in the case of company management and 46% in the case of the company's owners.

3. The importance of unions

Unions can be important when they contain a large percentage of the workforce, as in the Nordic countries, and when union contracts are extended to the non-unionized workforce, as in France where, despite declining union membership, the coverage of such contracts has increased.

Nonetheless, it should be observed (see table 9) that there has been a fall in both the percentage of workers in unions (down 33%) and the coverage of union-negotiated contracts (down by a lesser but still substantial 22%) in most of the OECD countries over the past 25 years. A similar downward trend can be seen in Latin America (see table 10).[15]

This decline in the percentage of unionized workers is due to many factors, among which mention may be made of the following:[16] greater international competition due to globalization, and thus a decline in the monopolistic rents available to be shared out between firms and workers, making unionization less attractive; technological changes that have facilitated decentralization and outsourcing of jobs, reducing typical company size (smaller firms are usually less unionized); the growing weight of the (far less unionized) "tertiary" sector in economy activity and the declining share of manufacturing employment (highly unionized for the most part); the growing importance of professional and white-collar occupations in firms, as these are typically less unionized; the rise in female employment, which is normally less unionized both because of the type of work women do and because their participation in the workforce is more intermittent; anti-union policies and

[15] See Dussaillant (2008).
[16] See Pencavel (2008).

TABLE 9

Unionization and coverage of union-negotiated contracts
(Selected OECD countries, percentages)

Country	Percentage of workers unionized			Percentage change in coverage of union-negotiated contracts (1980-2000)
	1980	2000	Percentage change	
United Kingdom	51	31	-39	-57
Japan	31	22	-29	-40
United States	22	13	-41	-46
Germany	35	25	-29	-15
France	18	10	-44	13
Sweden	80	79	-1	13
Australia	48	25	-48	0
Italy	50	35	-30	0
OECD	32	21	-33	-22

Source: Organisation for Economic Co-operation and Development (OECD), *OECD Employment Outlook*, Paris, 2004.

TABLE 10

Unionization in Latin America
(Percentages)

Country	Start year	End year	Percentage change
Argentina	68 (1986)	50 (1995)	-26
Colombia	25 (1985)	18 (1995)	-28
Costa Rica	30 (1985)	18 (1995)	-40
Chile	16 (1990)	15 (2006)	-7
El Salvador	10 (1985)	11 (1995)	10
Guatemala	10 (1985)	8 (1994)	-20
Mexico	42 (1991)	20 (1997)	-52
Panama	21 (1991)	20 (1995)	-5
Uruguay	30 (1988)	21 (1993)	-30
Venezuela (Bol. Rep. of)	29 (1988)	18 (1993)	-38

Source: Francisca Dussaillant, "Sindicatos y negociación colectiva", *Documento de trabajo*, No. 374, Santiago, Chile, Centro de Estudios Públicos, 2008.

practices; and the disrepute into which some unions have fallen because of their lack of transparency and internal democracy. In fact, it is only in public-sector activities that unionization is on the increase.

4. The effects of unionization on employment and income distribution

As mentioned earlier, one of the most frequent criticisms of unions from an orthodox perspective is that they raise their members' wages at the expense of employment. Thus, by imposing a wage higher than is justified by worker productivity and market conditions (i.e., outside the upper end of the range of legitimate indeterminacy), unions force firms to reduce recruitment, with the result that unemployment or informality rises. Although a thorough test of this hypothesis is beyond the scope of the present study, some light can be shed on it by examining whether, as this hypothesis would have it: (i) countries with a higher degree of unionization have higher unemployment (the sample used in this study are the OECD countries in 2000 or thereabouts) and (ii) the decline of unionization in the last 25 years (from the 1980s to the early 2000s) has been accompanied by a drop in unemployment.

Figure 4 examines the relationship between the percentage of the workforce which is unionized and unemployment in OECD countries around 2000. Contrary to the conventional orthodox hypothesis, the feared positive relationship between unemployment and unionization is not observed.[17] To take this a step further, figure 5 shows this relationship over time (from 1980 to the early 2000s), i.e., it examines whether, as the conventional hypothesis suggests, unemployment fell by more in countries where unionization retreated most, such as the United States, the United Kingdom and Japan, and whether it increased less in countries where union membership fell by less or even rose, such as Finland, Iceland, Belgium and Sweden. Once again, no statistically significant relationship is observed between increasing (decreasing) unemployment rates and rising (falling) union membership rates.

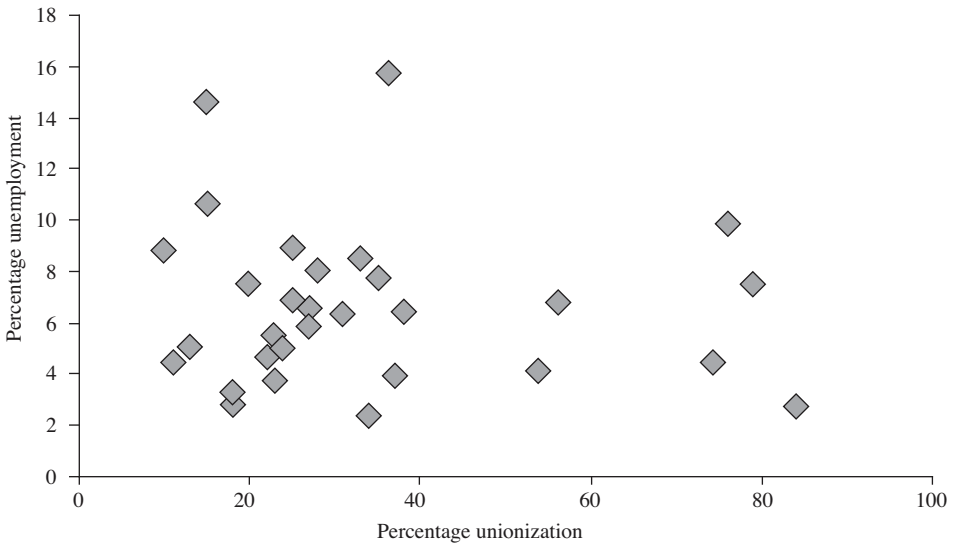
This conclusion is borne out by more detailed OECD (2004) studies using multiple control variables, which show that between 1970 and 2000 there was no robust relationship between union membership and unemployment rates.[18] The ambiguity or lack of robustness of the relationship between unemployment

[17] The finding is similar if we compare union membership and unemployment around 1980. The lack of significance cannot therefore be put down to the period chosen.

[18] While, as conventional theory suggests, OECD (2004) finds that higher unemployment is associated with greater coverage of collective bargaining for some periods and some regressions between 1970 and 2000, the relationship between higher unemployment and a higher unionization rate is not significant for any regression or period. And although, as conventional theory suggests, higher collective bargaining coverage correlates with less employment of older people, greater unionization is associated with higher employment in general and higher female employment in particular, contrary to what the orthodox theory would predict. Given such inconsistent, ambiguous and unstable results, OECD (2004) concludes that there is no robust correlation between unionization and unemployment.

FIGURE 4

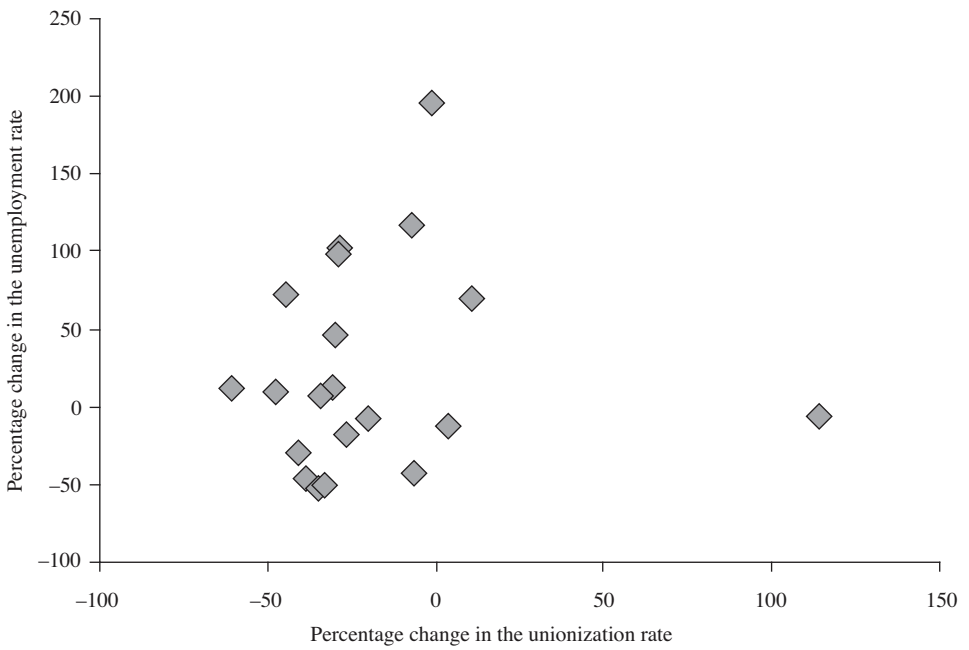
Relationship between union membership and employment
(OECD, 2000)



Source: based on data from the Organisation for Economic Co-operation and Development (OECD), 2000.
N.B.: There is no statistically significant relationship between the unemployment rate and the unionization rate.

FIGURE 5

Effect of falling union membership on unemployment
(1980s-2000s)



Source: based on data from the Organisation for Economic Co-operation and Development (OECD).
N.B.: There is no statistically significant relationship between percentage changes in unemployment rates and percentage changes in unionization rates.

and unionization suggests that the interaction between these variables is influenced by a variety of institutional arrangements that can heighten or actually reverse the conventional relationship expected. Conversely, this ambiguity or lack of robustness is consistent with our hypothesis that unions mainly raise wages within the range of "legitimate indeterminacy" but do not generally abuse it, so that a higher degree of unionization is not usually "distortionary", i.e., does not have a significant effect on employment levels.

In complete contrast to the above hypothesis, proponents of unionization argue that, by raising wages within the range of "legitimate indeterminacy", particularly for the most vulnerable, unions reduce wage inequality or at least help to keep it within acceptable limits. If this claim is true: (i) wage inequality ought to be less in highly unionized countries (such as the Nordic ones) and greater in countries with a low degree of unionization (such as France, Spain and the United States); and (ii) wage inequality ought to have increased in countries where union membership has fallen by more (Japan, the United Kingdom and the United States) or by much more than in countries where unionization declined only modestly or actually increased.

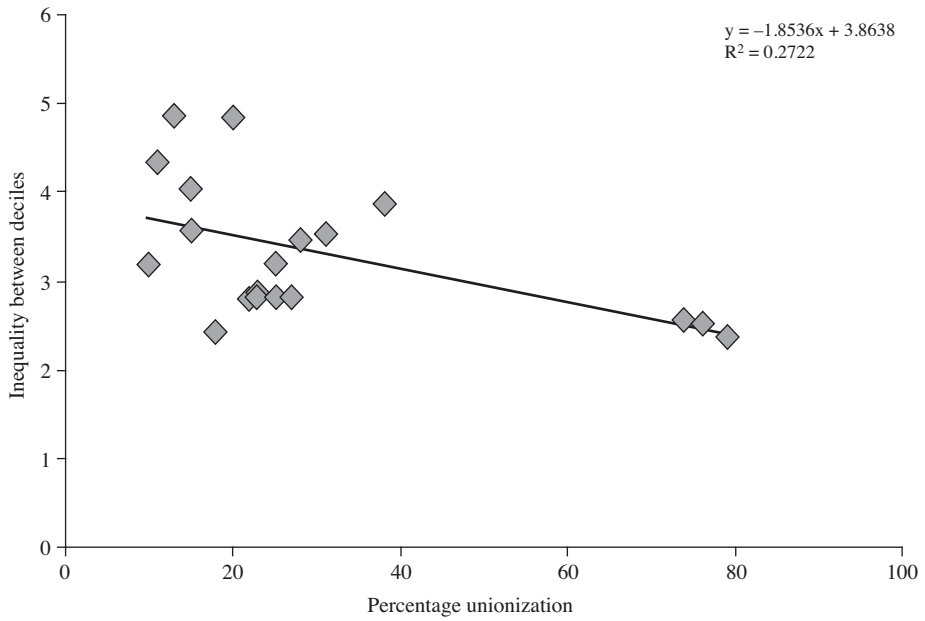
Figure 6 relates union membership to wage inequality around the year 2000. The results of the regression are consistent with this hypothesis: the higher the degree of unionization, the lower the degree of inequality.[19] And this time the relationship is statistically significant. For example, a country with a unionization rate of 20% will have an inequality ratio of some 3.4 between the highest and lowest wage deciles, while a country with a unionization rate of 40% will have an inequality ratio between deciles of 3 to 1.

This hypothesis is confirmed when trends in union membership and inequality are observed over time. The larger the fall in the unionization rate between 1980 and 2000, the greater the percentage increase in wage inequality (see figure 7), and once again the relationship is statistically significant. A reduction of 33% in the degree of unionization (from 32% to 21%), as seen on average in the OECD between 1980 and 2000, increases wage inequality by some 9%. In other words, if inequality between the first and tenth deciles was

[19] For a better comparison, inequality between the highest and lowest wage deciles is measured for men in full-time employment.

FIGURE 6

The relationship between unionization and inequality
(OECD, 2000)



Source: based on data from the Organisation for Economic Co-operation and Development (OECD).
N.B.: Relationship significant at a 95% confidence level.

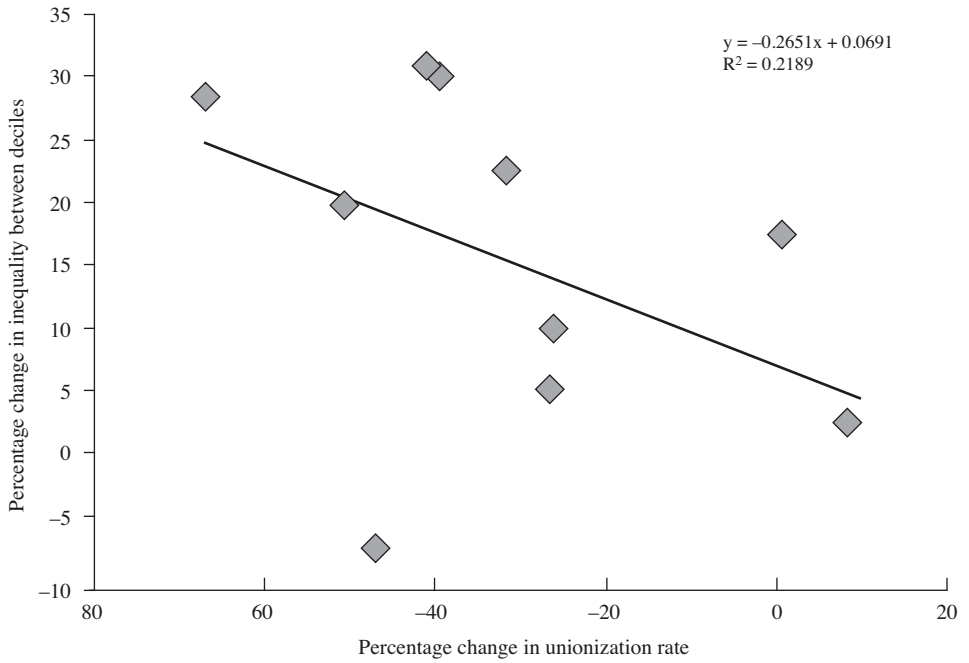
3 to 1, then 33% lower unionization would increase the inequality between deciles to almost 3.3 to 1. By contrast with the previous hypothesis, furthermore, OECD (2004) finds that this relationship between greater unionization and lesser wage inequality is robust in more complex analyses.[20] It thus concludes that the higher the rate of unionization, collective bargaining coverage or both, the lower the degree of wage inequality, and that this finding "accords with a considerable number of earlier studies (Blau and Kahn, 1999; OECD, 1997a) and can be considered to be quite well established".

On the basis of this information, we can conclude that a heavy burden of proof rests with the orthodox position, which sees unions as essentially negative institutions. The fact is that, besides the theoretical arguments in favour of unionization ("voice" and not just "exit"), the available evidence for its repercussions on employment (non-significant) and equity (significant) suggests that, even if these were their only effects, unions are an institution that ought to be encouraged rather than the reverse.

[20] The discussion about the effect of unions on employment and income distribution is further-reaching than the sample given above. Among other things, there is a huge literature on the types of unions (centralized or decentralized) and their repercussions. Again, see OECD (2004).

FIGURE 7

The effect of falling union membership on inequality
(OECD, 1980s-2000s)



Source: based on data from the Organisation for Economic Co-operation and Development (OECD).
N.B.: Relationship significant at a 95% confidence level.

IV

The impact of globalization on unions and its political implications

1. The impact of globalization on unions

Before the 1980s, the dominant strategy in Latin America was import substitution industrialization (ISI) entailing strict tariff protection of domestic markets. In countries such as Mexico and Brazil, with their large markets, this strategy produced vigorous and indeed unprecedented economic growth averaging over 6% a year between 1945 and 1980. The strategy was less successful in economies with smaller domestic markets and thus low productivity levels, as the local market was often inadequate for even a single firm to achieve a minimum efficient scale of production. A case in point were Argentinean and Chilean automobile firms which, because of their small national markets, operated with a great deal of spare capacity and had to charge well over the international price for vehicles. Thus it was that the economic performance of countries such as Argentina, Chile and Uruguay during the ISI period was mediocre, with per capita growth rates of some 1.5%. This strategy was discontinued, of course, in the 1980s, when the external debt crisis led to a strategic shift in the region from a domestic market-centred model (ISI) to a development model oriented towards the penetration of external markets.

These two strategies had and continue to have important and different implications for the development of the union movement in the region's countries. By securing the domestic market for the local producer, the ISI strategy created a monopolistic rent for local firms at the expense of consumers. This rent was naturally coveted by unions, since it derived not from any special effort or greater productivity on the part of the firm, but from the protection provided by the political authority. It was a clear case of a zero sum game between capital and labour, and it naturally gave rise to essentially adversarial relationships.

When the region's economies were opened up, external competition drastically reduced or even eliminated monopolistic rents, in some cases causing firms to shut down and in general reducing profits greatly. As monopolistic rents disappeared, the fate of employers and their workers came to depend on the success of the firm as a whole in the face of competition from abroad. Profits, if any, were no longer spurious, the gift of the authorities, but real, deriving from the efforts of the whole firm to improve productivity and compete. Since higher productivity is the result of cooperation between capital and labour, labour relations between the parties become more cooperative in these circumstances, while the main "conflict" becomes that of competing abroad. However, as noted earlier, cooperation between the parties generates a specific rent for the firm that gives rise to a range of "legitimate wage indeterminacy" requiring negotiation between the parties to determine its allocation.

2. The political implications for unions

What fields of negotiation have been becoming more important for unions in this new globalized environment? We shall distinguish between fields that have gained in prominence outside of firms (first at the international level and then at the national level) and those that have done so within firms.

a) *Outside of firms, at the international level*

Whereas the ISI strategy centred on the nation and the firm, globalization has given rise to issues that transcend these and bring the international level to prominence. A particular issue for international discussion is everything connected with the asymmetries in the current globalization process. Globalization must mean the greatest flow of all factors of production, not just goods and capital but technology and labour too.

Hitherto, it seems to have been an unquestioned axiom of globalization that goods and capital should flow as freely as possible, whereas the same is not said of migratory flows, for example. This subject needs to be considered, not as it so far has been as an exclusively national prerogative (of the country receiving migrants) but as a natural counterpart of the increased flow of all the factors of production. Although the 2009 Human Development Report restates this case on behalf of the international community, it should be

reinforced by unions in the South. The fact is that improving worker incomes in the region's countries must mean reducing today's relative abundance of low-skilled labour. Can there be any faster way of reducing this abundance than promoting greater migration of low-skilled labour to the developed countries (where a great deal of low-skilled labour is needed in tasks for which demand is constantly increasing, such as caring for the sick and elderly)? Just as a relatively free flow of labour was important for the development of Europe in the nineteenth century, and just as freedom of worker movement is important now for the European Union and the new economies that have joined it from its east, so a greater flow of migrants to the North could be an important element in the improvement of working conditions for the masses in the South. Emigration is no substitute for better national development strategies, but it can very usefully supplement them, and it should therefore be firmly supported by unions in the South, backed too out of solidarity by unions in the North.

This does not mean the South making greater capital inflows conditional on the acceptance of a greater outflow of migration (since it could be even worse for developing countries to have less FDI as well as few opportunities for migration). But it must be said yet again that globalization entails the greatest possible flow of all factors of production between countries; ultimately, indeed, the unrestricted flow of both labour and capital. Thus the aim must be a greater rate of migration of labour (conditional at most on the culture of the recipient country being upheld): not just any labour, but lower-skilled labour in particular, in sharp contrast with the present situation where recipient countries accept or even attract skilled and professional labour but shun or reject unskilled labour. And once again, they do this as though migration were a subject of exclusively national concern, unlike the trade in goods and capital flows, where international interests are considered to take precedence over merely national ones. It will obviously not be easy to turn the present situation around, which is why it is essential to create an awareness that the free flow of labour from South to North is the natural counterpart of the free flow of capital in the other direction. And here unions in both the North and the South have an important role to play.

The corollary of this defence of unrestricted migration is the strengthening of employment regulations in both the origin and destination countries. Recipient countries that have still not ratified international conventions protecting migrant workers need to do so. In any event, and as recommended by the 2009 Human Development Report, countries ought to ensure that migrants have full employment rights and equal pay for equal work, benefit from decent, safe working conditions, can organize collectively and enjoy full rights to education and learning of the destination country's language for their children. Furthermore, both origin and destination countries ought to work together to facilitate recognition of educational and occupational skills acquired in the home country.

b) *Outside of firms, at the national level*

First of all, in a globalized world it is going to be increasingly important to uphold basic employment rights, not only in the letter (conventions) but in practice. This is important in itself and also instrumentally if the countries of the region desire access to international markets, since it is going to become more and more unacceptable to import from countries that do not uphold standards or that routinely flout them. An important role for unions will be to strive to ensure that national standards incorporate the international principles set forth in the different conventions and recommendations of the International Labour Organization (ILO).

Of course, these rules cannot be identical in detail to those of developed countries, but they need to embody the same principles, adjusted for differences in development level. They should include similar clauses, with a view to convergence as development gaps narrow. Although the precise details must vary by development level, all countries need to introduce strict limits if not an outright ban on child labour, place limits on the normal working day, consider establishing a minimum wage or income, implement protection for unions and promote collective bargaining, and set minimum occupational safety and hygiene standards, among other measures.

Second, in a globalized world whose economies are increasingly intertwined and thus subject to the vagaries of the international economy, it will be necessary to design policies to defend workers from recessions caused by external shocks. Sound macroeconomic policy is obviously the first line of defence for employment. This is why it is essential for unions to press consistently for countercyclical policies with the greatest number of "built-in stabilizers".

Among the most important of the stabilizers that should be advocated are fiscal policies that vary

automatically with the business cycle, i.e., that entail saving during times of prosperity so that deficits can be run in downturns. The Chilean policy of structural balance is exemplary in this respect. It means that the public budget is designed so that spending is calculated not from the fiscal revenues of the moment, but from the revenue that would be obtained if the economy continued to grow at its trend rate and the price of copper (a key export) were at its long-term average. This means that the exchequer saves and generates a surplus during upturns when the copper price is high, allowing it to spend more than it takes in during downturns when the economy is growing below potential and the copper price is below its long-term value. The outcome of this policy is that public spending is neutral to the cycle, unlike that of many countries where it reinforces the cycle. It is because of this policy that the current international crisis has had less of a recessionary impact and produced fewer after-effects in Chile than the Asian crisis.

A third recommendation that should be pressed for is the design of policies to help minimize lay-offs when recession cannot be avoided. In recessionary situations, when sales and thus output fall, employment needs to be cut back. What unions are advised to propose is that, in such situations, the authorities encourage firms to reduce the working day, by 10% say, rather than dismissing 10% of their staff.[21] Harsh though this may be, anyone can adjust to earning 10% less, but no-one can adjust to earning 100% less, which is what unemployment means. Consequently, in situations declared recessionary by the competent authority, it is socially preferable for firms to scale back their labour requirements through across-the-board reductions in the working day rather than through dismissals. Interestingly, a number of OECD countries have adopted measures of this nature during the recent international crisis, so that although Germany, for example, has suffered a more severe recession than the United States, unemployment has risen by much less there. Advocating legislation to authorize cuts in working hours instead of dismissals is, then, another important challenge for unions at the national level.

Fourth, unions in the South need to press for the introduction of unemployment insurance. This is not just a luxury for developed countries but a necessity for any country that is subject to economic crises in a globalized world. Logically, the sums involved will depend on the country's development level, the level of formal employment and the practicalities of administration. However, unemployment insurance is a critical instrument for unions because, for one thing, it sustains the incomes (cushions the losses) of those who most need it, the unemployed. For another, by stabilizing the unemployed's income it lessens the downward pressure on the earnings of those in work.

Fifth, productive employment depends critically on workforce education and training. This is why the key demand of unions is that all young people entering the workforce must have a proper trade; they should not start work without one, as now happens with most of those who enter the labour market after graduating from or dropping out of secondary education. Furthermore, continuous productivity improvements can only be achieved with a workforce that is continually upgrading its skills. This means it is important to ensure that all workers are guaranteed opportunities for regular training throughout their working lives if they so desire.

This means advocating, first, that all young people who drop out of or graduate from secondary education but do not go into higher education receive a credit entitling them to a good-quality higher technical education (usually lasting two years). Otherwise young people without a proper trade will be condemned to low-productivity work throughout their active lives. Ensuring they have the opportunity to acquire a proper trade means they will be able to earn a wage that places them in the country's middle class (reducing the worst inequalities characteristic of developing countries) and gives them upward mobility during their career. Such a measure is affordable for most developing countries, at least those in the middle-income bracket, and returns are so high that it will pay for itself many times over.[22]

[21] This encouragement can simply take the form of making provision for firms to be allowed to cut working hours (and remuneration in proportion) unilaterally in situations declared recessionary by a competent authority, without this constituting a breach of the employment contract, and providing that workers who consider this unfair and resign will receive the compensation due for dismissal. The assumption must be that in such situations, when many firms are shedding staff, the vast majority of workers will prefer a 10% cut in working hours to a 10% cut in staff. This could be induced more energetically if governments also provided a partial subsidy (of 50%, for example) for the loss of hours, so that only half this reduction was reflected in the worker's pay packet.

[22] The cost of a good higher-level technical education is estimated at US$ 4,000 (US$ 2,000 a year over two years) in a country at an intermediate stage of development, such as Chile. Assuming two thirds of young people do not go into higher education,

Another measure to be advocated is an entitlement for all workers to follow training courses for 1% of their working lives (which would means five months' training over a working life of 45 years instead of the one or two months the average workers currently receives in the region), with a view to accelerating growth in workers' productivity and thus their wages over the course of their careers. The only condition would be for training to be provided in an institution of accredited quality and preferably in areas and types of work deemed of high priority by the authorities.

Sixth, minimum wage policies (whose cost is absorbed by firms) should be reconsidered to see whether it is not preferable for unions to press for a guaranteed minimum income (at least part of whose cost would be absorbed by the exchequer). In closed economies, the cost of a higher minimum wage could be passed on to consumers without any extra outlay by the firm, so that the effect of a higher minimum wage on unemployment was small. In open economies, on the other hand, a higher minimum wage cannot be passed on to consumers, meaning that firms have to absorb any increases in this minimum that are not offset by productivity gains, so that higher pay considered socially necessary could have potentially negative consequences for employment.

A minimum income higher than the minimum wage can be introduced without negative consequences for employment if the difference between the wage earned and the minimum income deemed to be the acceptable baseline is absorbed by the exchequer in the form of a subsidy for low earners, rather than by the firm. In this case, the worker will receive what is deemed to be the acceptable baseline income but the cost to the firm will not rise, so that there is no incentive to avoid employing people. Of course, this entails a fiscal cost that will be absorbed by the whole of society, or by all firms. Since it is independent of the level of employment, however, it will not discourage this in the way a minimum wage can do.

c) *Within firms*

Negotiating the most appropriate employment conditions within the so-called range of "legitimate indeterminacy" for wage levels has traditionally been a function of unions and will continue to be in the future. As was explained earlier, this range is the 5% or 10% by which the specific productivity of workers in a particular firm may exceed (or fall short of) the individual productivity of those workers in other firms.

Besides this function, globalization has meant that in more open economies it is becoming increasingly necessary and desirable to seek forms of negotiation that allow firms to compete abroad and collaborate internally. One of the most interesting proposals here is for the negotiation of "profit-sharing wages".[23] Current pay systems tend to operate on the basis of a set wage for a fixed length of time. In recessions, consequently, firms have an incentive to dismiss workers, as the obligation to pay the fixed wages agreed upon prevents them from lowering their costs. When a large portion of workers' earnings are variable, on the other hand (an agreed percentage of sales, or of the value of output, or the value added of the firm, or profits), companies will be more willing to cut prices in recessions because the variable wage component will also fall to some extent, and they will consequently tend to maintain output and employment. During upturns, conversely, the variable component of workers' earnings automatically rises and they share in the firm's prosperity.

Accordingly, profit-sharing wages have the attractive effects of minimizing loss of output and employment in hard times and improving income distribution (relative to what it would otherwise have been) during upturns. This is not just theoretical.[24] Profit-sharing wages are widely paid in Japan, with a variable component of some 25% of total earnings. As a result, Japanese unemployment never rose above 5.5% even in the recession and long stagnation of the late 1990s.

A further virtue of profit-sharing wages is that, by linking the earnings of workers as a group more closely to the performance of the firm, they induce greater effort and higher productivity. This form of remuneration, indeed, promotes greater collaboration within the firm and is a better defence against the vagaries of the international economy. A recent

this would imply a cost of some 0.5% of GDP for a country with per capita GDP of US$ 10,000 at purchasing power parity (PPP) in the event that funding was by non-reimbursable credits, i.e., outright grants. The cost would obviously be much less if credits were partially reimbursable on the basis of how well the recipient scored at graduation (which would encourage everyone to strive harder to learn their trade).

[23] This policy, described below, was proposed and popularized by Weitzman (1984).

[24] See Weitzman and Kruse (1989). Marinakis (1999) has an interesting analysis of the problems involved in operating different profit-sharing systems in Latin America. He concludes that when these systems are the result of collective bargaining rather than legally imposed, they are an important instrument for improving both labour relations and competitiveness.

publication concludes that "a system of remuneration of this type [profit-sharing], when properly thought out, properly explained and implemented honestly and transparently, is unquestionably one of the most powerful management tools available to any SME" (Berg, 2007).

While there has been some reluctance to adopt it,[25] there has been a trend towards the introduction of remuneration of this kind. Consequently, it is reasonable to propose that unions should press for future increases in their members' earnings to take this form rather than that of higher fixed wages alone.

V
Conclusion

Looking beyond temporary ups and downs that may cause globalization to retreat (the recent international crisis, for example) or to advance more quickly, it seems clear that it is here to stay. Furthermore, the long-term trend is likely to be towards yet further integration of the world's economies. It is important, however, that current asymmetries be reduced.

While international trade flows have increased the most so far, it is important for the unions of the South that capital flows and technology transfers between countries should accelerate, as these have an essential role to play in raising the low productivity levels of the South, and thus in providing opportunities for decently paid work. As far as the supply of labour is concerned, today's low levels of migration show globalization at its weakest. As the 2009 Human Development Report suggests, significantly increasing such flows, particularly of unskilled labour, would have a decisive effect in alleviating the relative abundance of labour in the South which, with a handful of exceptions (mining and the public sector), considerably constrains the bargaining power of unions there.

Globalization is not just affecting unions, however, but is providing them with new opportunities for action, some of which have been highlighted in this article. Unions have a long history and will continue to play an important role in the future regardless of the speed of globalization, particularly if they focus on roles like those indicated here, which are coming increasingly to the fore with globalization.

(Original: Spanish)

[25] For one thing, workers are risk-averse, which makes them prefer fixed wages to variable ones. This does not reduce risk, however, but swaps one type of risk for another. A set wage means a higher risk of unemployment, while profit-sharing wages produce greater income fluctuations in return for a lower risk of unemployment. Workers may also mistrust the link between the variable component and profits, which are so easy to "massage". Consequently, it is important to link the variable component to some parameter that is related to profits but is easier to verify, such as sales or output.

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Technological dynamism and social inclusion in Latin America:

a resource-based production development strategy

Carlota Pérez

This paper sets out a strategy for invigorating development in Latin America by taking advantage of specific opportunities in the current context and the advantages offered by the region. It briefly analyses the characteristics of globalization and the techno-economic paradigm of the information and communications technology revolution in order to identify new opportunities in terms of markets, positioning in global networks and technological options. From this perspective, it argues that natural resource-based process industries can complement the specialization of Asia in assembly industries. Given the low rate of employment in the former, it proposes a dual strategy that includes promoting "bottom-up" wealth creation by taking advantage of the new flexibility in technological diversity, transport and trade. The idea is to stimulate policy debate and experimentation and signpost some avenues of research.

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I
Introduction

This essay looks at current trends in globalization and in the diffusion of the information and communication technology (ICT) revolution and of its paradigm in order to propose a vision of a successful and socially equitable future for Latin America, based on the common features of its countries while encompassing all their variety. The hope is thereby to provide the basis for intensive research and for a serious and wide-ranging debate on the matter.

The proposal is rooted in the author's work on the diffusion of technological revolutions, the way technology and technological capabilities determine growth potential and the effect of the world technological context in creating and modifying windows of opportunity for the development of countries and regions.

Rising raw material prices in the mid-2000s unquestionably fuelled a resumption of higher growth, but technological capabilities did not expand to match and profound social inequalities persist; indeed, they are deeper in many cases than in the 1970s. The region is becoming aware of the need to create a solid foundation for a more stable source of economic growth and social development potential.

Given the strong Asian bias of the current globalization process, it is very important to identify areas of technological potential where Latin America has a comparative advantage vis-à-vis Asia. In highly simplified terms, one can say that Asia is a very densely populated continent with a relatively low natural resource endowment, while Latin America is very rich in natural resources but has a much lower population density. These conditions give Asia the advantage in labour-intensive fabricating (assembly) industries, while in Latin America they favour the resource-based processing industries. Since the region is extremely varied in resource endowment, this general direction should allow and in fact demand differentiated specializations.

Acquiring capabilities in the resource-based industries associated with biology and materials has the added advantage of positioning the region in the technologies that are likely to be part of the next technological revolution: biotechnology, nanotechnology, bioelectronics and new materials. A focused effort will be needed, however, to ensure such preparation takes place.

Process industries are usually non-labour-intensive and tend to need a high proportion of skilled and highly skilled personnel. This means that although such industries can contribute to economic growth and the enrichment of human and technical capital (both crucial for catching up), they cannot do enough to reduce the gulf between rich and poor, eliminate unemployment and overcome poverty. Neither is it possible to rely on the "trickle-down" effect, which historical experience has shown to be so questionable. This suggests the need for a two-pronged approach to development: top-down and bottom-up. Accordingly, the present proposal involves what could be called a "dual integrated model".

The aim of the top-down part of the strategy would be to achieve competitiveness in world markets, reaching the technological frontier in certain areas and processes and even forging ahead of it, sometimes in alliance with global companies. In turn, the bottom-up half of the strategy would act directly at the municipal and local level in every corner of the territory by identifying, promoting, facilitating and supporting wealth-creating activities geared to whatever market was most suitable: local or regional, national or global. These would tend to be specialized "clusters" targeting niche markets based on local advantages.

As we shall discuss below, both halves of the dual strategy are enabled by the new global conditions. The bottom-up half would be aimed at reducing poverty and the top-down half at activating and strengthening the engines of growth in the economy, thereby providing the resources to make both halves viable.

This dual strategy cannot be achieved by the market alone, but neither can it effectively be imposed by government, particularly in the current paradigm, which requires constant innovation and flexibility in the face of changing contexts. Such a model can only function properly as a socially shared vision, with the various agents of change acting autonomously in the agreed directions under the coordination of an active government with an appropriate and effective

☐ This paper is based on a study prepared for the ECLAC Programme on Technology Policy and Development in Latin America.

institutional framework. Its implementation would require a process of consensus-building involving business, government, universities, the media and society in general, followed by the appropriate policy measures to induce and facilitate market behaviour in the agreed directions.

The premise of this interpretation and indeed of this article as a whole is that, other than for countries competing in the very front ranks, all successful development strategies are positive-sum. The technological and economic changes taking place in the core countries of the global system and the leading corporations of the main industries determine the context in which catching up takes place. Only through a clear understanding of their changing interests and needs, and of one's own advantages and assets, can opportunities be identified and development ladders constructed and climbed. The cases of the four "Asian tigers" and now of China and India show that belonging to the periphery is no longer a situation of static "dependency" but rather a potentially dynamic one.[1]

Even at best, of course, catching up takes time, persistence and effort and demands active learning to make it possible to relate to the most powerful on a basis of genuine mutual advantage. These processes are also difficult, unequal and often unfair, but no good short cuts have as yet been found (Bell, 2006; Pérez, 2001, pp. 126-128).

While this discussion is based on the author's work on patterns that recur in the spread of technological revolutions, it is not possible in this brief paper to present a summary of those patterns or to review the meaning of the various concepts and terminology. It is hoped that the succinct explanations provided will be sufficient for current purposes.[2] Furthermore, it is useful to advise the reader that this is mainly an essay rather than a research article, a proposal argued from a particular world view rather than an empirical analysis of context or viability. It is meant to open, rather than close, a necessary debate.

The following section will examine globalization as an intrinsic element in the ICT paradigm and will single out three processes of hyper-segmentation that are powerfully shaping the field of opportunities. It will then present an overview of the dual model, identifying the general directions of specialization for resource-based processing industries in the light of both the urgent need to combat poverty and the rise of Asia. The next three sections analyse the three key hyper-segmentations (of markets, value chains and technologies) in detail, considering how each of them defines opportunity spaces in both the directions of the proposed strategy. The succeeding section shows how resource-based specialization can also prepare the ground effectively for successful participation in what looks like being the next technological revolution (probably based on life and materials sciences). After this comes a brief discussion of resource-based development theories and the reasons for thinking that current conditions might offer a window of opportunity for embarking upon this development path. The final section argues for the need to revitalize the role of government in building consensus and proactively facilitating both components of the strategy.

II

Globalization and its determinants

The ICT paradigm and the global corporation

Every technological revolution offers enormous potential for wealth creation and social well-being. Each is clearly superior to earlier ones in terms of effectiveness and productivity, not just because of the new technologies involved, but also because of the new "techno-economic and organizational paradigm" which is its accompanying best practice. Each successive wave brings with it distinctly new

[1] In the author's view, dependency theory was a valid explanation for the conditions that prevailed throughout the mass production era, especially during the 1950s, 1960s and 1970s. The context has changed radically since the information technology revolution and consequent globalization, and now requires analysing anew.

[2] Interested readers are invited to consult the author's web page (www.carlotaperez.org) and the publications cited in the text.

principles, methods and organizational forms and criteria. Entrepreneurs, companies, governments and societies benefit more or less from that potential depending on their capacity to adopt and adapt the paradigm to their specific purposes.

Many of the practices involved in the ICT paradigm are gradually becoming accepted and commonplace to the point of being regarded as obvious organizational "common sense". Decentralized networks with a guiding centre are replacing closed, centralized control pyramids; continuous improvement and innovation are replacing the previous practice of stable routines and planned change; the notions of human capital and of the value-creating powers of knowledge and expertise are displacing the view of personnel as "human resources". Although there is still resistance to some of those shifts, none has been more subject to debate and extreme positions than the shift towards globalization.

Globalization is an intrinsic feature of the ICT paradigm; complete liberalization is not (Pérez, 2009). It is true that the characteristics of ICTs make national boundaries permeable and expand the potential scale of production, thus enabling and requiring markets of planetary scale. But "free market" policies understood as letting all markets run loose —unregulated, unguided and unrestricted, both within countries and globally— are no longer effective.

Globalization is not about the disappearance of the nation State or of national governments, though it is likely that these will eventually yield some powers to supranational institutions and devolve others to local governments. Globalization is about making the most of regional, national and local differentiation, both in production and in markets. Perhaps the motto of the environmentalists, "think global, act local", best captures the meaning of the whole globalization process.[3]

Identifying likely windows of opportunity requires an understanding of the nature not only of the ICT paradigm, but also of the new global corporations. They are the real agents of globalization and their interests are the key to designing positive-sum strategies.

There is a profound difference between the old multinationals (MNCs) and the current global corporations (GCs). The former were the final phase of the mass production paradigm and a way of dealing with maturity and market saturation; the current GCs are the organizations that use the new ICT paradigm to best advantage.

The name "global corporation" is self-explanatory. A corporation of this kind is no longer structured as a parent company with affiliates in multiple markets, nor does it aim merely to take advantage of lower production costs in various countries. It has a different structure and works to a different logic. It is the optimum form of the new planet-wide network organization driven and facilitated by the ICT revolution. This affects the company itself profoundly.

Reaching for global markets is a direct consequence of the effort to apply and take full advantage of the potential and characteristics of ICTs. A new higher level of productivity can now be achieved through networked organizations spanning the globe. The Internet infrastructure, with its satellites and transoceanic fibre optic cables, provides smooth and instant communication across the world and allows the whole planet to be assessed for comparative advantages. Thus, firms can gauge the conditions for outsourcing, offshoring, insourcing, joint-sourcing and other options and estimate the qualities and costs of engineering, production, transport and transaction "as if" the economic space were open and unlimited, whilst taking full account, however, of the political and policy conditions in each country.

The coordination capabilities provided by ICTs enable levels of organizational complexity and size that go well beyond the maximum achievable by the old multinational or transnational corporations with their pyramidal structures and slow information systems. Not only is it now possible to guide, monitor and control a truly giant organization, but territorial coverage and structural complexity are relatively easy to handle with ICTs and are likely to become much more so with further adaptive innovation.

The process of globalization has brought with it the hyper-segmentation of three key areas: value chains, global markets and technological capabilities. Each of these areas becomes a complex network with differentiated components. The result could be termed "integrated decentralization" or "systemic componentization", where each component has a very high degree of autonomy within an inter-functional and interactive structure.

[3] If there is a case in the world where the State maintains control of foreign investment through all sorts of limits, restrictions, regulations and negotiations, it is today's China. Not only does it drive a hard bargain over its markets and low-cost advantages, but it dictates where in its territory and in which sectors foreign companies are to operate and lays down conditions for local participation and local learning. This was also the case in South Korea and many other successful countries.

In the structure of each corporation, there is a segmentation of its value network (including suppliers and clients) into components and subcomponents which can connect in a variety of different types of relationship—as part of the core structure, as stable independent contractors or allies, or indeed as temporary suppliers tapped only when the need arises. In turn, each of these components is supported by its own network of relationships on the basis of a high degree of autonomy, which in these structures is considered indispensable to ensure flexibility and competitiveness. The components may be territorially scattered in multiple countries, yet they form a single "global value network" leveraged and coordinated by the global corporation.[4]

This same capacity for handling complex networks also facilitates the hyper-segmentation of markets, allowing a highly diversified product profile and great adaptability to a wide variety of specific and even ultra-specialized demand.

Once the value network has been segmented into its simplest subcomponents and markets splintered into innumerable niches, technological capabilities can be singled out and very deep and innovative specialization can allow small knowledge-intensive units or companies to thrive inside or outside global corporations. At the other extreme, some traditional artisan methods can also occupy premium niches.

These characteristics of the globalization process open specific windows of opportunity for the companies and countries of Latin America. These opportunities will be analysed following discussion of the overall strategy proposed, and in relation to it.

III

The global context and the advantages of possessing natural resources
A dual approach for a dual reality

There are two realities that must be confronted by whatever strategy for development is adopted by Latin America. One is the nature of the competition with China and other Asian countries in global markets. The other is the continent's highly polarized income distribution and the unacceptably high proportion of Latin Americans living in poverty.

The direction taken by the current process of globalization seems to have given Asia the role of "workshop of the world" as far as the "fabrication industries" are concerned (electronics, electrical appliances, clothing, etc.). The advantages upon which this global specialization is built are massive amounts of low-cost labour and an abundance of engineers and highly educated personnel in the population. The continent's scarcity of raw materials in relation to its growth needs has allowed Latin America and Africa to export growing amounts of minerals, energy and agricultural produce at higher and higher prices.

Latin America has had increasing difficulty competing in fabrication, especially in the areas of high-volume, low-cost products. It is far less densely populated than Asia and what is, in fact, very low-cost labour is still far more expensive than its Asian counterpart. Yet its rich endowment of natural resources and energy provides a window of opportunity for specializing in the "process industries".[5] The traditional problem of mono-export of raw materials could be turned into a high-growth future of complex technologies and a varied export profile by taking intelligent advantage of the possession of natural resources.

[4] An array of online resources for the literature on global value chains seen from the perspective of developing countries can be found at http://www.globalvaluechains.org/.

[5] The concept of a "fabrication industry" is used here to refer to manufacturing in which products are assembled from distinct parts (automobiles, mechanical, electrical and electronic equipment, clothing and so on), usually by human labour in workshops and on assembly lines. A "processing industry" is one specializing in the direct transformation of raw materials by chemical, electrical, heating or other methods (steel, paper, tomato sauce, petrol, plastics) and services such as telecommunications. The main distinction is that the production process occurs "inside" the system of equipment and the personnel involved oversee and support the process rather than performing it, as in fabrication. See Woodward (1965).

It is also likely that globalization will tend to raise prices for natural resources generally (although without eliminating volatility). The prospect of favourable average prices for these commodities opens up a possible means of funding the development of technologies and human capital related to them. The region could become the supplier of material inputs, food and other agricultural goods (from the most standard to the most tailored and sophisticated) to the rest of the world.

The strategy would involve constant technological upgrading of resource-based activities and gradual improvement of the export profile through continuous innovation in products, processes and auxiliary activities, primarily with a view to creating high-value niches differentiated from traditional commodity markets. This implies a gradual transformation of the whole economy. The idea is to engage in a concentrated effort to master the technologies of processing industries, from large-scale commodities (steel, aluminium, paper, refining, beer, petrochemicals and certain types of food) through medium-scale specialities (chemicals, biotechnology, nanotechnology) to small-scale customized materials and special chemicals or other niche products. This effort can be grounded in the capabilities already acquired by each country in its specific area of resource endowment and in other processing industries (metallurgy, chemicals, food processing), and could advance along the new technological trajectories being opened up by materials science and the life sciences. The goals would be to migrate gradually towards higher and higher value-added products with more and more specialized and customized features and to establish strong networks of innovation (with the participation of local, continental and international firms and universities) to sustain the effort over time. Figure 1 represents the idea in diagram form.

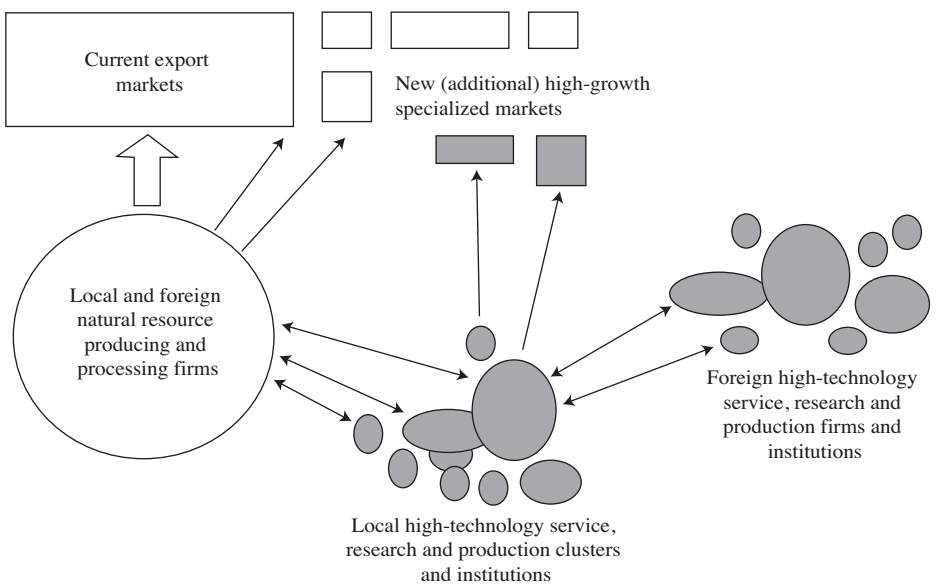
Some innovation networks could enlist the active participation of extractive or agricultural GCs, be they foreign or local. Or they could be constructed by local companies joining forces in formal or informal clusters (such as winemakers, flower growers, cocoa producers, organic farmers, tourist inns and guides, textile designers and so on).

The idea would be for each country to strengthen the know-how already incorporated into its current export products and to then move technologically up, down and sideways within the value networks concerned.[6] Depending on the resource endowment

[6] In their argument for a resource-based strategy in Africa, Walker and Jourdan (2003) insist on the importance of what they call lateral innovations that originate, for example, in mining but are suitable for subsequent use in other industries because of their generic nature.

FIGURE 1

Technological development and upgrading of the natural resource export mix



Source: prepared by the author.

of each country and the capabilities it has already built up, efforts would be directed towards a specific set of goals. These might include the following:

— Endowing materials currently exported with special qualities in order to target niche markets, examples being anti-termite (or highly elastic) wood, fully customized or biodegradable materials, or special alloys and composites.
— Developing further capabilities for tailored and niche products in the major processing industries (metallurgy, petrochemicals, paper, glass, etc.).
— Increasing the technological capabilities of the drinks and food processing industries (both product and process technologies).
— Increasing the technological capabilities of industries associated with export agriculture, animal products, fisheries, forestry, etc., and further developing the industries that produce inputs for them.
— Exploiting the endless range of indigenous fruits and vegetables, with their superb flavours and textures, and developing the technologies needed to export them in perfect condition to high-priced "gourmet" niche markets.
— Designating areas to be set aside for "organic" production and establishing a certification of origin system.
— Developing health-related biotechnologies for human, animal or plant needs identified locally as well as improving export-related products.
— Developing environmental protection capabilities involving alternative energies, recycling, pollution capture, etc.
— Exploiting the varied types of modern tourism by taking full advantage of the variety of natural and historical conditions in the countries and using imaginative business models.
— Learning to custom-design the additives, catalysts and other specialized chemicals that may be required by process industries (local or global).
— Developing a specialized capital goods industry capable of responding to both simple and exacting requirements from process industries, be they large, medium-sized or small.
— Developing or enhancing complementary computer software, systems and services and electronic instrument industries that are likewise capable of meeting user specifications.
— Promoting a dense network of small knowledge-intensive enterprises (SKIEs) to serve each area of specialization.
— Using research and development (R&D) and education to reinforce progress in the desired directions.

The specific resource endowment of each country and the levels of knowledge and expertise accumulated there would indicate the preferred areas of specialization to pursue and the appropriate links and alliances to form within the region and beyond. The new knowledge and expertise required to follow the suggested paths will necessarily involve global networks and alliances both with the academic and research communities and with GCs at the forefront of these new industries. They are also likely to require foreign investment, as well as strategic alliances and joint ventures between GCs and locals and between companies in the region.

The mixed technological legacies of Latin American countries must be taken into account when judging the potential to pursue a strategy like the one proposed. Nonetheless, there are common features in the region's history that provide the basis for a broad stylized overview of this group of countries:

— While the assembly plants established under the import substitution model restricted innovation (often by contractual obligation), export activities, usually in the hands of multinationals, were up to date technologically, employed local personnel in a managerial and technical capacity and often engaged in adaptive innovation.[7]
— Complementary industries developed to replace assembly plants (glass, paper, cardboard, plastics, packaging, printing, cement, paint, ceramics, etc.) and basic agroindustries (beer, milk, juice, coffee, pasta, etc.) are all mainly process industries using local raw materials, and they consequently needed adaptation and improvements even if they were based on foreign technologies and equipment.[8]
— Most service infrastructure networks, usually set up by governments, such as telephone, electricity, water and sewage systems, were manned by local personnel, and they therefore needed to have full operational and maintenance capabilities as well as the ability to make minor improvements and adaptations. Once they were privatized, foreign

[7] Given the local specificity of raw materials production (or extraction), important innovations were sometimes made *in situ*. Lake Maracaibo in Venezuela was the site of pioneering innovations in underwater drilling.
[8] See, for instance, Vera-Cruz (2006) and Dutrénit (2006) for beer and bottle-making in Mexico.

companies came in with new technologies and retrained existing personnel on the basis of their previous experience.

— Some countries succeeded in making the move upstream in import substitution to steel, petrochemicals and capital goods with the resulting accumulation of know-how and engineering capabilities, as well as a degree of innovation capacity.

— Later, with the opening of their economies and the arrival of the information revolution, most countries developed indigenous companies to design hardware and software products and to provide systems integration, maintenance and other services.

Taken all together, this indicates that the common history of industrialization efforts in Latin America has bequeathed a degree of bias towards processing industries and enough ICT capabilities to serve as a minimum platform of technological expertise for this strategy. Nonetheless, the whole proposal hinges on a gigantic effort in education, training and technological capability enhancement across the whole of this range.

Unfortunately, with the exception of tourism and some agricultural sectors, most process industries are not labour-intensive, but rather skill- and capital-intensive. Furthermore, the reorientation proposed would make them even more knowledge-intensive. Hence, the strategy demands a complementary effort to promote the growth of high-employment industries (construction, health, personal services). But that would not be enough.

The issues of income distribution and poverty have been highlighted by the social polarization that China and India, the successful emerging countries, have been experiencing. Latin America, of course, has a tradition of polarized income distribution and of marginalization in the countryside and in the shanty towns surrounding the main cities, and this worsened during the "lost decade", giving rise to social discontent, resentment and an ardent desire for change. Any strategy for growth that does not recognize this appalling reality will be socially unacceptable and politically unstable.

The development goal must be the one promoted by Fernando Fajnzylber in the 1990 ECLAC publication *Changing* Production *Patterns with Social Equity*.[9] He had already pointed out that while Asian and South European growth in the 1970s had reduced inequalities, the majority of the Latin American countries had grown with very unequal income distribution patterns.[10] It is interesting to note that, during their catching-up process, the four "Asian tigers" all established universal intensive education programmes with a strong technical bias, and progressively developed a more even income distribution. Both have continued to prevail as they have moved up the growth and development rankings.[11]

In the course of the analysis that follows we shall argue that it is precisely because of the opportunities offered by the current paradigm that the twofold objective of lifting the bottom of the pyramid while generating growth in the front ranks of the economy is now achievable.

This means creating a dual strategy or "dual integrated model". One part of it would be to achieve technological mastery (deep specialization) in resource-based industries with a view to establishing strong positions in the global marketplace, while the other would be to develop the wealth-creating capacity of each part of the territory and thereby improve local people's quality of life by leveraging local advantages to target local, national or global niche markets. In the first part of the strategy competitiveness is the goal, in the second it becomes a means to well-being for the population concerned. The first is oriented towards top-down, the second towards bottom-up growth. The sectors promoted in the first would be the engines of growth in the economy; those developed in the second would be its poverty fighters.

In the last section it will be argued that the two prongs of the dual model need to be socially accepted and ideologically integrated, but clearly distinguished institutionally. Let us now discuss how the three hyper-segmentations that characterize the globalization process open up opportunities for each side of this dual strategy.

[9] ECLAC (1990). See also ECLAC (2008).

[10] Fajnzylber (1990), figure 1, p. 12. The subject is still on the ECLAC agenda, with special reference to structural heterogeneity as a reason for the scale and persistence of inequality. See, for example, Infante and Sunkel (2009).

[11] The Republic of Korea, Singapore and Hong Kong Special Administrative Region are among the top 28 countries (score above 0.9) in the human development index ranking (UNDP, 2007).

IV

The hyper-segmentation of markets
Opportunities at both ends of the dual model

The ICT revolution has led to a refined fragmentation of all markets, not only in manufacturing but also in raw materials and services, in such a way that many fabricated products, from mobile phones and desktop computers to T-shirts and refrigerators, are now treated as commodities, while the idea of a "speciality" niche is now frequently associated with raw material segments such as certain types of premium coffee and special steels.

In each case, the commodity segment is simply the very high-volume, no-frills, lowest-cost version of each product, once it has reached a certain degree of maturity. Profit margins for industrial commodities are very thin, and comparative production advantages are absolutely indispensable for success. On the other hand, many raw materials markets have upper layers with special qualities that command a premium in the market and can turn into semi-monopolies with relatively stable high prices (Kaplinsky, 2005). Much the same can be said, naturally, of services and industrial products that are customized, branded or organized in creative business models. Figure 2 presents a map of market segmentation, indicating the two main directions of differentiation, the relative proportion of profit margins in each and how these are obtained and protected. Figure 3 gives some illustrative examples and indicates the directions to follow for improved market positioning.

One of the consequences of this complex structure in all markets is the need to switch from regarding "industrialization" as the last word in development to perhaps having to coin a term such as "technologization" to refer to the more advantageous positions on the world market maps (e.g., the shift from "basic" products or services towards the "special", "unique" or "custom" corners of the map in figure 3). This, together with the rise in raw materials prices driven by the advance of globalization, can help to eliminate or significantly diminish the traditional disadvantages of raw materials.

Another consequence of this kaleidoscopic structure is that there is plenty of space for small and medium-sized enterprises (SMEs) to coexist with giant corporations and for traditional products to aspire to global markets next to high-technology ones. This means that proper market targeting is as much a prerequisite, and offers just as great a wealth of opportunities, for bottom-up sectors as for top-down ones.

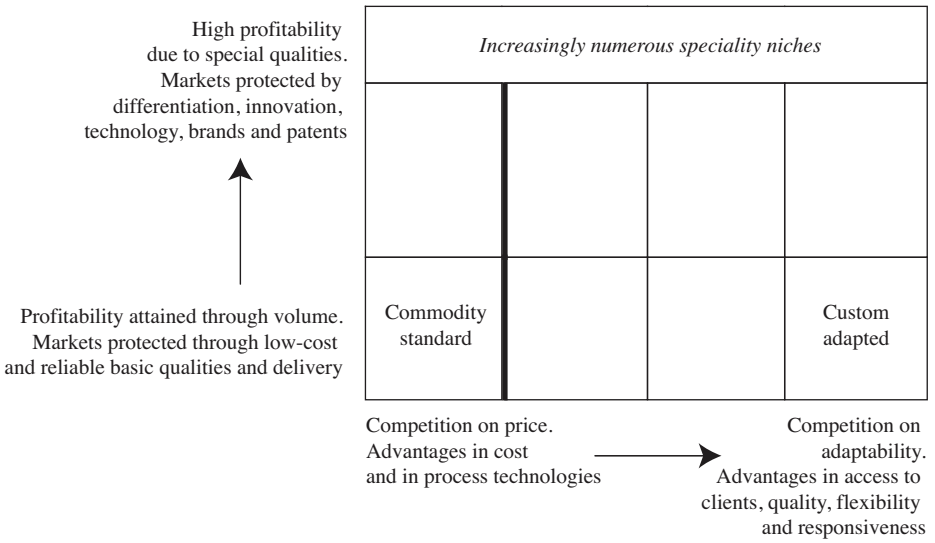
As a result of this hyper-segmentation, furthermore, the approach normally used to group industries in the mass production era is becoming inadequate. Rather than being classified by product type or production process, industries are now often grouped by destination markets. A producer of specially woven and treated cloth for making sails is no longer in the textile industry but rather in the sports and leisure industry. A company specializing in shoes for diabetics would be classed as being in the health industry, and so on. Sports and leisure, entertainment, environmental protection, health and creative industries are being recognized as increasingly important categories. Typically, these new industries offer more lucrative and protected opportunities for specialized producers as well as better-targeted distribution channels.

A particularly useful aspect of this variety in markets is that it opens up opportunities for much smaller scales of production. With the mass production paradigm, production had to amount to several container-loads or several tons per month in order for exports even to be considered. Neither transportation nor distribution systems were geared to handling small quantities of anything. Today there are innumerable specialist stores that stock global "niche" products, supermarkets and department stores make it their business to offer an extremely wide-ranging choice, and global courier services have developed very efficient systems of transport and delivery of any quantity at any frequency at relatively decreasing prices. Innovation in this direction is happening and is meeting a growing demand.

In this new world of proliferating niche markets, the range is extremely wide, running from the most traditional to the highest-technology and most knowledge-intensive products. There are niches for artisan ceramics and for biotechnology diagnostic kits. Long-distance services can range from straightforward

FIGURE 2

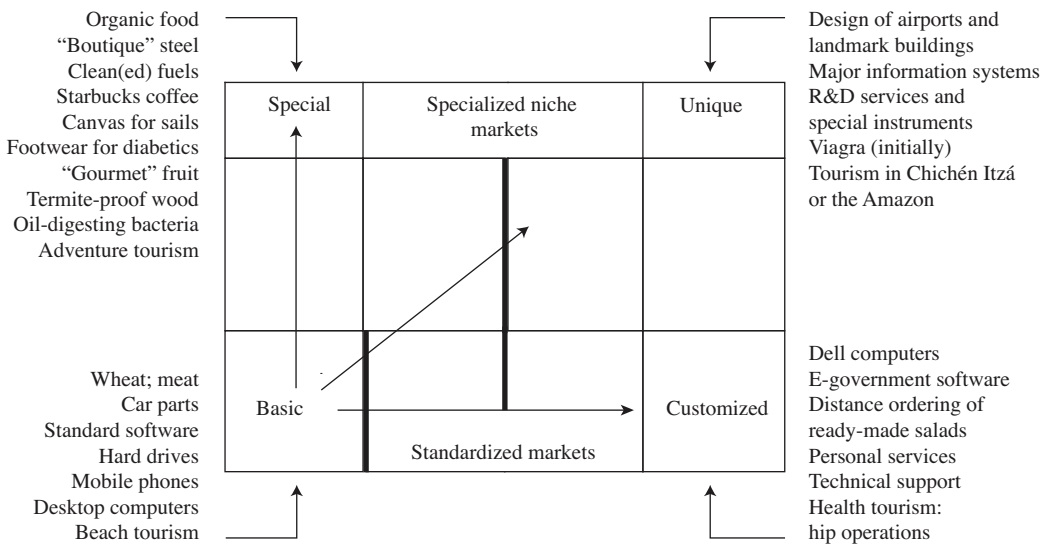
Hyper-segmentation of markets in the information and communication technologies paradigm



Source: prepared by the author.

FIGURE 3

Some examples of positioning



Source: prepared by the author.

call centres to interpretation of geological survey readings. Similarly, local outsourced services can range from food catering to data security. Specialized exports might include anything from an outstanding local marmalade or cheese to services for the detection of faults in sophisticated processing equipment. Tourism provision can range from a traditional Andean village organized into a "local experience" for travellers or a bird-watching trip in the tropical forest to a conference in a high-technology centre in the middle of a beautiful landscape. Environmental protection activities can cover the gamut from certified "organic" produce to the use of bacteria specially developed to "digest" oil spills. The range is as wide as the variety of local conditions; the limits are set by the entrepreneurial imagination.

The notion of "glocalization" is particularly useful here. It refers both to the adaptation of global products to local conditions and to the identification of local products with global potential.

V

The hyper-segmentation of value networks
Strategies and policies for mutual advantage

There are many types of value networks, from producer-driven ones coordinated by a global producing corporation such as IBM, Toyota, Telefónica or Zara, through the buyer-driven supply networks of pure trading GCs such as Walmart or Tesco, to industrial districts formed locally to sell globally.[12] What they all have in common is that they combine autonomy for each of the elements with the power to coordinate the whole network. In the case of GCs, headquarters determines the goals and degrees of autonomy of the individual elements; in the case of clusters formed by partnerships between independent producers, it is the elements that determine the strategy and powers of the common core. The latter can sometimes become part of a GC network.

It is important to note that in these structures the ultimate level of competitiveness belongs to the network rather than to any of its components. Consequently, relationships within the network will be marked by the contribution each component makes to the whole. The link between this contribution and the relative distribution of benefits across the network is, of course, strongly mediated by relative power and by the information each participant has about the network and markets (Schmitz, 2004).

Isolated firms do not fare well in the ICT paradigm. Arm's length relationships with suppliers, clients and competitors, as in the mass production paradigm, no longer yield the best results and can endanger a company's survival. This fact is at the root of the success of clustering and franchising strategies the world over and of the various programmes undertaken by governments and international agencies to promote diverse forms of partnership for cost sharing or for joint global marketing or training. It also explains the formation of stable clusters or consortia, both to help established industries survive and to generate new sources of activity in impoverished areas. Likewise, it is behind the attempts of many companies in Latin America to become suppliers to trading or producing GCs, with diverse results.

This discussion of market segmentation is meant to make it clear that the closer a product or service is to the commodity corner of the market map, the stronger will be both the price pressure and the demand for stable, basic, standard qualities with little deviation from specifications and delivery times. The more special the product or service, or the more knowledge value it incorporates, the greater the bargaining power of the supplier.

While certain countries in the region may possess some unique capabilities or traditions that can represent a valuable speciality, or be home to some highly knowledgeable specialists or innovators who can command a premium for their work, the majority are likely to have to begin the learning process at the bottom and aim at repositioning from there by innovating upward or sideways into more niche products or services. Appropriate support for enabling

[12] For producer- and buyer-driven networks, see Gereffi (1994) and Gereffi and Kaplinsky (2001). For local networks, see Schmitz (2004).

such improvement could —or should— be designed and made available, especially for the bottom-up part of the strategy.

But perhaps the discussion about the conditions for joining production networks is most relevant to the top-down part of the strategy relating to engines of growth, which in the end is the one that will fund the other half. The management literature has thoroughly studied the behaviour of global corporations, analysing how they are changing their structures and spreading across the world, how they take decisions and how they compete; the development literature, meanwhile, has been examining how the companies and regions that do the outsourced work fare in the process.[13] This essay can only touch on some of the aspects most relevant to the proposal being discussed.

The extended geographical network of a GC is composed of an enormous variety of relationships with local companies and local labour forces across the many countries involved. The corporation itself is spread across the globe. Not only are regional managers sited abroad, but so are some of the global managers, so that they can take advantage of specific local conditions. Many production units are geographically situated where they can operate to best advantage and, increasingly, certain staff units are also being spread around various countries, including sections of R&D departments. This and the greater autonomy and incentives to innovate given to local subsidiaries create opportunities for mutually beneficial negotiations with host governments, with a view to raising the quality of jobs and of the activities performed locally.[14] There are two different types of global workers in GC networks: offshore and outsourced personnel. The latter work for local companies belonging to the network through some sort of alliance or contract; the former are "inside" the GC and on its payroll.

Salaries for "inside" personnel may be the same as (or somewhat lower than) those paid in the country of origin but generally higher than is usual in the host country. They may also benefit from levels of security that elicit loyalty and allegiance. Even the so-called "maquilas", such as those in northern Mexico, no longer follow the minimum training routine work model. They need to involve workers in learning for quality control, continuous improvement and flexibility.[15] Moreover, growth in the proportion of jobs of this type as a result of further foreign investment in the same region may end up setting the pace for pay increases and education and training levels expected in the area.

On the other hand, the more GC units there are in a particular country or locality, the greater the demand for services and the greater the outsourcing opportunities will be in that same locality, depending of course on the type of units and on local conditions.

Resource-based industries have to go offshore for obvious reasons. In fact, they have decades of experience with a particular way of working. They typically keep control of core activities and employ as many local personnel at each level as possible. They tend to outsource any high-technology work to global service corporations that may also employ local people. For this reason, in most Latin American countries with energy or mineral resources there is a pool of high-level engineering and management professionals who have experience in that industry and are able to take over some activities as outsource contractors. Resistance to using local companies has traditionally been high, though this could be attributed partly to the legacy of the import substitution model and its lax attitude to productivity and technological mastery (Pérez, 1996).

Policies to enable componentization[16] of value networks in agreement with the GCs present locally could well function as a positive-sum strategy under the new conditions. The increase in demand generated by globalization is already calling forth greater and greater investment in raw materials and generating growing demand for service companies (Gurlit, Mencarini and Montealto, 2007). This will put pressure on global service companies to move experienced personnel to the new zones of operation and open up opportunities for competent local companies.

The new outsourcing relationships, be they in raw material GCs or in the downstream fabricating or process industries, are not necessarily the arm's length,

[13] On management see, for example, Berger (2006) and Garten (2000); on the development side see Gereffi and Kaplinsky (2001), Giuliani, Pietrobelli and Rabellotti (2005) and Humphrey and Schmitz (2004). For systems integration, see Prencipe, Davies and Hobday (2003) and Hobday, Davies and Prencipe (2006). For the notion of global production networks and the way not only production but also innovation is being outsourced, see Ernst (2000) and Ernst and Kim (2002).

[14] See Marin (2007).

[15] See Dutrénit and Vera-Cruz (2007) on the Mexican maquilas.

[16] This term is being used rather than "disaggregation" because the process goes further, with separation not just into "parts" but into the "components" of parts.

price-squeezing ones of the past. The relationship with suppliers in the value network varies, of course, potentially moving from old-style arrangements with strong price pressures to high-level, high-quality interaction as the product or service shifts from requiring low skills to higher levels of knowledge intensity and innovativeness. At the upper end of the range, there can be strong technical interaction, information sharing, very well-paid contracts and even co-funding of innovations. The idea of the proposed strategy would be to facilitate the process of moving up to those positions in value networks, while recognizing that reaching those levels may require gradual upgrading and that the lower rungs of the ladder may create more employment and provide opportunities for building up capabilities. The ultimate goal would be to widen and enrich the skill profile as well as the export mix.

GCs no longer behave as carelessly towards the local society and environment as may often have been the case in the past. The trend towards corporate social responsibility, in the treatment both of personnel and of surrounding communities, and in relation to the environment, is growing and is likely to spread further. It has perhaps been strongest in those industries where creativity is the determining factor in competitiveness and staff satisfaction is therefore indispensable; it has also become important in those consumer industries that are exposed to the transparency of the Internet and need to maintain a good image. However, even in cases such as mining, where geographical distance acts as a shield against visibility of behaviour and where the clients are major companies rather than consumers, corporate responsibility has enhanced productivity and hence is tending to spread as normal best practice (Warhurst, 2005). This said, it is still the responsibility of national and local government organizations to ensure that the natural and human environment is preserved and enhanced. Information about the standards of responsible business practice set by the leading companies in these fields can modify expectations and inform realistic and mutually beneficial negotiations. Growing competition for raw materials between Asia and the West will also tend to strengthen the negotiating hand of whoever possesses them.

VI

The hyper-segmentation of technologies High-technology specialization coexisting with traditional methods

Dichotomies are no longer useful for understanding the new best practice under the ICT paradigm. In technology, there has been a combined movement towards "componentization" and reintegration. Once each component of the whole has become fully differentiated and specialized, they all come together and interact in a much more dynamic network. The process has a fractal nature, because each of the specialized segments in turn is componentized into all the contributing parts.

In its restructuring process, a GC determines its "core competencies", which are those that lie at the heart of its position in the market and its strategy going forward.[17] It is in these core aspects that the GC concentrates its technological mastery and innovation efforts. Other activities will be finely segmented and analysed in terms of the technological capabilities required and will then be outsourced under contract or bought in when needed from carefully chosen competent suppliers whose core competence is in that component. These will therefore be willing and able to reach for mastery in that aspect and to innovate in it. By componentizing, outsourcing and constructing this complex value network, the GC is also erecting an innovative structure across the whole range of activities involved.

In this structure, there are plenty of opportunities for local small knowledge-intensive service enterprises (SKIEs) both in face-to-face supply and in the remote provision of digital services. By its nature, in fact, globalization generates markets for SKIEs in each locality as it spreads. In turn, the existence of a

[17] Prahalad and Hamel (1990) introduced the concept of core competencies.

fabric of competent and reliable knowledge-intensive services increases the competitiveness of all existing local users and serves to attract further local and foreign investment, which will continue to strengthen the SKIE network.

There is also ample space for competent suppliers of standard or semi-standard goods and services with enough mastery of the process technologies involved to be able to continuously improve quality and productivity.

None of these opportunities appears automatically. They require persistence, time and effort to build the capabilities needed for those roles (possibly starting by working in less demanding markets) and to develop the capability of negotiating a favourable position.

Large local exporting companies aiming to become competitive GCs will also need to develop the capability to componentize and outsource, while building mastery in core technologies and engaging in constant improvement and innovation in them.

Though little mention has been made here of the electronics, software, telecommunications and Internet service industries, they actually constitute the basic platform for the competitiveness of networked organizations and for effective participation in the global economy. The success of any strategy under the logic of the ICT paradigm in the current period requires efficient low-cost telecommunications and the availability of highly competent software, systems and maintenance SKIEs. Most Latin American countries have already advanced a good way along this path. Participants should easily be able to agree on policies to intensify the process.

A particular feature of ICTs is the intangible nature of many of their products and services. This makes it possible to outsource most back-office data services (including call centres) to any part of the planet where a competent and responsible entrepreneur sets up the service. The same can be said of translation services and of the interpretation of complex digitalized data in any field (geology, medicine, biology, finance, climatology, etc.) as long as the appropriate specialists are available.

The other aspect of intangible products is that ambitious innovations in intangible services can be initiated in any country and become global if successful, as in the case of Skype, for instance, where little Estonia has played an important role. Knowledge or language specificities can also generate niches in local or global markets. In Brazil there are dozens of Portuguese-language equivalents of Web 2.0 English sites, which benefit from Portuguese-language advertising and can reach the colonies of the old Portuguese empire. The Spanish-speaking world has also developed on the web, but it still has a long way to go (its constituency includes Hispanics in the United States).

Another useful feature of the ICT paradigm is that the hyper-segmentation of markets results in the coexistence of a much greater variety of technologies and scales than was ever possible in mass production times. This is opening up innumerable opportunities on the bottom-up side of the dual strategy. Organic coffee grown in the shade, harvested by hand, toasted by traditional methods and benefiting from a guarantee of origin is sold in gourmet shops at premium prices, while machine-harvested coffee will be the commodity low-cost variety in the supermarkets (where the gourmet types will also be sold). There is no exclusion or marginalization of one technology by the other, nor is there price equalization at the lowest level, but rather a process of differentiation by quality and a range of prices that reflects the differences.

On the other hand, ICTs create the potential for customization extending even to the level of the individual user. This sort of "high-technology artisan production" or (when done at high volumes) "mass customization" is one of the many instances where this paradigm does away with old dichotomies through fusion.[18]

The range of opportunities for striking off in new directions and test-marketing products in relatively small quantities is immense. That is the route being taken by innovation in new energy sources and systems; that was the manner in which the low-cost airlines entered the industry, and it is the form being taken by attempts to create products for the so-called "bottom of the pyramid" (Prahalad, 2004). A particularly striking innovation that breaks with the trajectory followed by the automobile industry in the last decades is the ultra-simple US$ 2,500 car developed by Tata Motors in India. At the same time, extremely expensive, ultra-advanced electric cars built by new start-up companies such as Tesla are being brought to market in California, competing with the majors.

The time has come for the long-sought "adequate" or "appropriate" technologies, but the concept had to

[18] We have been witnessing the proliferation of rather ugly but expressive portmanteau terms reflecting this fusion, such as "glocalization" (referred to earlier) and "coopetition".

wait for a technological paradigm capable of handling the coexistence of different levels of productivity and technological sophistication without having to homogenize prices or markets. This has been greatly facilitated, of course, by the ease with which information technology tools can handle commercial inventory control and other administrative processes, regardless of numbers, variety or changes in time.

VII

The seeds of the future
Using current opportunities to prepare for a technological leap

The choice of a resource-based path for the technologization of production in Latin America has an additional advantage that is pregnant with future possibilities.

The ICT revolution is now entering the deployment period, as its power to increase productivity and facilitate innovation spreads to all other industries.[19] Meanwhile, the next revolution is in gestation. It would appear now that the revolutionary industries of the future are likely to be some combination of biotechnology, nanotechnology, bioelectronics, new materials and new energies, shaped by technological breakthroughs and probably by growing environmental awareness and concerns.

All these technologies can be roughly ranged in the category of process industries. During the current gestation period they are likely to develop in connection with some existing leading industries. New materials will find more and more uses in the fabrication industries, nanotechnology in surfaces, electronics, cosmetics, health products and others. They may also influence raw materials production itself, examples being special bacteria for leaching in the mining industry or for removing pollution and spills, special chemical additives to give particular qualities to wood or to serve as catalysts in oil refining and petrochemicals, natural pest control processes in organic agriculture and so on.[20]

If historical rhythms are any guide, the transition to that new revolution might occur in about two or three decades. Whatever the time frame, Latin America can now make a start on enhancing its capabilities in preparation for the next revolution, using its current resource-based exports as a platform for leading-edge innovation and as a source of funding.

It is important to note that Japan and the "Asian tigers" acquired their initial experience by assembling transistors and electronic equipment in the 1950s and especially the 1960s and early 1970s. At the time, these were being used in products typical of the mass production revolution: radios, televisions, record players, etc., with the portable versions constituting a market-expanding innovation. This placed those countries in an advantageous position in terms of experience and capabilities when the microprocessor inaugurated the ICT revolution. Something similar could take place in Latin America the next time around, not however by chance but because of a conscious drive in this direction.

[19] This period is the second of two stages in the spread of each technological revolution; it begins following the growth and collapse of a great financial bubble and the consequent institutional adjustments, historically characterized by a return to an active role for the State in the economy. See Pérez (2004, pp. 74-77, 107-112 and 175-188) and Pérez (2006).

[20] See Hernández-Cuevas and Valenzuela (2004) and Gutman and others (2006) for strategic thinking on biotechnology in Latin America.

VIII

A temporary window of opportunity And why resource-based development theories are also temporary

The proposal being presented here asserts that natural resources can, under current conditions and possibly for a few years longer, become the basis for launching a self-funded development leap. The implication is that these resources can be technologized in order to improve the quality of the export mix and open up opportunities for marginalized sections of the population. Yet traditional doubts about the possibility of resource-based development may cause its feasibility to be questioned.

It is interesting to note that the idea of the "resource curse" is very recent and was preceded by other theories employing other arguments which may sometimes seem contradictory. What is being claimed in the present study is that opportunities change as different technological revolutions with different conditions emerge and propagate.

Classical economists (and popular opinion at the time) considered the possession of natural resources an advantage for development. The idea was confirmed – and partly inspired – by the fact that countries such as Australia, New Zealand, Canada and Argentina made huge leaps forward on the basis of their mining, agricultural, meat and wool exports in the last quarter of the nineteenth century, using the proceeds to fund ports, airports, railways and other infrastructure. Resources also played a positive role in the economic history of the Scandinavian countries, as well as in that of the United Kingdom and the United States.

Natural resource production began to be seen as a burden on development once the mass production revolution was fully established and high-productivity industry had become insatiable in its need for cheap energy and raw materials, and synthetics began replacing one natural material after another. Both Prebisch and Singer saw the price scissors between manufactures and materials as an obstacle to development at a time when they actually had become so, at the beginning of the deployment period of mass production in the mid-1940s (Prebisch, 1951; Singer 1950).[21]

[21] See Pérez (2004 and 2009) on the characteristics of periods in which successive waves of technology are established and deployed.

The notion of "Dutch disease" appeared later to refer to the way gas (or oil) exports determined the exporting country's exchange rate to the detriment of manufactured exports. The concept appeared when energy prices soared in the 1970s and was first used in an article in *The Economist* in 1977. More recently, various "resource curse" hypotheses have become fashionable. Some rode on the back of the African experience of violence, wars and corruption in the internal struggle for the control of such sources of wealth as diamonds, gold and oil; others were based on the contrast between the rise of the "Asian tigers" and the lost decade in Africa and Latin America.

The contention of the present study is that there are certain specificities in the current context that are different from those which prompted those recent theories and that open a temporary window of opportunity for resource-based growth. However, it is only a window and it may be of relatively short duration, perhaps a decade.[22] This judgment and those that follow are based on my personal assessment of the conditions that make the present proposal viable.

The following are some of the factors that create a favourable context for initiating the strategy now (2010-2012):

— The balance between supply and demand in the globalization process means that prices for raw materials are almost certain to settle at levels higher than those normal in the past, although volatility will not disappear. The average level will depend on any financial regulations introduced (to prevent commodity speculation) and market adjustments.

— While significant extraordinary profits continue to flow, it should be possible to achieve positive-sum negotiations between users and suppliers and

[22] The time available to initiate a strategy with a chance of success is different from the time it may take for this strategy to pay off. The Republic of Korea entered the semiconductor industry and became a leader in memory chips at the right moment. Ten years later it would not have been possible, but the benefits of that early entry and success have been multiplied as that expertise has served as a platform for further advances under changing conditions.

between corporations and governments with a view to allocating some natural resource profits and taxes to investment in capacity expansion, downstream processing, technologization and improvement of externalities. This would boost the top-down development strategy (human capital, high-technology services, infrastructure, environmental protection) as well as potentially providing funding for bottom-up development projects.

— The 2008 financial crisis has created the conditions for acceptance of a more active role for the State in the economy.

— Changes in environmental awareness, regulation and corporate behaviour are still incipient but are beginning to intensify. In particular, process industries and extraction firms have been slow to adopt the global ICT paradigm (in terms of incorporating local capabilities into their networks), but they can be seen to be moving now.

— Large specialized service companies are overstretched and will probably welcome the entry of local allies. In time they will expand to meet demand and those that are not "inside" the network (on an independent or allied basis) will find it much harder to enter.

— The potential competitors in this sort of strategy (Africa, Russia, Kazakhstan and others) are only just setting off along a similar route.

— Those countries or regions that become early competitors by riding these trends will have a head start, and whichever region attracts the most dynamic GCs will acquire decisive advantages.

Another aspect setting resources on a dynamic path is the way the current direction of globalization is increasing its environmental impact. Both the limits on the availability of natural resources and the climate change threat are going to become key forces shaping markets and technologies related to energy, materials, water and food. This suggests that scarcity will tend to push up the prices of natural resources, making their possession an even greater advantage. These price changes and the resulting rise in freight costs will penalize the movement of unprocessed raw materials across the world. That should favour local processing. At the same time, higher prices will put pressure on users to reduce the amount of material employed per unit of output. That should favour more finely specified materials of the kind suggested in the proposed strategy.

Because of higher freight costs, the geographic distribution of globalized activities is being reconsidered and more factors are being taken into account in the choice of local, regional or global sourcing, depending on product characteristics and cost components. This trend is opening up some opportunities and closing others.

The time frame for these environment-related trends to become mainstream may be very short, depending on the intensity of global warming effects and the regulation that may accompany them. In any case, this needs to be a central feature in any resource-based strategy from the start.

Lastly, the whole of this strategy depends on a serious push for active engagement accompanied by a simultaneous strengthening of knowledge and experience. Learning and the creation of human capital take time, as do major investment projects. This implies that only an early and determined pursuit of these goals will place the Latin American countries on a dynamic growth path in time to follow it successfully.

What is clear is that if the increased income from natural resource exports ends up becoming a source of superficial growth and of increased imports for consumption, a very valuable opportunity will have been squandered.

IX

Implementing the vision
Generating consensus and an adequate institutional framework

There are already many Latin American companies participating in GC networks, and some are building global networks of their own. There are also many government initiatives to promote partnerships among small and medium-sized firms to increase their competitiveness. Some countries have gone much further in one or other aspect of the strategies suggested here, as well as in other directions. The question is whether those scattered efforts are enough, whether they will yield the maximum potential benefits to the companies and population of these countries, and whether current conditions are bringing forth all the potential that exists for wealth creation and innovation. A concentrated effort in an agreed direction would create increasing externalities for all and is likely to bring urgently needed results more rapidly.

The "State or market" dichotomy is now obsolete and counterproductive. Neither central planning nor a "level playing field" will do. The field has to be tilted to favour the great majorities and to provide a strong stimulus for the growth and success of potentially competitive sectors of the economy by further reinforcing their advantages. A consensus vision resulting from a richly informed and intensive debate involving businesses, government and society as a whole would bring the maximum cohesion, the most effective guidance and enabling instruments and the most profitable overall results for local (and global) participants. The goal would be to mobilize the whole of society so that the different actors take initiatives along lines that, while different, converge upon an agreed general direction.

Among the possible stakeholders to bring to the table are governments (from national to local), GCs, large local companies, SKIEs, SMEs, universities and research institutes, relevant NGOs, consultancy firms, banks and international funding agencies, diasporas (especially their business and intellectual components), the media and society at large. The aim is to achieve the promise of every positive-sum game: everyone helps to increase the size of the pie and everyone gets more of it.

Learning will need to involve three complementary layers. First there is learning in the public sector itself, given that only a competent, well-functioning government structure can guide a sophisticated modern economy. Then there are education systems, whose methods and behaviour need updating and overhauling as much as their technical content. Lastly, there is the learning to be done in the business sector in whatever measure is necessary in each case to bring about gradual improvements in innovation capabilities. Collaboration among the three sectors, in coordination with their global counterparts when appropriate, is what will weave a strong national innovation system.[23]

Besides these agents, learning will need to spread throughout society both in the form of general public opinion, aided by the experience of work and education, and through the media, with proactive support from different NGOs and other organizations.

Where policies and instruments are concerned, the two prongs of the strategy are very different and thus a dual institutional framework will also be required.

In the author's view, the criteria and methods to be used on either side of the dual model are different enough to require different attitudes, behaviours and competencies, and even different institutions and policy instruments. Yet on both levels success will require a sufficient number of highly skilled personnel with the necessary level of capabilities and dedication and the power to commit the government, along with a clear understanding of the new market dynamic and the opportunities it presents for favourable positioning and linkage. Bold policies and great determination will be required for success. This means that countries cannot rule out the use of temporary tariff barriers and special subsidies and taxes to provide a strong

[23] This wider notion of a "national innovation system" encompassing all the societal agents involved in the innovation process was introduced by Freeman (1987) and Lundvall (1988).

bottom-up impetus with the aim of attaining decent living standards for the poor.

There are obviously major differences between the larger and more powerful countries and the smaller ones, in terms both of resource potential and of implementation capabilities in the private and public sectors. Some of the regional and multilateral organizations could contribute with technical and financial support here, and the stronger countries could establish mechanisms to serve as dynamic poles and help draw the smaller ones in their wake.

Relative size and levels of previous development aside, there are many other power-related factors that could influence the feasibility of the strategy in general and actually have the effect of heightening differences between countries. Production and market conditions are very different depending on whether companies are local or foreign, whether the business concerned deals in minerals and energy or agriculture, livestock activities, forestry and fisheries, whether ownership and control of production are in a few hands or dispersed, and whether international trade and markets are concentrated or diffuse. Conditions will also differ depending on the proportion of the value chain that is (or could be) in the territory, the greater or lesser relative weight of knowledge-intensive versus routine activities, and so on. The variety of conditions will define the need for appropriate policies in each case, albeit with the same general goal.

Yet the crucial issue that could make or break the strategy is the actual or potential power of institutions to promote consensus, apply bold measures and sustain policies, enforce regulation and taxes and avoid failure because of "capture" or corruption or both.

There should be no illusions about the likely resistance the proposed strategy may arouse from both ends of the ideological and political spectrum. There will be objections both to the role of the State and to that of GCs in the process; there will be doubts about the potential for resource-based growth and about local innovation capabilities. It therefore needs to be ensured that the debates are informed by ample data. The more knowledge is made available about what is happening in other parts of the world (and indeed in Latin America itself) in terms of innovation and cooperation and the development of natural resource niches, the fewer prejudices will need to be confronted and overcome.

In conclusion, the argument of this paper is that a window of opportunity has now opened, one that is particularly well-suited to the natural resource endowment and historical experience of Latin America, and that this should not be wasted. It is a chance to take advantage of the hyper-segmentation of markets, activities and technologies typical of the ICT paradigm and apply them even more thoroughly in resource-based processing industries. This should be facilitated by rising average prices for such resources as a result of globalized growth. By using a portion of the increased revenues to upgrade the technology level of the export mix and to improve the wealth-creating capabilities of the population, the region can become highly specialized in custom materials, sophisticated foods and other natural products, while positioning itself for the next technological revolution. The strategy can serve both for high-end competition in global markets and as a means of lifting the poor out of poverty by creating clusters for "niche" specialization right across the territory.

Innovation in all aspects of business is increasingly practised and understood as the way to success. The time has come for an equivalent wave of rethinking, reorganizing and innovating in the public sector as an agent and facilitator of change for maximum public benefit. Indeed, the success of a strategy such as the one proposed here will very much depend on summoning up determined leadership and wide-ranging institutional creativity.

(Original: Spanish)

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Agricultural and trade policy reforms in Latin America: impacts on markets and welfare

Kym Anderson and Ernesto Valenzuela

Farm earnings in Latin America have been depressed by pro-urban and anti–trade biases in national policies and by the agricultural support policies of richer countries. These policies have reduced economic welfare and hampered trade and growth, and may well have added to income inequality. This paper synthesizes results from a World Bank project that provides: measures of the extent to which national policies have changed farmers' price incentives; partial equilibrium indices of the impact of farm policies on trade and economic welfare; general equilibrium estimates of trade, welfare and poverty effects of global reforms retrospectively and prospectively; comparisons with similar estimates for Asia, Africa and high-income countries; and a discussion of prospects for agricultural policy reform.

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I
Introduction

For decades, earnings from farming in Latin American countries have been depressed by a pro-urban bias, exchange-rate controls and export taxes, and by governments in richer countries favouring their farmers with import barriers and subsidies. Furthermore, a considerable degree of sector differentiation in import restrictions has yielded a high differentiation in sectoral protectionism. These past policies have reduced national and global economic welfare and hampered agricultural trade and economic growth, and may well have added to income inequality and poverty in the region.

From a distortionary agricultural incentive peak in the mid-1980s, however, the region has undergone reforms which have greatly reduced its sectoral and trade policy distortions, while some high-income countries have also begun reducing the protectionist aspects of their farm policies. Still, many trade-reducing price distortions remain between sectors, as well as within the agricultural sectors of most Latin American countries.

This paper summarizes results from a recent World Bank research project that provides, first, price comparison-based measures of the extent to which national policies have changed farmers' price incentives since the 1960s in eight Latin American countries; second, partial equilibrium indices of the impact of national farm policy reforms on the volume of agricultural trade and their economic welfare cost; and, third, general equilibrium estimates of national trade, welfare and poverty effects of global reforms from the early 1980s to 2004, which are compared with the projected effects of removing the remaining distortions in agriculture and other goods markets, and further reform in regional policies.

□ This article draws on many papers contributed to a recent World Bank research project (see www.worldbank.org/agdistortions). Financial assistance from World Bank trust funds (particularly those provided by the governments of the Netherlands and the United Kingdom) and the Australian Research Council is gratefully acknowledged, as are the contributions of the country case study contributors to the Agricultural Distortions project (especially Alberto Valdés for leading the Latin America team), computing assistance from the project's research assistants, and helpful comments from commentators on numerous related conference and seminar papers. The views expressed are the authors' alone and not necessarily those of the World Bank and its Executive Directors, nor the countries they represent.

These results are part of a global research project seeking to improve our understanding of agricultural price and trade policy interventions and other reforms in Asia, Africa, the transition economies of Europe, and Latin America and the Caribbean.[1] The core of this project is a new set of annual time series estimates of assistance to and taxation of farmers over the past half-century for 75 countries that together account for more than 90% of the world's population and agricultural output (Anderson and Valenzuela, 2008).

The Latin American sample involves eight countries, comprising the big four economies of Argentina, Brazil, Chile, and Mexico; Colombia and Ecuador, two countries which rely heavily on agriculture; the Dominican Republic, the largest Caribbean economy; and Nicaragua, the poorest country in Central America. Together, in 2000-2004, these countries accounted for 78% of the region's population, 80% of its agricultural value added and 84% of its total gross domestic product (GDP).

The key characteristics of these economies – which account for 4.5% of world GDP but 7.7% of agricultural value added and more than 10% of agricultural and food exports —are shown in table 1. The table reveals the considerable diversity within the region in terms of stages of development, relative resource endowments, comparative advantages and hence trade specialization, and the incidence of poverty and income inequality. In particular, income inequality is high throughout the region compared with the rest of the world: the Gini coefficient is near or above 0.5 everywhere and averages 0.52. This is well above the Gini coefficient for Africa and Asia. Likewise, the Gini coefficient for land distribution inequality is high in Latin America: 0.55 for Chile, but above 0.7 for Argentina, Brazil, Ecuador and Nicaragua, compared with less than 0.5 in Asia (World Bank, 2007).

[1] The regional studies are Anderson and Martin (2009), Anderson and Masters (2009), Anderson and Swinnen (2008) and Anderson and Valdés (2008). Together with comparable studies of high-income countries, they form the basis for a global overview volume (Anderson 2009). The database for this project (Anderson and Valenzuela 2008) is available free of charge on the World Bank website at www.worldbank.org/agdistorsions.

TABLE 1

Latin America and other regions: key economic and trade indicators, 2000-2004

	Share (%) of world:			National relative to world (world = 100)			Ag. trade specialization index[b]	Poverty incidence[c]	Gini index for per capita income[d]
	Pop.	Total GDP	Ag. GDP	GDP per capita	Ag. land per capita	RCA[a] ag. & food			
LA focus countries	**6.49**	**4.49**	**7.73**	**69**	**178**	**219**	**0.42**	**7**	**52**
Argentina	0.61	0.54	1.04	89	426	541	0.85	5	51
Brazil	2.88	1.54	3.38	54	184	355	0.66	8	57
Chile	0.25	0.22	0.24	86	120	386	0.63	2	55
Colombia	0.70	0.24	0.77	35	132	264	0.25	7	59
Dominican Rep.	0.14	0.06	0.18	41	54	474	0.29	3	52
Ecuador	0.20	0.07	0.16	33	80	487	0.59	16	44
Mexico	1.62	1.82	1.89	112	133	64	-0.17	7	46
Nicaragua	0.08	0.01	0.06	14	169	952	0.26	44	43
Other LA countries	**1.84**	**0.84**	**2.05**	**46**	**148**	**...**	**...**	**...**	**...**
All Latin America	**8.33**	**5.33**	**9.78**	**64**	**171**	**...**	**...**	**...**	**...**
Africa	11.71	1.67	6.04	14	148	...	...	32	n.a.
Asia (excl. Japan)	50.76	10.37	36.65	20	34	80	-0.03	19	36
Western Europe	6.31	28.66	15.43	454	46	106	-0.03	...	
United States and Canada	5.14	32.67	10.82	636	186	119	0.08	...	40
Australia and New Zealand	0.38	1.54	1.57	405	2 454	354	0.62	...	35

Source: D. Sandri, E. Valenzuela and K. Anderson, "Economic and trade indicators for Latin America, 1960 to 2004," *Agricultural Distortions Working Paper*, N° 48434, Washington, D.C., World Bank, 2007, compiled mainly from World Bank *World Development Indicators*.

[a] Revealed comparative advantage index (RCA) is the share of agriculture and processed food in national exports as a ratio of that sector's share of global exports.

[b] Primary agricultural trade specialization index is net exports as a ratio of the sum of exports and imports of agricultural and processed food products (world average = 0.0).

[c] Percentage of the population living on less than US$ 1 per day.

[d] The poverty incidence and Gini indices are for the most recent year available between 2000 and 2004, except for Ecuador, where they refer to 1998. The weighted averages for the focus countries use population as the basis for weights.

Although it can call upon nearly twice as much agricultural land per capita as the rest of the world, Latin American agriculture is characterized by concentrated land ownership and a production structure whereby medium and large commercial farms, while few in number, contribute the bulk of agricultural output. It is also a region with a high degree of urbanization. These features are important for an understanding of the forces behind agricultural policies. So too is the fact that, until a few years ago, most countries in the region were experiencing a high degree of macroeconomic instability and high inflation. The manipulation of food prices for urban consumers in an attempt to reduce inflation was (and, in Argentina, still is) a dominant factor driving farm pricing policy.

Most Latin American countries have gone through a process of major economy-wide policy reforms, beginning approximately in the mid-1980s for some countries (or the mid-1970s for Chile) and in the mid-1990s for others. Reforms centred on macroeconomic stabilization, trade liberalization, deregulation and some privatization (or abolition) of State agencies. There was a considerable reassessment of the role of government in guiding economic development. Agricultural policies were an integral part of this reform process, although not the principle motivation of the reforms.

Following this introduction, section II of this paper briefly describes the evolution of agricultural and trade policies. Section III provides a short description of the methodology used by the authors

of the individual country case studies to estimate the nominal rate of assistance (NRA) to agricultural producers, the corresponding consumer tax equivalent (CTE) facing domestic buyers of agricultural products, the relative rate of assistance (RRA) between the farm and non-farm tradable sectors, partial equilibrium indices of trade and welfare, and general equilibrium estimates of the national trade, welfare and poverty effects of global reforms retrospectively since the early 1980s and prospectively as of 2004. A synopsis of the empirical results showing the changing extent of price distortions is then provided for each country, and the continental averages are compared with those of Asia and Africa. The paper concludes by drawing out some implications of the findings, including those for poverty and inequality and for possible future directions of policies affecting agricultural incentives in Latin America.

II

The evolution of agricultural and trade policies

From the late 1950s until approximately the mid-1980s, agricultural price interventions in the region were largely a by-product of a development strategy aimed at encouraging import substitution industrialization. This policy also raised budgetary resources in the form of import tax revenue, which was supplemented in some countries through agricultural export taxes. Both sets of approaches harmed the region's most competitive farmers and were offset only slightly by farm credit and fertilizer subsidies.

From the late 1950s until the early 1990s, there were concerns about high rates of inflation, especially where urban populations had strong political influence. Policymakers were under pressure to avoid large increases in food prices, which would potentially impact wage rates and thereby accelerate inflation.

In addition to the fiscal and inflation objectives that made farm export taxes attractive, there was, in the 1950s and 1960s, a widespread belief among the region's economic policymakers and followers of the structuralist school associated with Prebisch (1950, 1959 and 1964) that the efficiency losses generated by the extraction of rents in agriculture were low and that the main impact would be to reduce land rents and land values. The prevailing view in Latin America at the time was that farmers were unresponsive to price incentives. While the belief in this unresponsiveness has now largely disappeared, a few countries —Argentina is one— still tax agricultural exports to generate fiscal revenues and lower consumer food prices.

By the 1980s, there was disillusionment with the results of the import substitution strategy and wider acceptance of theoretical developments regarding the causes of inflation and macroeconomic instability in general. During the 1980s and early 1990s, a macroeconomic framework designed for open economies gradually displaced the closed economy approach in most Latin American countries. Governments introduced economy-wide reforms with special emphasis on macroeconomic stabilization, deregulation, unilateral trade liberalization, and privatization.

The goal of the reformers was to create a better climate for productivity and private investment in all economic sectors, including agriculture. In most Latin American countries, the major change in trade policy was the partial or total removal of most quantitative restrictions on imports and exports, the elimination of export taxes and a programme of gradual reduction in the levels of import tariffs. This yielded incentives to move resources from import-competing to export-oriented sectors, including agricultural ones, which in turn enhanced competitiveness and led to greater integration with the world economy, particularly for larger farmers.

By the mid-1990s, intervention in the foreign-exchange markets was recognized as the most important "price distortion" affecting the agricultural economy. At the outset of the reforms, it was expected that trade liberalization and the reduction of fiscal deficits would lead to a depreciation in real exchange rates (Krueger, Schiff and Valdés, 1988 and 1991; Valdés 1996). Yet the reforms were followed by significant currency appreciation, associated with capital-account opening, greater inward foreign investment and major increases in domestic real interest rates. Reforms in the service sector also played a critical role. Deregulation and privatization had a major impact on the availability in the marketplace of more reliable and lower-cost services for agriculture such as ports, airlines and shipping transport.

The timing of reforms differed somewhat across countries. Colombia, for example, became a more open economy through export promotion beginning in 1967; it adopted a more ambitious liberalization of trade in 1990 and then went into a policy reform reversal beginning in 1992.

In Chile, the controlled markets of 1950 to 1974, accentuated during Allende's land reform years (1971-1973), were followed by radical economic reforms oriented towards trade liberalization, deregulation and privatization between 1978 and 1982, before a second phase of reforms beginning in 1984.

Mexico introduced strong policy changes starting in the mid-1980s, before the signing of the North American Free Trade Agreement (NAFTA). The changes involved more openness, deregulation and privatization, a reduction in credit subsidies, and major changes in the role of government in the marketing of farm products.

A wide variety of policy instruments have been applied to influence agricultural prices, even during the post-reform period. Colombia, for example, has had minimum support prices, in addition to import tariffs, price compensation schemes, procurement agreements, the monopolization of grain imports by a government agency, export licences and subsidies, and safeguards on imports; until 1990, moreover, all imports of inputs were subject to prior import licences. Then, in 1995, tariffs and tariff surcharges associated with price bands were introduced on more than 100 products.

Mexico has been another leader in interventions, even during the transition from highly government-controlled markets before the mid-1980s to more market-oriented policies. Its policies include price support programmes (before the mid-1980s and in conjunction with State trading), credit and input subsidies and direct income payments to farmers (PROCAMPO).

Interventions in Argentina have focused primarily on agricultural exportables, which have been subjected to export taxes, complemented by export bans in some years. The return to sizeable export taxes in 2001 and their subsequent increases have been controversial, leading to prolonged protests by farmers in urban areas in mid-2008.

III

The extent of distortions to agricultural incentives in Latin America

1. Methodology: quantifying the extent of distortions[2]

To quantify government-imposed distortions that create a gap between actual domestic prices and what they would be under free markets, Anderson and others (2008) suggest the first step is to compute the nominal rate of assistance (NRA) for each farm product. This is the percentage by which government policies have raised gross returns to farmers above what they would be without the government's intervention (or lowered them, if NRA < 0). A weighted average NRA for all covered products can then be derived using the value of production at undistorted prices as weights.[3] This NRA is similar to the producer and consumer support estimates (PSEs and CSEs) computed by the Organisation for Economic Co-operation and Development (OECD) for various years, except that the latter are expressed as a percentage of the distorted price. To that NRA for covered products is added a 'guesstimate' of the NRA for non-covered products (on average around 30% of the total) and an estimate of the NRA from non-product-specific forms of assistance or taxation.

[2] The methodology used here is similar but not identical to that used by Krueger, Schiff and Valdés (1991) and Valdés (1996). For a discussion of the differences in both the methodology and the estimates, see Anderson (2010).

[3] Our definition of a policy-induced price distortion follows Bhagwati (1971) and Corden (1997) and includes any policy measure at a country's border (such as a trade tax or subsidy, a quantitative restriction on trade or a dual or multiple foreign exchange-rate system, or any domestic producer or consumer tax/subsidy/restraint on output, intermediate inputs or primary factors of production (except where needed to directly overcome a diseconomy, or where it is set optimally across all products or factors, such as a value added tax to raise government revenue).

Each farm industry is classified either as import-competing, or as a producer of exportables, or as producing a non-tradable (with its status sometimes changing over the years), so as to generate for each year the weighted average NRAs for the two different groups of covered tradable farm products. We also generate a production-weighted average NRA for non-agricultural tradables, for comparison with that for agricultural tradables via the calculation of a percentage relative rate of assistance (RRA), defined as:

$$RRA = 100*\left[(100 + NRAag^t)/(100 + NRAnonag^t) - 1\right] \quad (1)$$

where $NRAag^t$ and $NRAnonag^t$ are the percentage NRAs for the tradables parts of the agricultural (including non-covered) and non-agricultural sectors, respectively.[4] Since the NRA cannot be less than -100% if producers are to earn anything, neither can the RRA (since the weighted average $NRAnonag^t$ is non-negative in all our country case studies). And if both those sectors are equally assisted, the RRA is zero. This measure is useful in that if it is below (above) zero, it provides an internationally comparable indication of the extent to which a country's sectoral policy regime has an anti-(pro-)agricultural bias.

In addition to the NRA, we also consider the extent to which consumers are taxed or subsidized. For this purpose, a consumer tax equivalent (CTE) is computed as the percentage by which the price that consumers pay for their food exceeds the international price of each food product at the border. Differences between the NRA and the CTE can arise from distortions in the domestic economy resulting from transfer policies and taxes/subsidies that cause the prices paid by consumers (adjusted to the farm gate level) to differ from those received by producers; but in the absence of such differences, the CTE for each tradable farm product is assumed to be the same as the NRA from border distortions, and the CTE for non-tradable farm products is assumed to be zero.

2. Nominal rates of assistance to agriculture

On average, agricultural price and trade policies in Latin America reduced farmer earnings in the post-war period and through to the 1980s. The extent of this reduction (when expressed as a nominal tax equivalent) peaked at more than 20% in the 1970s, but still averaged close to 10% in the later 1980s (table 2). The only focus countries in our sample that received positive assistance from farm policies during that period were Chile and (at least from the late 1970s, but only to a minor extent) Mexico and Colombia. Argentina, Brazil, the Dominican Republic and Ecuador each had negative rates of assistance that averaged well over 20% for at least one five-year period and, apart from the Dominican Republic, each had a negative average NRA even in the 1990s, as did Nicaragua. By the mid-1990s, however, Brazil and the Dominican Republic had joined Chile and Colombia in having positive average NRAs. Meanwhile, Mexico had raised its assistance considerably before engaging in reform following negotiations to join the World Trade Organization (WTO) and NAFTA, while Argentina had all but eliminated discrimination against its exporters in the 1990s, only to reinstate explicit export taxes again in late 2001 when it abandoned its fixed exchange rate against the United States dollar and nominally devalued its currency by two thirds.

The average NRA for all agriculture across the region in the 1990s and the first half of the present decade was slightly positive, at around 5% (figure 1). The strong anti-trade bias of the past has diminished somewhat but is still evident in figure 1, which shows the average NRAs for agriculture's import-competing and export subsectors in the region.

According to the new study's estimates, there are relatively few significant domestic producer subsidies or taxes in the region. The main exceptions are positive domestic support measures in Mexico and slightly negative measures in Argentina (excluding export taxes). Non-product-specific assistance amounts to only one or two percentage points during the past four decades. Input price distortions have also contributed little, on average, to the overall regional NRA in agriculture, reducing the negative value slightly in the 1980s and adding modestly to the positive value during the past decade or so.

[4] Farmers are affected not just by the prices of their own products but also by the incentives non-agricultural producers face. That is, it is *relative* prices and hence *relative* rates of government assistance that affect producer incentives. More than seventy years ago, Lerner (1936) provided his Symmetry Theorem, which proved that in a two-sector economy, an import tax has the same effect as an export tax. This carries over to a model that also includes a third sector producing only non-tradables. For a clear non-technical exposition of this important insight from theory of relevance to Latin America, see Clements and Sjaastad (1984).

TABLE 2

Latin America and other regions: nominal rates of assistance to agriculture, 1965 to 2004[a]
(Percentages)

	1965-1969	1970-1974	1975-1979	1980-1984	1985-1989	1990-1994	1995-99	2000-2004
Argentina	-22.7	-22.9	-20.4	-19.3	-15.8	-7.0	-4.0	-14.9
Brazil[b]	-6.1	-27.3	-23.3	-25.7	-21.1	-11.3	8.0	4.1
Chile	16.2	12.0	4.5	7.2	13.0	7.9	8.2	5.8
Colombia	-4.7	-14.8	-13.0	5.0	0.2	8.2	13.2	25.9
Dominican Republic	5.0	-17.5	-21.2	-30.7	-36.4	-1.0	9.2	2.5
Ecuador[b]	-9.6	-22.4	-15.0	5.9	-1.0	-5.3	-2.0	10.1
Mexico	...	...	...	2.9	3.0	30.8	4.2	11.6
Nicaragua[b]	...	...	...	...	...	-3.2	-11.3	-4.2
LA focus countries[a]	-7.2	-21.0	-18.0	-12.5	-10.9	4.2	5.5	4.8
Africa	-11.3	-14.7	-12.7	-7.9	-1.0	-8.9	-5.7	-7.3
Asia (excl. Japan)	-25	-25	-24	-21	-9	-2	8	12
Western Europe	68	46	56	74	82	64	44	37
United States and Canada	11	7	8	13	19	16	11	17
Australia and N. Zealand	10	8	8	11	9	4	3	1
Developing countries	-22	-24	-22	-18	-8	-2	6	9
High-income countries	35	25	32	41	53	46	35	32
All focus countries	6	0	2	5	17	18	17	18

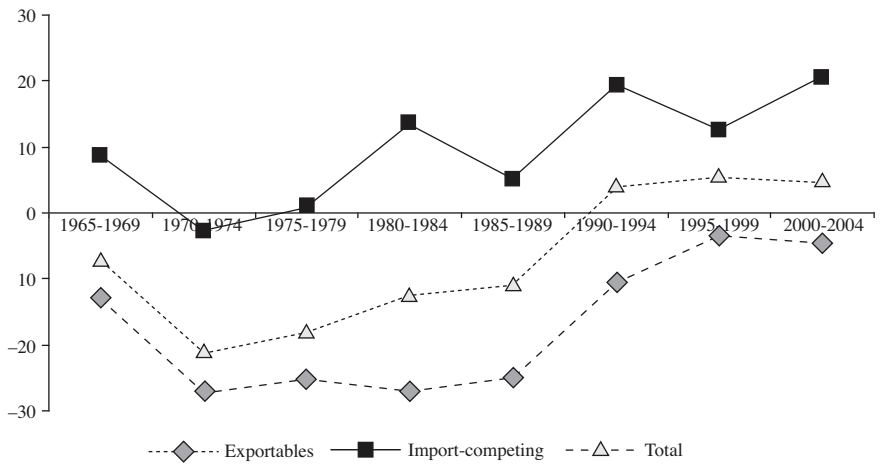
Source: K. Anderson and E. Valenzuela, Estimates of Global Distortions to Agricultural Incentives, 1955 to 2007, Washington, D.C., World Bank, 2008 [on-line] www.worldbank.org/agdistortions, on the basis of estimates reported in K. Anderson and A. Valdés (comps.), Distortions to Agricultural Incentives in Latin America, Washington, D.C., World Bank, 2008.

[a] Weighted average for each country, including product-specific input distortions and non-product-specific assistance as well as authors' guesstimates for non-covered farm products, with weights based on gross value of agricultural production at undistorted prices.

[b] Ecuador and Brazil 1965-69 column refers to 1966-1969 data, and Nicaragua 1990-1994 column to 1991-1994 data.

FIGURE 1

Latin America: nominal rates of assistance to exportable, import-competing and all agricultural products, 1965 to 2004
(Percentages, weighted average across countries)



Source: K. Anderson and E. Valenzuela, *Estimates of Global Distortions to Agricultural Incentives, 1955 to 2007*, Washington, D.C., World Bank, 2008 [on-line] www.worldbank.org/agdistortions, on the basis of estimates reported in K. Anderson and A. Valdés (comps.), *Distortions to Agricultural Incentives in Latin America*, Washington, D.C., World Bank, 2008.

3. Assistance to non-farm sectors and the RRA

The anti-agricultural policy bias of the past was caused not only by agricultural policies but also by sectoral policies affecting industrial activities. The significant reduction in border protection for the manufacturing sector and the indirect impact of this in the form of lower prices for non-tradables after the initiation of the reforms, together with the deregulation and privatization of services, have also been important influences on incentives affecting intersectorally mobile resources. The reduction in assistance to non-farm tradable sectors may have been as responsible for the expansion in agricultural exports since the early 1990s as the reduction in direct taxation on these agricultural exports.

It has not been possible to quantify this distortion in non-farm tradable sectors as accurately as the distortion in agriculture. National case study authors have had to rely on applied trade taxes (for exports as well as imports) rather than undertaking price comparisons for all non-farm goods, and hence they have not captured the quantitative restrictions on trade that were important in earlier decades but that have been less important recently. Nor have they captured distortions in the services sectors; many of these sectors now produce tradables (or would do in the absence of interventions preventing the emergence of this production). As a result, the NRAs for non-farm importables are underestimated, and the decline indicated is less rapid than the decline that actually occurred. The situation is similar for non-farm exportables, except that the actual NRAs would have been negative in most cases. Of these two elements of underestimation, the former bias probably dominated. Thus, the case study authors' estimates of the overall NRA for non-agricultural tradables should be considered as lower-bound estimates; this is especially true as we go back in time, so that the decline indicated by the NRA is less rapid than it actually was.[5]

Despite these methodological limitations, the estimated NRAs for non-farm tradables prior to the 1990s are sizeable. For Latin America as a whole, the average value of the NRAs for non-farm tradables has steadily declined throughout the past four decades as policy reforms have spread. This has therefore contributed to a decline in the estimated RRA among farmers. Thus, the RRA has fallen from more than -30% in the 1970s to an average of close to zero in 2000-2004 (see table 3), and this appears to have been caused as much by falling positive NRAs among non-

[5] This bias is accentuated in those cases where distortions to exchange rates are not included. Exchange-rate distortions have been included only in the studies on the Dominican Republic, Ecuador and Nicaragua, and these economies are too small for their inclusion to affect noticeably the weighted average NRAs and RRAs for the region as a whole.

TABLE 3

Latin America: nominal rates of assistance to agricultural and non-agricultural industries, 1965 to 2004
(Weighted averages for eight focus countries, percentages)

	1965-69	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
NRA, covered products[a]	-13.0	-25.1	-19.6	-14.6	-14.3	0.9	0.8	2.7
NRA, non-covered products	-3.3	-15.5	-15.0	-10.9	-13.1	0.7	3.8	2.1
NRA, all agricultural products[a]	-8.6	-21.7	-18.1	-13.6	-14.0	0.8	1.7	2.5
Total agricultural NRA (incl. NPS)[b]	**-7.2**	**-21.0**	**-18.0**	**-12.5**	**-10.9**	**4.2**	**5.5**	**4.8**
NRA, tradables only:								
All agricultural tradablesb	-9.3	-23.0	-19.0	-12.9	-11.2	4.4	5.5	4.9
All non-agricultural tradables	15.9	27.8	23.3	18.5	16.8	7.3	6.6	5.5
Relative rate of assistance, RRA[c]	**-21.4**	**-39.8**	**-34.2**	**-26.6**	**-24.0**	**-2.7**	**-1.0**	**-0.6**

Source: K. Anderson and E. Valenzuela, *Estimates of Global Distortions to Agricultural Incentives, 1955 to 2007*, Washington, D.C., World Bank, 2008 [on-line] www.worldbank.org/agdistortions, on the basis of estimates reported in K. Anderson and A. Valdés (comps.), *Distortions to Agricultural Incentives in Latin America*, Washington, D.C., World Bank, 2008.

[a] NRAs including product-specific input subsidies.
[b] NRAs including non-product-specific (NPS) assistance, that is, the assistance given to all primary factors and intermediate inputs as a percentage of total primary agricultural production valued at undistorted prices.
[c] RRA is defined as $100*[(100 + NRAag^t)/(100 + NRAnonag^t) - 1]$, where $NRAag^t$ and $NRAnonag^t$ are the percentage NRAs for the tradables parts of the agricultural and non-agricultural sectors, respectively.

farm producers as by falling negative NRAs among farmers (figure 2). The extent of the change in RRAs in individual countries over the past two decades is striking, particularly in the case of Brazil and the Dominican Republic (the virtual disappearance of negative RRAs) and of Colombia (a switch from negative to positive RRAs).

Similar estimates of distortion have been undertaken for Asia and Africa, making it possible to compare the extent of reforms in Latin America with those in other developing-country regions. Figure 3 summarizes those findings (see Anderson 2009, chapter 1 for details). It reveals that Latin American countries have reformed considerably more than countries in Africa, and like Asia they now have an average RRA of close to zero. However, their policy regimes were apparently not as negative towards farmers as those of Asia during the final third of the twentieth century.

4. Consumer tax equivalents of agricultural policies

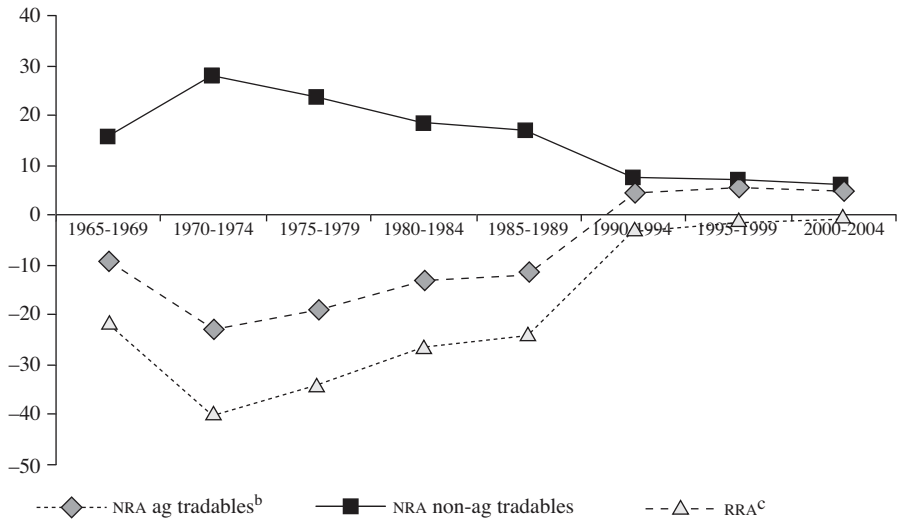
The extent to which farm policies impact on the retail consumer price of food and on the price of livestock feedstuffs depends on a wide range of factors, including the degree of processing undertaken and the extent of competition along the value chain. We therefore attempt only to examine the importance of the impact of policies on the buyer's price at the level where the farm product is first traded internationally and, hence, where price comparisons are made.[6]

[6] The consumer tax at the retail level is probably smaller in percentage terms but larger in value terms, because of the addition of marketing margins in the processing, distribution and retail parts of the value chain. To obtain weights that can make it possible to sum up across commodities and countries, we calculate the volume of apparent consumption simply as production plus net imports and then value the result at undistorted prices.

FIGURE 2

Latin America: nominal rates of assistance (NRA) to agricultural and non-agricultural tradable products and relative rate of assistance (RRA), 1965 to 2004[a]

(Percentages, weighted averages across eight countries)

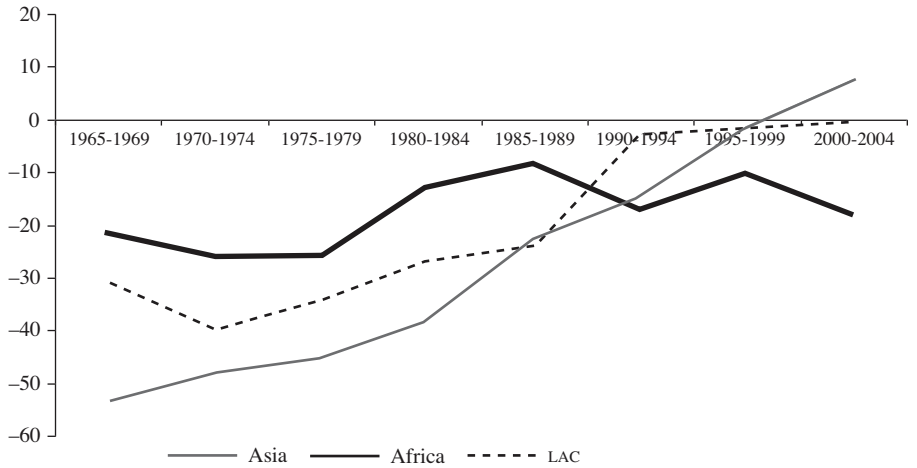


Source: K. Anderson y E. Valenzuela, *Estimates of Global Distortions to Agricultural Incentives, 1955 to 2007*, Washington, D.C., World Bank, 2008 [on-line] www.worldbank.org/agdistortions, on the basis of estimates reported in K. Anderson and A. Valdés (comps.), *Distortions to Agricultural Incentives in Latin America*, Washington, D.C., World Bank, 2008.

[a] The RRA is defined as $100*[(100 + NRAag^t)/(100 + NRAnonag^t - 1]$, where $NRAag^t$ and $NRAnonag^t$ are the percentage NRAs for the tradables parts of the agricultural and non-agricultural sectors, respectively.
[b] Nominal rate of assistance.
[c] Relative rate of assistance.

FIGURE 3

Africa, Asia and Latin America: relative rates of assistance, 1965 to 2004[a]
(Percentages)



Source: K. Anderson and E. Valenzuela, *Estimates of Global Distortions to Agricultural Incentives, 1955 to 2007*, Washington, D.C., World Bank, 2008 [on-line] www.worldbank.org/agdistortions, on the basis of estimates reported in K. Anderson and A. Valdés (comps.), *Distortions to Agricultural Incentives in Latin America*, Washington, D.C., World Bank, 2008.

[a] Five-year weighted averages with value of production at undistorted prices as weights. In Asia, estimates for China pre-1981 are based on the assumption that the nominal rate of assistance to agriculture in those earlier years was the same as the average NRA estimates for China in 1981-1989.

If there were no farm input distortions and no domestic output price distortions, so that the NRA was entirely the result of border measures such as an import or export tax, then the CTE would equal the NRA for each covered product. Because the behind-the-border distortions are relatively minor in Latin America, and because the NRA tended to be positive for import-competing products and negative for exportables until recently, the weighted average CTE for the region has been negative for most of the period. It averaged around -15% until the 1990s and was marginally above zero thereafter (table 4).

5. Partial equilibrium indices of trade and the welfare effects of national farm policies

One way to indicate the impact that the market distortions have had over time on trade and welfare has been suggested by Anderson and Neary (2005), who developed a family of so-called trade restrictiveness indices. More recently Lloyd, Croser and Anderson (2009) have built on that family of indices for situations (as in agriculture) where there are differences between consumer and producer price distortions. Their trade (or welfare) reduction index, TRI (or WRI), makes use of the above NRA and CTE estimates for each farm product to answer the question: what ad valorem trade tax, if applied uniformly to all farm products, would provide the same reduction in national agricultural trade (economic welfare) as the current structure of NRAs and CTEs? An important aspect of the WRI in particular is that it takes into account the fact that the welfare cost of a price-distorting policy measure is proportional to the square of the NRA for that measure.

Estimates of these TRIs and WRIs, which have the virtue of being comparable across countries and over time, are reported in table 5. Since the mid-1980s they have declined considerably for Brazil and Chile, and also for Argentina and Ecuador until recent reversals. For the region as a whole, the time path for these indicators has again followed that of Asia, and they have been more substantial than in Africa.

6. Computable general equilibrium modelling of price and trade policy effects

While the above indices of trade and welfare reduction offer very useful indications over time of how much agricultural price and trade policies have been

TABLE 4

Latin America, selected countries: percentage consumer tax equivalent of policies affecting covered farm products, 1965 to 2003[a]
(Percentages, at primary product level)

	1965-1969	1970-1974	1975-1979	1980-1984	1985-1989	1990-1994	1995-1999	2000-2003
Argentina	-27.6	-27.2	-25.2	-23.4	-16.6	-5.7	0.0	-9.1
Brazil	2.1	-25.4	-19.8	-25.8	-26.5	-23.1	-2.1	-1.3
Chile	7.1	1.5	2.8	9.0	23.8	18.1	14.2	10.7
Colombia	7.2	-13.4	-5.3	27.4	20.8	16.2	33.9	49.7
Dominican Rep.	12.9	-7.1	-7.7	-27.8	-31.4	7.8	16.6	3.5
Ecuador	-10.5	-25.7	3.9	35.0	17.4	-3.3	4.6	18.5
Mexico	...	...	...	-1.3	0.8	22.3	-1.9	9.9
Nicaragua	...	...	...	...	...	10.5	10.6	9.0
LA focus countries *(weighted average)*[b]	**-4.7**	**-22.1**	**-16.2**	**-13.4**	**-12.3**	**-2.7**	**1.4**	**5.1**

Source: K. Anderson and E. Valenzuela, *Estimates of Global Distortions to Agricultural Incentives, 1955 to 2007*, Washington, D.C., World Bank, 2008 [on-line] www.worldbank.org/agdistortions, on the basis of estimates reported in K. Anderson and A. Valdés (comps.), *Distortions to Agricultural Incentives in Latin America*, Washington, D.C., World Bank, 2008.

[a] Assumes the CTE is the same as the NRA derived from trade measures (i.e., not including any input taxes/subsidies or domestic producer price subsidies/taxes).
[b] Weights are consumption valued at undistorted prices, where consumption (from FAO) is estimated as production plus imports net of exports plus change in stocks of the covered products.

distorting national farm sectors, they are nonetheless only partial in the sense that reforms to policies in other sectors —which may have an indirect effect on farmer incentives— are not taken into account. Furthermore, there is an interest in numerous other regional and global economic consequences beyond national agricultural trade and economic welfare. And with reforms going on elsewhere in the world at the same time as Latin America has been reforming its policies, what are the net effects on Latin America of this global reform movement?

To respond to such additional interests and questions, the best available economic assessment tool is a global economy-wide model. For most of this decade, the World Bank has been using a global computable general equilibrium model known as LINKAGE (Van der Mensbrugghe, 2005) to form the basis for the World Bank's standard long-term projections of the world economy and for much of its trade policy analysis (see, for example, World Bank, 2002, 2004, 2005 and 2006). Valenzuela, van der Mensbrugghe and Anderson (2009) recently used that model first to quantify the net economic effects of trade-related policy changes globally from the early 1980s to 2004, and then to compare them with the prospective effects of removing the remaining policy distortions to global goods markets. While no-one anticipates a move to completely free markets globally in the near future, the comparison with the 1980-1984 results provides a perspective on what is still in prospect relative to what the world has already been through in terms of policy changes over the past quarter-century. The prospective analysis also serves as a benchmark to suggest what is at stake in terms of further reforms via World Trade Organization (WTO) rounds of multilateral trade negotiations. At the same time, by showing how different the trade patterns of various countries would be without distortion, such results also provide a better indication of agricultural comparative advantages in different parts of the world than is available by looking at actual trade and self-sufficiency indicators in the current distortion-ridden situation.

The World Bank's LINKAGE model is a relatively straightforward CGE model in which factor stocks are fixed, producers minimize costs subject to constant returns to scale of production technology, consumers maximize utility, and all markets are cleared with flexible prices. There are three types of production structures. Crop sectors reflect the substitution possibilities between extensive and intensive farming; livestock sectors reflect the substitution possibilities between pasture and intensive feeding; and all other sectors reflect standard capital/labour substitution. There are two types of labour, skilled and unskilled. There is a single representative household per

TABLE 5

Selected countries and regions:[a] trade and welfare reduction indices for all covered tradable farm products, 1960 to 2004
(Percentages)

a) Trade reduction indices

	1960-64	1965-69	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
Argentina	30	27	28	25	23	18	7	3	13
Brazil	n.a.	12	28	19	20	13	11	0	0
Chile	9	-7	-15	4	8	24	17	14	8
Colombia	14	5	8	8	18	11	5	12	-13
Dominican Rep.	60	25	21	27	37	34	57	30	37
Ecuador	...	12	15	34	45	26	3	7	16
Mexico	...	...	...	12	16	13	26	8	17
Nicaragua	...	...	...	...	...	...	11	22	18
Latin America	**22**	**8**	**19**	**17**	**19**	**13**	**23**	**7**	**8**
Africa	**32**	**33**	**33**	**34**	**18**	**54**	**17**	**16**	**22**
Asia	**15**	**28**	**23**	**28**	**34**	**28**	**18**	**8**	**6**
Developing countries	**26**	**27**	**27**	**28**	**28**	**29**	**21**	**9**	**10**
European transition economies	**...**	**...**	**...**	**...**	**...**	**...**	**-4**	**13**	**14**
High-income countries	**19**	**9**	**16**	**21**	**27**	**28**	**28**	**18**	**18**

b) Welfare reduction indices

	1960-64	1965-69	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
Argentina	32	30	28	27	24	19	10	8	17
Brazil	n.a.	16	43	36	42	39	34	8	7
Chile	53	27	28	28	16	34	23	18	13
Colombia	28	23	22	26	40	25	25	35	58
Dominican Rep.	78	42	44	46	50	55	89	48	59
Ecuador	...	37	48	59	71	44	20	24	32
Mexico	...	...	...	43	48	42	54	30	33
Nicaragua	...	...	...	...	...	...	29	31	26
Latin America	**42**	**25**	**38**	**36**	**44**	**39**	**42**	**20**	**23**
Africa	**52**	**52**	**52**	**49**	**51**	**81**	**52**	**37**	**36**
Asia	**27**	**44**	**39**	**42**	**48**	**46**	**28**	**19**	**16**
Developing countries	**44**	**44**	**42**	**42**	**48**	**48**	**32**	**19**	**18**
High-income countries	**49**	**48**	**46**	**64**	**69**	**71**	**52**	**38**	**38**

Source: K. Anderson and J. Croser, "National and global agricultural trade and welfare reduction indexes, 1955 to 2007," Washington, D.C., World Bank, 2009 [on-line] www.worldbank.org/agdistortions, on the basis of product NRAs and CTEs in K. Anderson and E. Valenzuela, *Estimates of Global Distortions to Agricultural Incentives, 1955 to 2007*, Washington, D.C., World Bank, 2008 [on-line] www.worldbank.org/agdistortions..

[a] Regional aggregates are weighted using the average of the value of production and the value of consumption at undistorted prices.

modelled region, allocating income to consumption using the extended linear expenditure system. Trade is modelled using a nested Armington structure in which aggregate import demand is the outcome of allocating domestic absorption between domestic goods and aggregate imports, and then aggregate import demand is allocated across source countries to determine bilateral trade flows.[7]

[7] In terms of model closure, government fiscal balances are fixed, with the fiscal objective being met by changing the level of lump-sum taxes on households. This implies that losses of tariff revenues are replaced by higher direct taxes on households. The current-account balance is also fixed. Given that other external financial flows are fixed, this implies that ex ante changes to the trade balance are reflected in ex post changes to the real exchange rate. For example, if import tariffs are reduced, the propensity to import increases, and additional imports are financed by increasing export revenues. The latter typically is achieved by a depreciation of the real exchange rate. Finally, investment is driven by savings. With fixed public and foreign saving, investment comes from changes in the saving behaviour of households and from changes in the unit cost of investment. The model only solves for relative prices, with the numeraire, or price anchor, being the export price index of manufactured exports from high-income countries. This price is fixed at unity in the base year.

The model is calibrated to 2004 using Version 7 of the GTAP global protection database (see www.gtap.org). This is amended by replacing its estimated agricultural distortions for developing countries (which are mostly based on applied tariff rates only) with NRAs and CTEs that reproduce those estimated by authors of the developing-country case studies in the World Bank project, as compiled by Valenzuela and Anderson (2008). Valenzuela and Anderson also provide a set of distortions for the period 1980-1984, again aiming to reproduce trend distortion rates in the country case studies. Both periods' distortions are summarized for Latin American countries and other regions in table 6.

Several key findings from the global economy-wide modelling study by Valenzuela, van der Mensbrugghe and Anderson (2009) are worth emphasizing. First, the model estimates that policy reforms from the early 1980s to 2004 improved developing-country economic welfare by US$ 73 billion per year, and that removing the distortions remaining as of 2004 would add another US$ 65 billion per year. This suggests that, in a developing-country welfare sense, the world had

TABLE 6

Selected countries and regions: structure of price distortions in global goods markets, 1980-1984 and 2004[a]

(Percentages)

	1980-1984				2004			
	Primary agriculture	Agriculture and lightly processed food		Other goods	Primary agriculture	Agriculture and lightly processed food		Other goods
	Domestic support	Export subsidy	Tariff	Tariff	Domestic support	Export subsidy	Tariff	Tariff
Argentina	0.0	-20.9	0.0	15.8	0.0	-14.8	0.0	5.8
Brazil	5.0	-17.1	3.2	33.4	0.0	0.0	4.8	8.9
Chile	-3.0	0.0	4.8	6.2	0.0	0.0	2.4	1.8
Colombia	-0.6	1.0	21.7	22.8	0.0	0.0	21.6	9.8
Ecuador	0.0	-13.7	28.6	10.3	0.0	0.0	13.4	10.4
Mexico	14.3	-9.6	19.1	6.8	1.2	0.0	6.2	3.4
Nicaragua	0.0	-2.8	10.9	3.9	0.0	-2.8	9.6	3.9
Other Latin America	-1.7	0.3	9.9	9.9	-1.7	0.3	9.9	9.9
All developing countries	**-0.6**	**-11.0**	**16.4**	**25.6**	**1.4**	**0.0**	**21.8**	**7.5**
Africa	-0.3	-2.5	17.0	12.6	-0.8	0.1	20.4	11.2
East Asia	-5.6	-21.5	24.3	29.6	-0.3	0.0	41.6	6.7
South Asia	3.5	-7.1	10.7	72.6	7.2	1.7	6.9	20.2
Latin America	3.8	-9.6	9.8	15.7	-0.2	-1.4	7.2	6.7
Middle East	-12.4	0.0	7.5	5.7	-12.4	0.0	7.5	5.7
E. Europe and C. Asia	0.8	-2.6	13.8	9.6	0.8	-0.3	15.9	4.8
High-income countries	**6.6**	**20.9**	**24.0**	**2.4**	**2.6**	**7.2**	**22.3**	**1.2**
World total	**2.3**	**4.7**	**20.1**	**10.1**	**1.9**	**3.5**	**22.1**	**3.3**

Source: Authors' calculations based on K. Anderson and E. Valenzuela, *Estimates of Global Distortions to Agricultural Incentives, 1955 to 2007*, Washington, D.C., World Bank, 2008 [on-line] www.worldbank.org/agdistortions.

[a] Using value of production at undistorted prices as weights.

moved nearly half of the way towards freeing up goods trade over that quarter-century. For Latin America, the corresponding welfare gains are US$ 7.1 billion and US$ 15.8 billion per year (table 7). Since the Latin American region represents barely one tenth of the population of developing countries, its per capita gains were similar to those for other developing-country regions during the past quarter-century, and would be (one tenth of 15.8/65 =) 2.4 times greater if the policies in place as of 2004 were to be removed. This is largely because 70% of those prospective welfare gains from global liberalization would come from agricultural and food policy reforms.

Second, the share of global farm production exported in 2004, including intra-European Union (EU) trade, was slightly smaller as a result of those reforms in 1980-2004(11.4% instead of 13.1%) because of the reduction in farm export subsidies (table 8). Agriculture's 11% share in 2004 contrasts with three times that for other primary products and more than twice that for all other goods —a 'thinness' that is an important contributor to the volatility of international prices for weather-dependent farm products. If the policies distorting goods trade in 2004 were removed, the share of global farm product and food production exported would rise from 11.4% to 15.4%, thereby reducing instability in the prices and quantities of those products traded. This would benefit Latin America especially, given that agriculture and food products are 2.2 times more important to its exports than to the rest of the world's exports.

Third, the developing countries' share of the world's primary agricultural exports rose from 43% to 55%, and its farm output share from 58% to

TABLE 7

Selected countries and regions: welfare impact of a return to 1980-1984 policies and of full liberalization of global merchandise trade, 2004
(Relative to the 2004 benchmark data, in 2004 dollars and percentages)

	Return to 1980-1984 price distortions in 2004				Full liberalization of remaining price distortions as of 2004			
	Total real income change p.a. *(billions of dollars)*	Change in income due to change in terms of trade only *(billions of dollars)*	Total real income change as percentage of 2004 benchmark[a]		Total real income change p.a. *(billions of dollars)*	Change in income due to change in terms of trade only *(billions of dollars)*	Total real income change as percentage of 2004 benchmark[a]	
Argentina	-1.7	0.1	-1.4	(0.1)	3.2	-0.7	2.6	(-0.6)
Brazil	-5.3	6.8	-1.2	(1.6)	6.8	5.6	1.6	(1.3)
Chile	0.1	0.7	0.1	(1.0)	0.3	0.2	0.4	(0.3)
Colombia	2.5	2.5	3.5	(3.5)	2.2	0.7	3.1	(1.0)
Ecuador	-0.6	0.3	-2.5	(1.2)	2.0	1.1	8.2	(4.4)
Mexico	-2.6	3.6	-0.5	(0.7)	-0.7	-3.4	-0.1	(-0.6)
Nicaragua	0.0	0.0	0.6	(0.0)	0.0	0.0	1.3	(0.4)
Other Latin America	0.5	-0.2	0.1	(-0.1)	2.0	-1.0	0.5	(-0.3)
All developing countries	**-73.1**	**49.3**	**-1.0**	**(0.7)**	**64.9**	**-12.2**	**0.9**	**(-0.2)**
North Africa	0.6	0.1	0.3	(0.0)	0.9	-2.8	0.5	(-1.5)
Sub-Saharan Africa	-3.4	1.7	-1.0	(0.5)	0.0	-3.2	0.0	(-0.9)
East Asia	-61.5	19.9	-2.2	(0.7)	30.1	-1.0	1.1	(0.0)
South Asia	-10.8	6.5	-1.7	(1.0)	-0.4	-3.9	-0.1	(-0.6)
Latin America	-7.1	13.7	-0.4	(0.8)	15.8	2.5	1.0	(0.2)
Middle East	2.6	0.4	0.5	(0.1)	4.2	-0.2	0.8	(0.0)
E. Europe and C. Asia	6.5	7.1	0.5	(0.6)	14.2	-3.6	1.2	(-0.3)
High-income countries	**-159.9**	**-50.8**	**-0.7**	**(-0.2)**	**102.8**	**11.3**	**0.5**	**(0.1)**
World total	**-233.0**	**-1.5**	**-0.8**	**(0.0)**	**167.7**	**-1.0**	**0.6**	**(0.0)**

Source: World Bank LINKAGE model simulations from E. Valenzuela, D. van der Mensbrugghe and K. Anderson, "General equilibrium effects of distortions on global markets, farm incomes and welfare," *Distortions to Agricultural Incentives: A Global Perspective, 1955-2007*, K. Anderson (comp.), London, Palgrave Macmillan, 2009.a Numbers in parentheses refer to change due to terms of trade effects.

[a] Numbers in parentheses refer to change due to terms of trade effects.

TABLE 8

Selected countries and regions: impact on shares of agricultural and food production exported of a return to 1980-1984 policies and of full liberalization of global merchandise trade
(Percentages)

	2004 benchmark	Return to 1980-1984 policies	Full global liberalization
Argentina	42.3	31.6	47.0
Brazil	20.7	13.3	32.5
Chile	37.6	34.7	40.0
Colombia	13.6	32.0	29.0
Ecuador	28.2	21.2	47.5
Mexico	7.7	6.8	9.2
Nicaragua	27.6	31.4	31.9
Other Latin America	14.6	15.0	26.8
All developing countries	**9.5**	**9.5**	**16.9**
North Africa	6.3	7.9	20.6
Sub-Saharan Africa	13.8	13.5	19.3
East Asia	8.4	7.7	15.1
South Asia	3.7	2.4	7.5
Latin America	18.1	16.3	28.2
Middle East	7.4	14.2	17.2
E. Europe and C. Asia	6.8	9.1	11.1
High-income countries	**13.0**	**15.9**	**14.1**
World total[a]	**11.4**	**13.1**	**15.4**

Source: World Bank LINKAGE model simulations from E. Valenzuela, D. van der Mensbrugghe and K. Anderson, , "General equilibrium effects of distortions on global markets, farm incomes and welfare," *Distortions to Agricultural Incentives: A Global Perspective, 1955-2007*, K. Anderson (comp.), London, Palgrave Macmillan, 2009.

[a] Including intra-EU trade.

62%, because of those reforms, with rises in nearly all agricultural industries except rice and sugar. Removing remaining goods market distortions would boost their export and output shares to 64% and 65%, respectively. Because of the importance of farm products in the exports of Latin America, it enjoys exceptionally large proportions of those developing-country share gains.

Fourth, the average real price in international markets for agricultural and food products would have been 13% lower had policies not changed over the quarter-century to 2004. Evidently the impact of reforms in high-income countries (including the cuts in farm export subsidies) in raising international food prices more than offset the opposite impact of reforms (including the cuts in agricultural export taxes) in developing countries over that period. By contrast, removing the distortions remaining as of 2004 is projected to raise the international price of agricultural and food products by less than 1% on average (table 9). This is contrary to earlier modelling results based on the GTAP protections database, such as those in Anderson, Martin and van der Mensbrugghe (2006), which suggested they would rise by 3.1% or, for primary agriculture alone, by 5.5%. The lesser impact in these new results is because export taxes in developing countries based on the above NRA estimates are included in the new database (most notably for Argentina), and their removal would offset the international price-raising effect of eliminating import protection and farm subsidies elsewhere.

Fifth, accompanying the price changes are changes in output, exports and imports of farm products. For Latin America, output would have been about 7% lower and exports 21% lower in 2004 had the reforms after the early 1980s not taken place, compared with just 3% lower and 5% *higher* for other developing countries, respectively. However, while farm output would increase even more in Latin America if the distortions remaining as of 2004 were removed (by 27%), they would increase by only 7% in other developing countries on average. For the world as a whole, these results suggest farm trade would have been two thirds bigger in real value terms had the past two

TABLE 9

Impact on real international product prices of a return to 1980-1984 policies and of full liberalization of global merchandise trade
(Percentages relative to 2004 baseline)

	Return to 1980-1984 policies	Full global liberalization
Paddy rice	-11.6	6.6
Wheat	-15.4	1.4
Other grains	-27.5	2.7
Oil seeds	-8.6	-2.4
Sugar cane and beet	-0.5	-2.0
Plant-based fibres	0.8	2.9
Vegetables and fruits	2.8	1.8
Other crops	2.6	1.0
Cattle, sheep	0.5	-1.1
Other livestock	-2.0	-2.1
Raw milk	0.4	-0.2
Wool	-1.9	3.3
Beef and sheep meat	-15.0	4.6
Other meat products	-45.5	0.6
Vegetable oils and fats	-1.4	-1.9
Dairy products	-8.5	3.8
Processed rice	0.6	2.9
Refined sugar	-2.5	1.3
Other food, beverages and tobacco	0.1	-1.3
Textile and wearing apparel	1.4	-1.2
Other manufacturing	0.3	-0.2
Merchandise trade	-1.2	-0.2
Agriculture and food	-12.6	0.3
Primary agriculture	-5.9	0.9
Agriculture and lightly processed food	-17.6	1.3

Source: World Bank LINKAGE model simulations from E. Valenzuela, D. van der Mensbrugghe and K. Anderson, "General equilibrium effects of distortions on global markets, farm incomes and welfare," *Distortions to Agricultural Incentives: A Global Perspective, 1955-2007*, K. Anderson (comp.), London, Palgrave Macmillan, 2009
N.B.: Model numeraire is the export price index of high-income countries' manufactured exports.

decades of reform not occurred. On the export side, that is almost entirely due to high-income countries, whose exports would have been more than twice as large had they not lowered their export subsidies and developing countries not lowered their export taxes. If the distortions as of 2004 were removed, global trade would be boosted by two fifths (table 10).

Sixth, for developing countries as a group, net farm income (value added in agriculture) would have been 5% lower without the reforms of the quarter-century to 2004, and 10% lower in Latin America, which is many times more than the proportional gains for non-agriculture. If the policies remaining in 2004 were removed, net farm incomes would rise a further 37% for Latin America and 6% for all developing countries, compared with just 2% for non-agricultural value added (table 11). Furthermore, returns to unskilled workers in developing countries – the majority of whom work on farms – would rise by more than returns to other production factors from that liberalization. In Latin America that is also true, except that land rents are affected even more positively than unskilled labour. Together, these findings suggest that both inequality and poverty globally could be alleviated by such reform, given that in developing countries three quarters of the poor are in farming households (Chen and Ravallion 2008); in Latin America, however, reforms may have increased inequality inasmuch as agricultural land is still owned by the wealthy.

TABLE 10

Selected countries and regions: impact on agricultural and food output and trade of a return to 1980-1984 policies and of full liberalization of global merchandise trade
(Relative to benchmark data, percentages)

	Return to 1980-1984 policies			Full liberalization		
	Output	Exports	Imports	Output	Exports	Imports
Argentina	-19.9	-36.7	27.8	37.8	95.6	81.8
Brazil	-18.2	-48.5	30.7	45.3	100.7	94.8
Chile	-11.0	-7.8	12.7	4.7	11.3	15.8
Colombia	48.6	292.6	110.4	14.6	161.4	81.7
Ecuador	-15.6	-69.6	-12.7	46.1	198.7	71.8
Mexico	-2.3	-54.0	12.6	-0.4	5.8	4.3
Nicaragua	2.8	26.1	16.8	2.9	21.6	19.4
Other Latin America	-4.6	-0.2	32.2	25.7	175.9	30.4
All developing countries	**-3.2**	**4.9**	**50.3**	**7.1**	**100.0**	**40.4**
North Africa	-0.7	35.2	21.4	17.3	377.2	62.5
Sub-Saharan Africa	4.3	15.5	50.0	1.9	41.9	32.3
East Asia	-5.4	-0.2	51.2	4.0	77.4	37.4
South Asia	-2.8	-41.2	12.3	0.0	108.3	33.2
Latin America	-6.9	-20.6	26.8	26.8	106.4	29.8
Middle East	7.1	154.2	58.6	21.5	222.7	12.1
E. Europe and C. Asia	-2.6	53.4	91.6	-2.6	79.7	77.6
High-income countries	**11.0**	**110.8**	**78.3**	**-13.1**	**-4.0**	**38.3**
World total[a]	**3.6**	**66.9**	**66.9**	**-2.6**	**39.1**	**39.1**

Source: World Bank LINKAGE model simulations from E. Valenzuela, D. van der Mensbrugghe and K. Anderson, "General equilibrium effects of distortions on global markets, farm incomes and welfare," *Distortions to Agricultural Incentives: A Global Perspective, 1955-2007*, K. Anderson (comp.), London, Palgrave Macmillan, 2009

[a] Excluding intra-EU trade.

TABLE 11

Impact on agricultural and non-agricultural value added of retrospective analysis (going back to 1980-1984 policies) and full liberalization of global merchandise trade
(relative to 2004 benchmark data, percentages)

	Return to 1980-1984 policies		Full liberalization	
	Agric.	Non-agric.	Agric.	Non-agric.
Argentina	-25.5	13.1	103.5	13.8
Brazil	-24.9	1.6	42.6	4.2
Chile	-1.8	1.3	5.5	0.9
Colombia	13.6	15.3	53.5	1.5
Ecuador	-35.4	-1.9	126.0	6.7
Mexico	-4.0	1.8	0.3	-1.0
Nicaragua	5.1	-0.4	2.4	2.3
Other Latin America	0.0	-0.2	28.7	-0.6
Developing countries	**-4.9**	**-0.4**	**5.6**	**1.9**
North Africa	-0.3	0.3	-1.1	0.8
Sub-Saharan Africa	-3.1	-0.3	-0.8	-0.5
East Asia	-8.9	-2.8	4.7	3.5
South Asia	-2.2	2.7	-6.7	-0.3
Latin America	-9.8	2.7	37.0	2.3
Middle East	-1.1	-0.8	25.4	0.9
E. Europe and C. Asia	1.5	-0.1	-5.2	0.3
High-income countries	**36.2**	**-0.5**	**-14.7**	**0.1**
World total	**8.8**	**-0.5**	**-1.2**	**0.5**

Source: World Bank LINKAGE model simulations from E. Valenzuela, D. van der Mensbrugghe and K. Anderson, "General equilibrium effects of distortions on global markets, farm incomes and welfare," *Distortions to Agricultural Incentives: A Global Perspective, 1955-2007*, K. Anderson (comp.), London, Palgrave Macmillan, 2009.

IV

Poverty, inequality and policy implications

The most salient feature of price and trade policies in the Latin America region since the 1960s are the major economic reforms, including significant trade liberalization, seen in most countries during the later 1980s and early 1990s (table 12). Overall levels of non-agricultural protection have declined considerably, most significantly in the industrial sector, and there have been reforms in the service sector (deregulation and privatization). Both changes have improved the competitiveness of the agricultural sector. By way of summarizing the key findings, the following features of the Latin American experience of the past 40 or more years are worth highlighting.

(i) The region has seen a gradual movement away from the taxation of farmers relative to non-agricultural producers since the 1970s, and the emergence of positive assistance for agriculture since the early 1990s. The gradual fall in the estimated (negative) RRA for the region, from as high as -40% in the early 1970s to less than -2% in the past decade, has not been dissimilar to trends in Africa and Asia, but is nonetheless dramatic. Instead of being effectively taxed nearly US$ 17 billion per year, as occurred in the 1980s (or US$ 400 per person working in agriculture), farmers in the region now enjoy support worth more than US$ 5 billion per year, or nearly US$ 125 per person employed on farms. An exception is Argentina, where there was a reversal of policy reform that involved a move back to direct export taxation in late 2001, although this has to be seen in the context of the massive devaluation in Argentina at that time when the country abandoned the fixed parity with the United States dollar. Thanks to the devaluation, Argentina continued to contribute to the rapid growth of Latin America's share in the global exports of farm products that was stimulated by the gradual elimination of anti-agricultural policies.

(ii) The dispersion across Latin America in average NRAs and RRAs for farmers has not diminished much despite the reforms in all countries, nor has the dispersion in NRAs among farmers within each Latin American country, including a strong anti-trade bias in assistance rates. This means there is still a lot of scope for reducing distortions in the region's use of resources in agriculture. This finding also indicates that political economy forces are at work in each country and that these are not changing greatly relative to the situation in other countries over time.

(iii) Because agricultural taxation or assistance mostly takes place via trade measures, movements in the CTE closely replicate changes in farm support or taxation, which means that food prices were kept artificially low before the reforms but have been above international levels on average in recent years. It also means there is considerable variation in CTEs across products and across countries in the region. The CTEs (like the NRAs) are highest for milk, rice and sugar, but are negative on average for maize, beef, and soybeans.

(iv) The decline in negative RRAs has been caused as much by cuts in protection in non-agricultural sectors as by reforms in agricultural policies. This underscores the fact that the removal of distortions in agricultural incentives in the region has been part of a series of economy-wide reform programmes and has not been caused merely by farm policy reforms.

(v) The recent and prospective reforms have benefited unskilled workers in the region but have benefited landholders even more. That suggests domestic income and wealth redistribution policies may need to be adjusted in Latin America if reforms are not to exacerbate inequality in the region.[8]

The assistance trends are encouraging insofar as they signal that the long period of encouraging import substitution in the industrial sector and of taxing primary exports, which so heavily discriminated against the agricultural sector in Latin America, has been largely relegated to history. However, as the above summary makes clear, this does not mean that policies are no longer distorting agricultural incentives. And if Latin America were to follow the policy path chosen by more advanced economies, which involves increasing agricultural assistance as per capita incomes rise, there may be even more distortion in the future. This suggests that vigilance

[8] A recent study by Valdés and others (2008, table 2, p. 86) suggests that since 1990 the earnings of landholders have gone down in Brazil, Chile and Mexico. That is not inconsistent with the above modelling result, which is from a 'what if…' simulation that shows how factor prices would have been changed by policy reforms since the early 1980s if nothing else changed over that period.

TABLE 12

Selected countries and regions: impact on real factor prices of a return to 1980-1984 policies and of full global merchandise trade liberalization[a]

(Relative to the benchmark data, percentages)

a) Return to 1980-1984

	Unskilled wages	Skilled wages	Capital user cost[b]	Landb user cost	Aggregate CPI	Food CPI
Developing countries	**-2.1**	**-1.7**	**-1.5**	**-4.1**	**1.0**	**0.4**
North Africa	0.3	0.1	-0.2	-1.1	0.3	-0.7
Sub-Saharan Africa	0.1	0.6	1.2	-1.5	-1.4	-3.1
East Asia	-4.5	-3.7	-3.4	-6.2	0.7	1.9
South Asia	-4.1	-4.7	-1.7	-6.6	5.4	4.7
Latin America	0.0	-0.1	-0.2	-8.1	2.2	0.2
Middle East	0.6	0.7	0.2	-4.3	-1.2	-3.9
E. Europe and C. Asia	0.2	-0.1	0.2	4.1	-0.2	-1.6
High-income countries	**0.4**	**-0.7**	**-0.4**	**102.1**	**-0.1**	**-1.2**
World total	**-0.1**	**-0.9**	**-0.7**	**21.1**	**0.2**	**-0.5**

b) Full global merchandise trade liberalization as of 2004

	Unskilled wages	Skilled wages	Capital user cost[b]	Landb user cost	Aggregate CPI	Food CPI
Developing countries	**3.5**	**3.0**	**2.9**	**1.6**	**-0.9**	**-2.8**
North Africa	7.0	7.7	5.3	-0.5	-5.2	-7.2
Sub-Saharan Africa	3.2	3.2	3.8	0.2	-3.8	-4.9
East Asia	4.0	3.4	3.3	1.9	0.1	-2.7
South Asia	-0.6	2.3	1.2	-6.2	-1.6	0.3
Latin America	4.5	1.4	1.9	21.1	1.2	3.2
Middle East	8.3	2.9	4.7	43.8	-3.3	-10.5
E. Europe and C. Asia	1.7	3.2	2.6	-4.5	-2.3	-4.5
High-income countries	**0.2**	**1.0**	**0.5**	**-17.9**	**-0.6**	**-3.6**
World total	**0.9**	**1.3**	**1.2**	**-3.1**	**-0.7**	**-3.2**

Source: World Bank LINKAGE model simulations from E. Valenzuela, D. van der Mensbrugghe and K. Anderson, "General equilibrium effects of distortions on global markets, farm incomes and welfare," Distortions to Agricultural Incentives: A Global Perspective, 1955-2007, K. Anderson (comp.), London, Palgrave Macmillan, 2009

[a] Nominal factor prices deflated by national aggregate consumer price index (CPI), column 5.
[b] The user cost of capital and land represents the subsidy-inclusive rental cost.

will be needed among economic policy advisors in the years to come. Meanwhile, the opposite policy problem remains in Argentina, where explicit export taxation was reintroduced in late 2001 and has been increased a number of times since then.

Trade taxes, whether on agricultural imports to reduce import competition for the benefit of poor farmers, or on agricultural exports to lower the cost of food for the urban poor, are not the most efficient way to reduce poverty (Winters, McCulloch and McKay, 2004). Trade policy instruments are almost never the first-best way to reduce poverty. On the contrary, food trade taxes may even worsen poverty, depending on the earning and spending patterns of poor households and on the alternative tax-raising instruments available. Far better would be microeconomic reforms to mitigate the deep-seated structural problems affecting the competitiveness of factor and goods markets. This is because the reforms have accentuated the differences between commercially oriented farmers and farmers who are less prepared to take advantage of economic reform. Although countries have adopted various policies to mitigate the human costs of economic adjustment (especially since the mid-1990s), there were adverse effects on rural poverty in some cases, and traditional agriculture

was often left behind (Spoor, 2000; Valdés and Foster, 2007). Many countries in the region have implemented safety net programmes to aid all the poor, including direct income transfers and conditional cash transfers to families in agriculture. The challenge for the years ahead is to improve the coverage and effectiveness of poverty alleviation programmes. Such programmes are not only good at fighting poverty, but can contribute to investments in human capital and, by acting as a form of guaranteed compensation, can reduce political obstacles to further economic reforms.

(Original: English)

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KEYWORDS

Economic integration
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Regional integration and export diversification in MERCOSUR:

the case of Argentina and Brazil

Marta Bekerman and Cecilia Rikap

This article analyses the effects of Argentina's trade with its MERCOSUR partners in two key periods: 1997/1998 and 2005/2006 —before and after the crises suffered by the economies of this trade zone. The impact of trade on the regionalization of exports and imports was measured by the Regional Orientation Index, which was used by Yeats in his study of these countries for an earlier time period. Our conclusions show that the results obtained by Yeats are inconsistent with the later reality in Argentina and Brazil, since MERCOSUR enabled them to develop learning processes and grow their trade with countries outside the bloc. This positive impact was mainly felt in Brazil, however, and less in the other partners, particularly Uruguay and Paraguay —owing to the underlying asymmetries between these economies. As a result, the largest MERCOSUR country has been the main beneficiary of integration thus far.

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I
Introduction

The question of how to evaluate the impact of regional integration processes on merchandise trade has been a source of keen debate. Some authors believe the impact can be positive if it does not cause trade diversion. Others see integration as beneficial when it generates dynamic comparative advantages, based on the possibilities offered by a broad market and collaboration in the technological and learning fields.

In the case of MERCOSUR, intraregional trade not only grew rapidly up to 1998, but was much more diversified than the exports of MERCOSUR members to developed countries. This led authors such as Yeats to infer the presence of trade diversion from the outset of the integration process. In his studies on the trade behaviour of MERCOSUR from its inception until the mid-1990s, this author identifies a regionalization process involving the expansion of exports from sectors in which the partner countries did not have comparative advantages relative to other markets —for example in chemical and plastic products, machinery and the automotive and autoparts industry. The resultant efficiency losses would have had a negative impact not only on countries outside the bloc, but also on member countries themselves, by forgoing the benefits of specialization based on their comparative advantages (Yeats, 1997).

The second section of this article compares the argument put forward by Yeats with that presented by other authors who stress the importance of generating dynamic comparative advantages within regional integration agreements. It will then analyse the recent trend of Argentina's trade with Brazil, Paraguay and Uruguay, in industrial products that were displaying high levels of regionalization (in terms of imports and/or exports) by 1998.[1] The aim will be to identify cases where regionalization increased or decreased, and whether or not dynamic comparative advantages were generated both within the trade bloc and in relation to external markets. This may help us to understand the subsequent trade behaviour of those sectors, which, at the time, Yeats and other authors classified as inefficient because it did not reflect the static comparative advantages of the two countries.

The third section of this article will make a comparative analysis of the different attitudes to South-South trade, regional integration and the case of MERCOSUR in particular. The fourth section will consider the trend of trade between Argentina and Brazil in industrial goods displaying high levels of regionalization between the two periods studied —the first, prior to the macroeconomic crises suffered by the two countries (1997-1998), and a second more recent period (2005-2006). This section deepens the analysis taking into account indices that help explain the trend of intra- and extraregional trade, highlighting sectors with regionalized industrial goods in at least one of the two periods under study. The fifth section will consider the same indicators for Argentina's trade with Uruguay and Paraguay; and the last section will provide a summary of the conclusions.

[1] The regionalization index used by Yeats (1997) will be employed for this purpose.

II

The impact of regional integration according to different theories

There is a wide-ranging literature on international trade and how it relates to integration processes. In this article, we will present two opposing points of view on South-South trade which directly affect the analysis of relations in MERCOSUR and particularly between Argentina and Brazil —countries that account for over 90% of the region's trade.

Firstly, some authors argue that the existence of South-South trade in capital-intensive manufactured products may represent inefficient trade diversion, if it does not extend to external markets. Trade of this type should therefore be restricted or eliminated in favour of an international division of labour in which each economy produces the goods in which it is most efficient in terms of static comparative advantages. One of the best-known model of trade development based on a given factor endowment is that of Heckscher and Ohlin (H-O), which makes the following assumptions: technology is fixed and available to everyone; factors of production are homogeneous and have constant returns to scale; there is full employment; and the goods produced by the different countries have different factor intensities, and as each good is always intensive in one factor, factor intensities are non-reversible.[2] These points lead to the fundamental assumption of perfectly competitive markets and the conclusion that each country's most efficient trade pattern will depend on its factor endowment —in other words the relative abundance of one of the factors of production (capital or labour). Applying this to trade between Argentina and Brazil, the international division of labour would suggest that MERCOSUR should produce and export goods that are relatively more labour-intensive, while importing more capital-intensive products.

These ideas were harnessed by Corden to analyse the consequences of trade blocs. For this author, any trade bloc is beneficial if it creates trade; but it will be negative if it causes trade diversion (towards countries belonging to the bloc) that would not have occurred in the absence of a preferential tariff situation (Corden, 1972).

Yeats (1997) analyses the case of MERCOSUR in terms of the trade creation and diversion generated by trade integration or preferential trading arrangements between a group of countries. The first question he poses is whether the growth of certain intraregional exports following the establishment of the trade bloc was consistent with the comparative advantages of the member countries involved. Following Corden, Yeats analysed the period 1988-1994, to see whether the product lines traded within the bloc were also exported by MERCOSUR members to other countries in the world. For that purpose, he used the Regional Orientation Index (ROI)[3] and an index of revealed comparative advantages that excludes intra-MERCOSUR trade, as a way of reflecting the capacity of member countries to compete in markets where they did not enjoy discriminatory trade benefits.

He finds that much of the growth of intraregional trade in certain selected goods is associated with a change in regional orientation towards MERCOSUR. In the products for which trade has grown most within the region, member countries are not competitive on external markets, and there is little evidence that they have (static) comparative advantages in relation to those markets. Accordingly, far from expanding or creating trade, MERCOSUR generated inefficient trade diversion by promoting trade in capital-intensive goods that were not exported in similar proportions to the rest of the world.

According to Yeats and other authors of this persuasion, as Argentina and Brazil do not specialize in exporting goods that make intensive use of the relatively abundant factor (commodities or labour-intensive agriculture-based manufactures), they will be generating trade losses not only for third countries but also for their own consumers.

The arguments propounded by Yeats have been attacked from various angles. One of these criticizes

[2] For a detailed presentation of the assumptions of the Hecksher-Olhin model, see Krugman and Obstfeld (2001).

[3] The methodology for calculating this index can be seen in annex 1.

the fact that this author only analyses the behaviour of intra-MERCOSUR exports. Although these grew until 1998, imports from third countries also grew vigorously in the same period. It is therefore impossible to infer widespread trade diversion that inflicted losses on countries outside the zone. (Laird, 1998; Nagarajan, 1998; Ríos, 2003).

A more head-on argument claims that the benefits of South-South trade in industrial products go beyond given factor endowments, by providing tools to develop scale economies and learning processes that will make it possible to generate dynamic comparative advantages both inside and outside the region.

Authors in this group include Amsden (1997), who strongly criticizes the assumption of just two factors of production (capital and labour) in the H-O model — in particular because this means considering labour as a homogeneous factor, while ignoring or minimizing the role of skilled labour used intensively in so-called "skilled industries". These sectors have greater potential for generating learning effects because their exports, although perhaps initially just South-South, could expand to the more central countries of the world in the future. This explanation draws heavily on the concept of dynamic comparative advantages, as opposed to the static comparative advantages proclaimed by the other group of authors. In a setting such as that described by Amsden, a sector may not be efficient in a country at a given moment in time; but if its sector productivity growth outpaces that of a second country, it might be efficient in the future.

This argument is echoed by Rodrik, among others, who identifies the various factors that would justify increased trade and the creation of trade blocs between developing countries. These include the existence of imperfect markets and returns to scale, in a context where trade occurs between increasingly asymmetric countries (in terms of size, degree of initial advantage or static comparative advantage). This means that the potential growth effects of such trade are also asymmetric, a danger that could be reduced if the integration process involved developing countries that are most mutually "similar" (Rodrik; 1995).

This author argues that developing countries need a strategy for producing and exporting manufactured goods, which could be strengthened from within a trade bloc. Targeting efforts on developing manufacturing sectors that could subsequently export to markets elsewhere in the world gives special significance to the expansion of South-South trade.[4]

In other words, secure access to new, mutually similar markets could serve as a platform for subsequently gaining access to markets outside the bloc. For Rodrik and Amsden this means acquiring dynamic comparative advantages while pursuing industrialization processes.

III

South-South trade: the MERCOSUR perspective

To achieve dynamic comparative advantages, countries implementing an integration process need regulations that harmonize both the structural and the regulatory asymmetries that may exist between them. Otherwise, the development of the bloc may serve to deepen existing asymmetries and generate tensions that undermine the performance of the integration process itself.

Several authors have noted the existence of major asymmetries within MERCOSUR —which, far from being corrected by the creation of the bloc, have been aggravated through time (Carrera, 2005; Bekerman et al, 1995). Moreover, Ríos (2003) sees the differences between the productive structures of member countries as the major barrier facing the integration process today, for which he recommends controlling the use of production and investment incentives, and designing and applying appropriate tools to reduce the differences in question.

Several authors extend these recommendations to sector policies, arguing that, for the common external tariff to be sustainable over time, industrial restructuring and foreign-trade regimes need to be co-ordinated to avoid causing abrupt shifts in the competitive conditions of each member country (Bekerman et al, 1995).

[4] Following this line of thought, Ffrench-Davis (2001) evokes Prebisch, who highly recommended stimulating exports of manufactured goods between Latin American countries, through preferential agreements —mainly those with greater technology absorption and higher income elasticity.

Nonetheless, MERCOSUR clearly does not have a joint or harmonized project for the development of its productive structure; and the lack of long-term shared projects has meant that the bloc's most dynamic country, Brazil, benefits most from the aforementioned learning processes. The existence in that country of certain regulations and incentives for key sectors has made it possible to maintain productivity and investment growth without the fluctuations experienced in Argentina. Moreover, the greater incentives for technological training and improvements in quality and productivity available Brazil have narrowed the human-resource skills gap which historically favoured Argentina. This is compounded by access to credit, where Brazilian exporters enjoy much more favourable conditions (Carrera, 2005; Bekerman et al, 1995).

With regard to the type of trade occurring in MERCOSUR, intraindustry trade in segments such as machinery, transport material and chemicals has become firmly established in the larger countries. This seems to be substantially linked to an inter-enterprise and/or managed form of trade. Transnational enterprises have tended to specialize in specific product lines, complementing this with production in other subsidiaries located mainly within MERCOSUR.[5] This is far removed from the reality of small or medium-sized enterprises (SMEs) which have hardly perceived any of the advantages of belonging to the trade bloc because the distribution of the benefits of integration thus far clearly depends on firm size.[6]

IV

The regionalization of exports and imports between Argentina and Brazil

Argentina's trade in industrial manufacturers with Brazil has been in deficit since the start of the integration process; and the deficit has widened for most the industrial chapters of the MERCOSUR Common Nomenclature (MCN) over the last 10 years. This could provide an initial insight into the trade consolidation being achieved by Brazil in industrial products.

This section considers whether similar results are obtained if the analysis is undertaken using regionalization indices (RIs), to determine whether the growth in Argentina's trade deficit with Brazil coincides with an increase or a decrease in the proportion of its trade that involves markets outside MERCOSUR. In other words, to what extent is Brazil gaining ground as a supplier of industrial goods to Argentina. It may also help us decide whether there are sectors in which Argentina could achieve new comparative advantages in relation to external markets, despite its widening trade deficit with Brazil; in other words whether MERCOSUR could serve as an initial platform for expanding trade or selling new products elsewhere in the world.

To measure this, we use the ROI[7] to compare trends in the ratio of Argentina's exports and imports to and from Brazil, with respect to its trade with the rest of the world. The analysis included industrial sectors that displayed high levels of regionalization in terms of imports, exports or intra-industry trade, in at least one of the two periods covered by the analysis, namely 1997-1998 and 2005-2006.[8]

[5] Chudnovsky and López (2007) highlight the greater productivity, larger trade volumes and greater innovation capacity of the subsidiaries of transnational firms, compared to those of local enterprises.

[6] This phenomenon is not confined to intra-MERCOSUR exports but reflects a general trend. A study by FUNCEX (2005) shows that 75% of the growth of Brazil's azexternal sales between 1998 and 2004 involved large firms that were already participating in foreign trade.

[7] The same index as used by Yeats (1997). See Annex I.

[8] A sample was chosen comprising total of 95 tariff headings: 87 at the 4-digit level and eight at the 6-six digit level. The expansion to six digits was made for products whose importance warranted more detailed identification. The intention of the article was to show the relevant 4-digit headings and to include a number of 6-digit headings that were specially important. The underlying aim was to show that some 4-digit headings are dominated by one or two 6-digit headings, but not all 6-digit headings obtained from the 4-digit level. Sample selection is described in annex II.

1. Trend of Argentine imports displaying high levels of regionalization

Firstly we consider imports which, in the period under study, have sharply increased their regionalization with Brazil; then we analyse those whose ROI has declined, despite maintaining a high level of regionalization.

(a) *Increase in regionalization*

The large number of tariff headings showing an increase in regionalization as a result of trade diversion and creation processes shows the extent to which regional trade liberalization has benefited Brazil (see table 1). In fact, Argentina's imports from that country have increased in all headings in this group (except one), and in most cases this coincides with a reduction in its imports from the rest of the world. This means not only that Brazil managed to consolidate its comparative advantages regionally in these industrial products, but also that MERCOSUR contributed to the fact that Argentina tends to buy from this country rather than from external markets.

This group includes headings in Chapter 84 "Boilers, machinery and mechanical appliances", and is followed in importance by Chapter 72 "Iron and steel smelting" and 76 "Aluminium and articles thereof".

Within Chapter 84, there has been a large market shift in favour of Brazil in headings encompassing refrigerators, washing machines, harvesting machines, centrifuges and bulldozers. Two broad groups can thus be identified: domestic electrical appliances, and agricultural and construction machinery.

Table 1 also shows tariff headings for which Argentina has grown its imports both from Brazil and from the rest of the world, the leading example being cellular telephone apparatus (item 8525, which grew by over 1,000% between 1997-1998 and 2005-2006). In a setting that can be described as a cellular phone boom, the growth of such imports from Brazil far outpaced those from the rest of the world. The strategies of multinational enterprises can be seen here, since they decided to set up production facilities in Brazil to take advantage of more favourable regulatory policies and different domestic market sizes. This created a favourable platform for exports and caused a substantial diversion of Argentine imports away from other areas (such as Southeast Asia, the United States or Mexico) in favour of Brazil. By 2005, 70% of all cellular phones imported by Argentina were being sourced from its main trading partner.

Nonetheless, the RI of cellular phone exports from Brazil to Argentina also decreased owing to the very rapid growth of such exports to the rest of the world. In that context, however, MERCOSUR made an undeniable contribution to the acquisition of dynamic comparative advantages in the sector. From an initial situation in which it sold cellular phones almost exclusively to Argentina, Brazil has consolidated its position as a competitive exporter to external markets: its sales to the rest of the world in this heading rose from US$ 54 million to US$ 2 billion F.O.B. between the two periods analysed.[9]

(b) *Reduction of regionalization*

The sample headings for which RI fell between 1997-1998 and 2005-2006 are shown in table 2. The larger number of cases is explained by a proportionately larger drop in imports from Brazil than from the rest of the world. These headings reveal import substitution processes involving increased domestic production of products such as bed linen, dishwashers and certain kinds of paper.

The table also shows headings for which, despite a falling RI, imports from Brazil and from the rest of the world both actually increased, but the latter in smaller proportion.

This group includes the case of medicines, an item in which the bulk of MERCOSUR imports are sourced from the rest of the world. In this case, a multinational enterprise strategy is not to produce the main pharmaceutical assets or raw materials in the region, in favour of a policy of intraenterprise imports (Bekerman and Sirlin, 1999).

2. Trend of Argentine exports displaying high levels of regionalization

This subsection firstly considers Argentine exports that have increased their regionalization with Brazil, and then analyses those for which ROI has fallen between the two periods studied, despite maintaining regionalization at a high level.

(a) *Increase in regionalization*

Table 3 shows tariff headings for which ROI increased between 1997-1998 and 2005-2006 —in other words the product groups for which the regionalization process with Brazil intensified.

[9] The trend of Brazilian exports to the rest of the world under these headings, and their RI with Argentina are shown in annex III.

TABLE 1

Argentine imports for which regionalization is increasing
(Millions of dollars)

MCN code	Description	From Brazil (a)		From the rest of the world (b)		World (c = a+b)		Proportion imported from Brazil d=(a/c)*100 *(Percentages)*	
		1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006
8418	Refrigerators, freezers and other cooling equipment, except air-conditioners	46.8	114.1	135	54.7	181.8	168.8	25.7	67.6
8421	Centrifuges, centrifugal dryers; apparatus for filtering or purifying liquids or gases	18.2	29.2	141.1	101.4	159.3	130.6	11.4	22.4
8433	Harvesting and planting machinery and equipment	56.8	115.1	100.1	67.6	156.9	182.7	36.2	63.0
8450	Washing machines, including those with built-in driers	17	30.5	78.5	16.4	95.5	46.9	17.8	65.0
842920	Levellers//	16.9	30.3	19.3	11.9	36.2	42.2	46.7	71.8
847149	Other digital automatic data processing machines	0	16.5	36.7	9.2	36.7	25.7	0.0	64.2
7201	Pig iron and specular smelting, in primary forms	0.1	16.2	0.2	1.1	0.3	17.3	33.3	93.6
7207	Semi-finished products of iron or non-alloy steel	80.3	96	32.1	12.1	112.4	108.1	71.4	88.8
7210	Flat-rolled iron and steel products, non-alloy	13.5	24.5	19.2	5	32.7	29.5	41.3	83.1
7214	Bars of iron or non-alloy steel, wrought, flat-rolled or excluded	12.3	9.9	9.4	2.2	21.7	12.1	56.7	81.8
721934	Flat-rolled products of stainless steel	7.4	19.7	11	5.6	18.4	25.3	40.2	77.9
7606	Aluminium sheets and strip	11.3	19.9	40.8	8	52.1	27.9	21.7	71.3
7616	Other aluminium manufactures	0.8	12.6	14.7	10.7	15.5	23.3	5.2	54.1
4804	Kraft paper and paperboard, uncoated	64.1	70.3	35.4	19.5	99.5	89.8	64.4	78.3
2818	Artificial corundum; aluminium oxide and hydroxide	54.4	136.6	25.9	17.2	80.3	153.8	67.7	88.8
8525	Radiotelephony, radiotelegraphy, radio or television transmission apparatus	65.5	681	620	668.2	685.5	1349.2	9.6	50.5
520942	Denim fabrics	28.2	36.5	4.2	0.1	32.4	36.6	87.0	99.7
3305	Preparations for use on the hair	8	42.7	13.6	9	21.6	51.7	37.0	82.6
5501	Synthetic filament cables	0	8.9	7.4	10.8	7.4	19.7	0.0	45.2
2902	Cyclic hydrocarbons	22.6	68.2	10.2	2.7	32.8	70.9	68.9	96.2
7312	Stranded wire, ropes etc., not electrically insulated, of iron or steel	6.4	16	9	9.3	15.4	25.3	41.6	63.2
7502	Nickel, unwrought	0.5	10.8	3.1	6.8	3.6	17.6	13.9	61.4
380830	Herbicides, anti-sprouting products, plant-growth regulators	47	51.4	131.2	43.6	178.2	95	26.4	54.1
6402	Footwear, with outer sole and upper of rubber or plastic	34.3	69.9	35.5	39.9	69.8	109.8	49.1	63.7
9401	Seats and parts thereof	23.8	38.7	47.1	47.6	70.9	86.3	33.6	44.8
Total 25 products (a)		*636.2*	*1 765.5*	*1 580.7*	*1 180.6*	*2 216.9*	*2 946.1*	*28.7*	*59.9*
Total imports of manufactures of industrial origin (MIO) (b)		6 212.1	9 948.8	21472.2	17 894.7	27 684.2	27 843.5	22.4	35.7
Percentage of total (a/b)		10.2%	17.7%	7.4%	6.6%	8.0%	10.6%		

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC).

MIO: Manufactures of industrial origin
MCN: Mercosur Common Nomenclature
(a) Total products analysed in the table.
(b) Total imports/exports.
(a/b) Total products analysed in the table / total imports (or exports, as the case may be).

TABLE 2

Argentine imports for which regionalization is declining
(Millions of dollars)

MCM4	Description	From Brazil (a)		From the rest of the world (b)		World (c=a+b)		Proportion of M to Brazil d=(a/c)*100 *(Percentages)*	
		1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006
4818	Paper of the type used for toilet paper and similar	13.2	8.3	38.2	20.7	51.4	29	25.7	28.6
8422	Dishwashing machines; machinery for cleaning or drying bottles or other containers;	9.8	7.2	123.4	69	133.2	76.2	7.4	9.4
7209	Flat rolled products of iron or non-alloy steel	23.9	2.1	7.8	0.8	31.7	2.9	75.4	72.4
3004	Medicaments, mixed or not, prepared for therapeutic or prophylactic uses.	59.6	62.5	290.2	353.2	349.8	415.7	17.0	15.0
2910	Epoxides, epoxyalcohols, epoxyphenols and epoxethers	10.5	20.4	1.9	5.1	12.4	25.5	84.7	80.0
3703	Photographic paper, paperboard, textiles, unexposed, unprinted	15.7	11.6	10.8	10.4	26.5	22	59.2	52.7
6302	Bed linen, table linen, toilet linen & kitchen linen	44.4	41.7	7.2	4	51.6	45.7	86.0	91.2
8212	Razor blades and electric shavers and blades (including razor blade blanks in strips).	26.9	23.6	12.9	11.1	39.8	34.7	67.6	68.0
Total 8 products (a)		*204*	*177.4*	*492.4*	*474.3*	*696.4*	*651.7*	*29.3*	*27.2*
Total imports MIO (b)		6 212.1	9 948.8	21 472.2	17 894.7	27 684.2	27 843.5	22.4	35.7
Percentage of total (a/b)		3.3%	1.8%	2.3%	2.7%	2.5%	2.3%		

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC).

MIO: Manufactures of industrial origin
MCN: Mercosur Common Nomenclature
(a) Total products analysed in the table.
(b) Total imports/exports.
(a/b) Total products analysed in the table / total imports (or exports, as the case may be).

TABLE 3

Argentine exports for which regionalization is increasing
(Millions of dollars)

MCN	Description	To Brazil (a)		To the rest of the world (b)		World (c=a+b)		Proportion X to Brazil d=(a/c)*100 *(Percentages)*	
		1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006
3923	Articles for conveyance or packing, of plastic; closures,	15.8	55.2	31.1	64.3	46.9	119.5	33.7	46.2
8482	Ball bearings, needle roller bearings	18.9	21.6	17.7	11.3	36.6	32.9	51.6	65.7
8483	Transmission shafts and cranks; gears and flywheels; ball screws; speed reducers, accelerators and other speed changers	18.4	19.5	12.2	15.1	30.6	34.6	60.1	56.4
2833	Sulphates; alums; peroxosulphates (persulphates).	4.6	21.4	1.8	7.5	6.4	28.9	71.9	74.0
2903	Halogenated derivatives of hydrocarbons	14	18.7	2.9	2.3	16.9	21	82.8	89.0
3815	Reaction initiators and accelerators, and catalytic preparations	0	32.8	0.4	19.3	0.4	52.1	0.0	63.0
Total 6 products (a)		*71.7*	*169.2*	*66.1*	*119.8*	*137.8*	*289*	*52.0*	*58.5*
Total exports MIO (b)		4 402.2	4 129.1	4 076.7	9 202.2	8 478.9	13 331.3	51.9	31.0
Percentage of total (a/b)		1.6%	4.1%	1.6%	1.3%	1.6%	2.2%		

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC).

MIO: Manufactures of industrial origin
MCN: Mercosur Common Nomenclature
(a) Total products analysed in the table.
(b) Total imports/exports.
(a/b) Total products analysed in the table / total imports (or exports, as the case may be).

There are very few tariff headings for which exports to Brazil have become more regionalized. In all cases (except for heading 8482), total exports increase; and, although these are product lines for which Brazil remains the key destination, in some cases Argentina also managed to increase its exports to the rest of the world.

The highest export values in this category are reported by the heading "Articles for conveyance or packing, of plastic". Nonetheless, the fastest growing category was chemical products grouped under "Initiators and accelerators of reaction, and catalytic preparations", which grew from under US$ 1 million F.O.B. exported to Brazil and the rest of the world, to nearly US$ 33 million and US$ 20 million F.O.B., respectively.

(b) *Reduction in regionalization*

Tariff headings in this export category whose regional orientation declined between 1997-1998 and 2005-2006 are shown in table 4. Here again, there are a few headings that display significant percentage growth, despite small export values.

The fall in ROI in all headings is this group mainly reflects a proportionately larger increase in Argentine exports to the rest of the world, since sales to Brazil did not decline in any heading. Leading cases include "Polyamides in primary forms" (a type of plastic manufacture), for which average exports to the rest of the world in 1997/98 were almost insignificant, but by 2005/06 exceeded US$ 23 million F.O.B.

This expansion of trade to the rest of the world could be evidence of the development of learning processes within Argentine exports.

3. Trend of trade in headings involving intra-industry trade with high levels of regionalization

Here we analyse headings with high regionalization indices that display patterns of bilateral intra-industry trade, in other words products categories in which Argentina both imports from Brazil and exports to that country in large amounts.

The four quadrants of table 5 summarize the different trends of the main products involved in intra-industry trade between Argentina and Brazil (the two upper quadrants show an increase in the regionalization of imports from Brazil, whereas the two lower quadrants show a reduction). Subsequently,

TABLE 4

Argentine exports for regionalization is decreasing
(Millions of dollars)

MCN	Description	To Brazil (a)		To the rest of the world (b)		World (c=a+b)		Proportion X to Brazil d=(a/c)*100 *(Percentages)*	
		1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006
3908	Polyamides in primary forms	64.1	70.3	0.5	23.2	64.6	93.5	99.2	75.2
8419	Apparatus and equipment for the treatment of materials by temperature change	54.4	136.6	13.6	32	68	168.6	80.0	81.0
7612	Aluminium casks, drums, cans, boxes and similar containers	65.5	681	1.7	9.9	67.2	690.9	97.5	98.6
8536	Apparatus for circuit breaking, relay, protection, derivation, blending or connections of electrical circuits	28.2	36.5	9.7	15.4	37.9	51.9	74.4	70.3
8527	Reception apparatus for radiotelephony, radiotelegraphy or radio broadcasting	56.8	115.1	2.4	5.6	59.2	120.7	95.9	95.4
3919	Self-adhesive plates, sheets, film, foil, tape, strip of plastic	8	42.7	6.2	28.8	14.2	71.5	56.3	59.7
Total 6 products (a)		*277*	*1 082.2*	*34.1*	*114.9*	*311.1*	*1 197.1*	*89.0*	*90.4*
Total exports MIO (b)		4 402.2	4 129.1	4 076.7	9 202.2	8 478.9	13 331.3	51.9	31.0
Percentage of total (a/b)		6.3%	26.2%	0.8%	1.2%	3.7%	9.0%		

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC).

MIO: Manufactures of industrial origin
MCN: Mercosur Common Nomenclature
(a) Total products analysed in the table.
(b) Total imports/exports.
(a/b) Total products analysed in the table / total imports (or exports, as the case may be).

TABLE 5

Trend of the regional orientation index for items displaying intraindustry trade

	RI of Exports			
	Increases		Decreases	
	Quadrant 1		Quadrant 2	
RI of Imports Increases	3901	Polymers of ethylene in primary forms	8703	Motor cars & vehicles for transporting persons (except those contained in item No. 87.02) including family type of vehicles ("break" o "station wagon") and racing vehicles
	4810	Paper and paperboard pasted on one or both sides with kaolin or other inorganic substances, with or without glue, excluding any other type of taste for covering, including colouring or decorations on the surface or prints, in rolls.	8704	Motor vehicles for the transport of goods
	401120	Pneumatic tyres of rubber, of a kind used on buses or lorries	8701	Tractors (other than works trucks) of heading 8709).
	3904	Polymers of vinyl chloride and other halogenated olefins, in primary forms	8702	Motor vehicles for the transport of 10 or more persons, including the driver.
	3902	Polymers of propylene and other olefins, in primary forms	3920	Other plates, sheets, film, foil, tape, strip of plastic (non-cellular), without strengthening, stratification or support or similar combination with other materials
	4002	Synthetic rubber & factice derived from oils, in primary forms or in sheets, foil or tape. Mixtures of products from heading No. 40.01 with those of this heading, in primary forms or in sheets, foil or tape	8544	Insulated wires, cables (including coaxial) and other electric conductors although lacquered, anodized or provided with connectors; optical fibre cables consisting of individually fused fibres
	3307	Pre-shave, shaving or aftershave preparations, personal audio currents, Bath preparations, depilatory, other perfumery, cosmetic or toilet preparations, not elsewhere specified;	8706	Chassis fitted with engines for the motor vehicles of headings 8701 to 8705
	8511	Electric ignition or starting equipment, for internal combustion or compression engines (examples: Magnetos, magneto dynamos, flywheels, sparking plugs, starting motors; generators	3903	Polystyrene, in primary forms
	7228	Other bars and shapes of non alloy steel; hollow drill bars of alloy or non alloy steel	6403	Footwear with outer soles of rubber, plastics, natural or composition leather, and uppers of natural leather
	380830	Herbicides, anti-sprouting products, plant-growth regulators//insecticides, rodenticides, fungicides, herbicides, anti-sprouting products, plant-growth regulators, disinfectants and similar products	6404	Footwear with outer soles of rubber, plastic, natural or composition leather, and uppers of textile material
	8512	Electrical lighting or visual signalling equipment (except items in heading No. 8539), electrical windscreen wipers, defrosters and demisters	8408	Compression-ignition internal combustion piston engines (diesel or semi-diesel)
			390120	Polyethylene having a specific gravity of 0.94 or more//polymers of ethylene in primary forms
			8708	Parts and accessories for motor vehicles of headings Nos. 8701 to 8705

(continues overleaf)

(continued)

	Quadrant 3		Quadrant 4	
Decreases	4011	Pneumatic tyres	8407	Spark-ignition reciprocating or rotary internal combustion piston engines
	3808	Insecticides, rodenticides, fungicides, herbicides, anti-sprouting products, plant-growth regulators	8414	Air or vacuum pumps, compressors of air or other gases and fans; extraction or recycling hoods, with built in fan and filter
	8409	Parts identifiable as exclusively or principally used for engines	2814	Ammonia, anhydrous or in aqueous solution
	3907	Polyacetals, other polyethers, expoxide resins		
	7408	Copper wire		
	8413	Pumps for liquids		
	4802	Paper and paperboard, uncoated;		
	2803	Carbon		
	2918	Carboxylic acids with supplementary oxygen functions, their anhydrides, halides, peroxides and peroxyacids;		
	2929	Nitrogen function compounds		
	4010	Conveyor or transmission belts of vulcanized rubber		
	4005	Compounded rubber, unvulcanized, in primary form, or it in plates, sheets or strips.		
	2815	Sodium hydroxide		
	7901	Zinc, unwrought		
	8707	Bodies for motor vehicles		

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC).

each quadrant will be considered separately and with a more detailed breakdown, to analyse the behaviour of the headings included in them.[10]

(a) *Quadrant 1: Increase in the RI of both imports and exports*

In this case, the rise in the regionalization indices reflects a general expansion of trade, since exports to and imports from Brazil grew in all headings. In the case of exports, the higher RI reflects a proportionately larger expansion of Argentine sales to Brazil than to the rest of the world. In the case of imports, the growth in purchases from Brazil coincided with a reduction in purchases from the rest of the world.

Export categories that are expanding include polymers of ethylene in primary forms (from US$ 15 million to US$ 270 million F.O.B. exported to Brazil and from US$ 18 million to US$ 92 million F.O.B. exported to the rest of the world). At the same time, imports from Brazil under this heading more than doubled (from US$ 116 million to US$ 263 million F.O.B.), while imports from the rest of the world retreated. The expansion of trade in this commodity reflects a rapid process of trade expansion, within MERCOSUR for Brazil and both inside and outside the bloc in the case of Argentina.

The sharp increase in exports of polymers also extends to vinyl chlorides and propylenes. These headings, although reporting smaller export volumes than polymers of ethylene, both to Brazil and to the rest of the world, display very substantial growth that outpaces imports from Brazil.

Shaving preparations are a product category for which growth was mainly focused on the export side, generating a virtual dominance for Argentina. This also reflects the strategies of multinational

[10] Given the small amounts traded, quadrant 4 will not be analysed further.

TABLE 6

Argentine trade for which regionalization increased for both imports and exports

(Millions of dollars)

MCN	Description	Exports to Brazil (a)		Exports to the rest of the world (b)		World (c=a+b)		Proportion X to Brazil d=(a/c)*100 *(Percentages)*		Imports from Brazil (d)		Imports from the rest of the world (e)		World (f=d+e)		Proportion of M from Brazil g=(d/f)*100 *(Percentages)*	
		1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006
3901	Polymers of ethylene, in primary forms	14.9	269.3	18.2	92.1	33.1	361.4	45.0	74.5	116	263.5	110.6	63.6	226.6	327.1	51.2	80.6
3904	Polymers of vinyl chloride	14.8	58.9	7.2	34.7	22	93.6	67.3	62.9	19	24.9	32.7	17.4	51.7	42.3	36.8	58.9
3902	Polymers of propylene	7.7	35.2	36.2	66.8	43.9	102	17.5	34.5	11.9	47	19	20	30.9	67	38.5	70.1
390120	Polymers of ethylene in primary forms	13.5	52.2	3.2	10	16.7	62.2	80.8	83.9	43.1	99	39	13.5	82.1	112.5	52.5	88.0
401120	New pneumatic tyres of rubber, of a kind used on buses or lorries	7.2	6.3	3	51.1	10.2	57.4	70.6	11.0	56.4	78.1	48	33.6	104.4	111.7	54.0	69.9
4002	Synthetic rubber and factice obtained from oils	0.7	24.7	18.1	17.3	18.8	42	3.7	58.8	8.3	34.3	28.8	43.6	37.1	77.9	22.4	44.0
8511	Electrical ignition or starting equipment for internal combustion or compression engines	10.2	30.2	16.4	9.7	26.6	39.9	38.3	75.7	21.2	24.8	67.9	32.9	89.1	57.7	23.8	43.0
8512	Electrical lighting or visual signalling equipment windscreen wipers, defrosters and demisters	8	16.2	6.1	8.8	14.1	25	56.7	64.8	12.8	26	45.4	31.3	58.2	57.3	22.0	45.4
3307	Pre-shave, shaving or after-shave preparations, personal deodorants, bath preparations	7.7	48.9	15.2	84	22.9	132.9	33.6	36.8	2.6	9.6	18.2	7.6	20.8	17.2	12.5	55.8
4810	Paper and paperboard coated on one or both sides with kaolin or other inorganic substances	1.1	3.8	0.9	1.2	2	5	55.0	76.0	55.3	102.2	164.6	90.6	219.9	192.8	25.1	53.0
7228	Other bars and shapes of non alloy steel; hollow drill bars of alloy or non alloy steel	1.4	16	1.2	1.4	2.6	17.4	53.8	92.0	8.5	36.1	7.4	12.7	15.9	48.8	53.5	74.0
Total 11 products (a)		*87.2*	*561.7*	*125.7*	*377.1*	*212.9*	*938.8*	*41.0*	*59.8*	*355.1*	*745.5*	*581.6*	*366.8*	*936.7*	*1112.3*	*37.9*	*67.0*
Total export/imports MIO (b)		4 402.2	4 129.1	4 076.7	9 202.2	8478.9	13 331.3	51.9	31.0	6 212.1	9 948.8	21 472.2	17894.7	27684.2	27843.5	22.4	35.7
Percentage of total (a/b)		2.0%	13.6%	3.1%	4.1%	2.5%	7.0%			5.7%	7.5%	2.7%	2.0%	3.4%	4.0%		

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (indec).

MIO: Manufactures of industrial origin
MCN: Mercosur Common Nomenclature
(a) Total products analysed in the table.
(b) Total imports/exports.
(a/b) Total products analysed in the table / total imports (or exports, as the case may be).

enterprises which, through a regional division-of-labour process, have prioritized Argentina for production in this subsegment.

This category also includes headings in the "Electrical machines, apparatus and material" chapter, for which trade with Brazil (both exports and imports) has increased, offsetting a decline in trade with the rest of the world.

What can be seen, therefore, on the export side, is a vigorous growth in sales to Brazil and the rest of the world, reflecting a robust trade creation process in these headings. In contrast, on the import side, the trend is towards an increase in imports from Brazil and production from the rest of the world; in other words, trade diversion in favour of our trading partner.

(b) *Quadrant 2: Increase in the RI of imports and a reduction in the RI of exports*

The salient feature in this quadrant on the export side is that most headings report a drop in sales to Brazil, together with a sharp increase in exports to the rest of the world. The opposite is happening on the import side, where all headings from Brazil increase while imports from the rest of the world decrease in all categories, except one. This behaviour pattern shows that, while Argentina is losing customers in Brazil but managing to find new ones elsewhere in the world, its main trading partner is becoming the leading supplier, especially in markets outside MERCOSUR. Possibly both cases provide clear examples of trade expansion but with a very different regional orientation, since Argentina is increasingly sourcing goods from Brazil, whereas the latter obtains its products on external markets.

This quadrant shows various headings in the automotive industry ("Transport of passengers and goods, tractors, and certain autoparts"). Although this phenomenon is largely explained the behaviour of multinational enterprises, Argentina has developed strategies enabling it to grow its exports to the rest of the world, which possibly would not have happened without the integration process. Moreover, the specialization developed by Brazil in family and low-range automobiles has boosted its sales to Argentina, since they account for a large proportion of sales to that country.

Within the other headings in this group, plastics ("Polystyrene plates, sheets, foil, and strips") and electricity conductor cables also display rapidly growing imports from Brazil together with a sharp increase in Argentine exports to the rest of the world.

In the case of sectors consisting mainly of SMEs, this table shows a number of headings within the footwear chapter where Brazil again ensures that its producers make the most of integration (Argentina's imports from Brazil increased, but from the rest of the world they decreased). In contrast, on the Argentine side, exports declined almost to the point of losing both the Brazilian and rest-of-the-world markets completely.

(c) *Quadrant 3: Increase in the RI of exports and a reduction in the RI of imports*

Nearly all headings in this quadrant show an increase in exports both to Brazil and to the rest of the world.

This situation contrasts with that described by Yeats (1997), because intra-MERCOSUR trade, for which, according to that author, Argentina did not have static comparative advantages, served expand its trade with external markets —as shown by the fact that the growth of exports to Brazil (intra-regional) is accompanied by an increase in exports to the rest of the world (extraregional).

The table shows no clear trend on the import side, since there are situations of falling and rising imports from Brazil combined with falls and increases in imports from the rest of the world.

At the chapter level, the chemical products mentioned above predominate with increased Argentine exports to all destinations, along with the plastics contained in that category (polyacetals and polyethylene). The chapter "Rubber and articles thereof" displays vigorous growth in exports to Brazil, from almost nothing to about US$ 10 million F.O.B.

The same trend can be seen in exports of autoparts (8707 and 8708) and for the headings of chapter 84 ("Boilers, machinery and mechanical appliances"). In addition, in terms of the value of imports in these two groups, reductions have occurred mainly in the automotive industry headings, involving an import substitution process, while new comparative advantages were developed to make it possible to expand export destinations.

TABLE 7

Argentine trade displaying increased regionalization of imports and a reduction in the regionalization of exports
(Millions of dollars)

MCN	Description	Exports to Brazil (a)		Exports to the rest of the world (b)		World (c=a+b)		Proportion X to Brazil d=(a/c)*100 *(Percentages)*		Imports from Brazil (d)		Imports from the rest of the world (e)		World (f=d+e)		Proportion M from Brazil g=(d/f)*100 *(Percentages)*	
		1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997- 1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997- 1998	2005-2006	1997-1998	2005-2006
8701	Tractors (other than works trucks) of heading 8709).	7.2	6.3	3	51.1	10.2	57.4	70.6	11.0	139.6	330	59.9	43	199.5	373	70.0	88.5
8702	Motor vehicles for transporting 10 or more persons	91.7	48.9	2.3	67.7	94	116.6	97.6	41.9	21.1	95	41.3	4.1	62.4	99.1	33.8	95.9
8703	Motor cars and vehicles intended mainly for transporting persons	1493.3	608.4	85	509.9	1578.3	1118.3	94.6	54.4	636.8	1,363.40	908	417.4	1544.8	1780.8	41.2	76.6
8704	Motor vehicles for the transport of goods	641.1	503.1	51.4	730.7	692.5	1233.8	92.6	40.8	519.1	612.6	434.3	55.4	953.4	668	54.4	91.7
8706	Motor vehicle chassis fitted with engines	6.1	1.5	2.4	17.4	8.5	18.9	71.8	7.9	22.9	69.8	3.3	0.4	26.2	70.2	87.4	99.4
8708	Parts and accessories for motor vehicles	51.7	66.3	161.88	441.3	213.58	507.6	24.2	13.1	507.7	574.5	963.1	849.7	1470.8	1424.2	34.5	40.3
3903	Polystyrene, in primary forms	16.1	2.9	7.6	21.1	23.7	24	67.9	12.1	5.7	37	24.9	28.9	30.6	65.9	18.6	56.1
3920	Other plates, sheets, foils, strips of plastic (non-cellular), unstrengthened	26.7	28.9	24.7	88.1	51.4	117	51.9	24.7	27.5	58.3	101.6	82.4	129.1	140.7	21.3	41.4
6403	Footwear with outer soles of rubber, plastics, natural or regenerated leather, and uppers of natural leather	0.7	0	3.2	0	3.9	0	17.9	0.0	25	28.5	36.7	17.9	61.7	46.4	40.5	61.4
6404	Footwear with outer soles of rubber, plastic, natural or composition leather, and uppers of textile material	0.6	0.2	1.6	1.2	2.2	1.4	27.3	14.3	4.8	27.6	18.1	8.8	22.9	36.4	21.0	75.8
8408	Compression-ignition internal combustion piston engines (diesel or semi-diesel)	55.8	50.2	1.7	14.4	57.5	64.6	97.0	77.7	147.5	182.2	103.1	82	250.6	264.2	58.9	69.0
8544	Wires, cables (including coaxial cable) and other insulated conductors for electricity, although lacquered.	119.6	1.9	9.5	54.1	129.1	56	92.6	3.4	25.2	80.9	123.5	64.4	148.7	145.3	16.9	55.7
Total 12 products (a)		*2 510.6*	*1 318.6*	*354.28*	*1 997*	*2 864.88*	*3 315.6*	*87.6*	*39.8*	*2 082.9*	*3 459.8*	*2 817.8*	*1 654.4*	*4 900.7*	*5 114.2*	*42.5*	*67.7*
Total exports/imports MIO (b)		4 402.2	4 129.1	4 076.7	9 202.2	8 478.9	13 331.3	51.9	31.0	6 212.1	9 948.8	21 472.2	17 894.7	27 684.2	27 843.5	22.4	35.7
Percentage of total (a/b)		57.0%	31.9%	8.7%	21.7%	33.8%	24.9%			33.5%	34.8%	13.1%	9.2%	17.7%	18.4%		

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC).

MIO: Manufactures of industrial origin
MCN: Mercosur Common Nomenclature
(a) Total products analysed in the table.
(b) Total imports/exports.
(a/b) Total products analysed in the table / total imports (or exports, as the case may be).

TABLE 8

Argentine trade displaying increased regionalization in exports and a reduction of regionalization in imports.
(Millions of dollars)

MCN	Description	Exports to Brazil (a)		Exports to the rest of the world (b)		World (c=a+b)		Proportion X to Brazil d=(a/c)*100 *(Percentages)*		Imports from Brazil (d)		Imports from the rest of the world (e)		World (f=d+e)		Proportion M from Brazil g=(d/f)*100 *(Percentages)*	
		1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006
4005	Compounded rubber, unvulcanized, in primary form, or it in plates, sheets or strips.	1	0.1	1	2.4	2	2.5	50.0	4.0	4.3	4	8.9	7.4	13.2	11.4	32.6	35.1
4011	New pneumatic tyres of rubber	13.5	52.2	47.25	94.52	60.75	146.72	22.2	35.6	90.4	145.7	107.2	111	197.6	256.7	45.7	56.8
4010	Conveyor or transmission belts of vulcanized rubber	0.4	23.6	0.5	5.4	0.9	29	44.4	81.4	7.8	7.5	20.5	20.9	28.3	28.4	27.6	26.4
2803	Carbon (including carbon blacks and other forms of carbon not elsewhere included).	1	10	1	2.3	2	12.3	50.0	81.3	1.7	3.5	1	8.6	2.7	12.1	63.0	28.9
2815	Sodium hydroxide (soda or caustic soda); Potassium hydroxide (caustic potash); Sodium or potassium peroxides	2.2	11.6	5.5	6.6	7.7	18.2	28.6	63.7	8.5	14.8	3.2	4.6	11.7	19.4	72.6	76.3
2918	Carboxylic acids with supplementary oxygen functions, their anhydrides, halides, peroxides and peroxyacids;	0.7	9.2	22.6	25.3	23.3	34.5	3.0	26.7	12	11.9	38.5	32.5	50.5	44.4	23.8	26.8
2929	Nitrogen function compounds	0.9	14.5	15.2	13.9	16.1	28.4	5.6	51.1	4.2	0.3	11.9	10.9	16.1	11.2	26.1	2.7
8409	Parts identifiable as intended, exclusively or mainly, four engines of headings 8407 or 8408.	1.5	12.1	36.7	81.2	38.2	93.3	3.9	13.0	61	59.6	135.4	165.7	196.4	225.3	31.1	26.5
8413	Pumps for liquids, with a built in measuring device; liquid elevators.	4.2	14.6	20.9	51.2	25.1	65.8	16.7	22.2	45.3	34.2	143.2	133.9	188.5	168.1	24.0	20.3
3808	Insecticides, rodenticides, fungicides, herbicides, anti-sprouting products, plant-growth regulators,	10.3	21.5	71.4	123.2	81.7	144.7	12.6	14.9	80.7	86.9	211.9	132.6	292.6	219.5	27.6	39.6

(continues overleaf)

(continued)

MCN	Description	Exports to Brazil (a)		Exports to the rest of the world (b)		World (c=a+b)		Proportion X to Brazil d=(a/c)*100 *(Percentages)*		Imports from Brazil (d)		Imports from the rest of the world (e)		World (f=d+e)		Proportion M from Brazil g=(d/f)*100 *(Percentages)*	
		1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006	1997-1998	2005-2006
4802	Paper and paperboard, uncoated and uncovered, of a kind used for writing, printing, or other graphic purposes	16.8	20.4	22.3	73.3	39.1	93.7	43.0	21.8	30.1	38	30.2	24.8	60.3	62.8	49.9	60.5
7901	Zinc, unwrought	51.7	66.3	9.7	16.6	61.4	82.9	84.2	80.0	10.5	36.3	0.6	4.7	11.1	41	94.6	88.5
8707	Bodies (including cabs) for motor vehicles	10.3	21.5	0.7	0.4	11	21.9	93.6	98.2	40.5	1.7	7.4	1.5	47.9	3.2	84.6	53.1
Total 14 products (a)		*125.2*	*300.9*	*270.85*	*552.42*	*396.05*	*853.32*	*31.6*	*35.3*	*448.6*	*495.9*	*853.2*	*829.8*	*1 301.8*	*1 325.7*	*34.5*	*37.4*
Total exports/imports MIO (b)		4 402.2	4 129.1	4 076.7	9 202.2	8 478.9	13 331.3	51.9	31.0	6 212.1	9 948.8	21 472.2	17 894.7	27 684.2	27 843.5	22.4	35.7
Percentage of total (a/b)		2.8%	7.3%	6.6%	6.0%	4.7%	6.4%			7.2%	5.0%	4.0%	4.6%	4.7%	4.8%		

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC).

MIO: Manufactures of industrial origin
MCN: Mercosur Common Nomenclature
(a) Total products analysed in the table.
(b) Total imports/exports.
(a/b) Total products analysed in the table / total imports (or exports, as the case may be).

V

Analysis of Argentina's trade regionalization with Uruguay and Paraguay

This section raises a number of important issues concerning Argentina's trade with Uruguay and Paraguay. Firstly, Argentina maintained a clear surplus in its trade with these two partners during the period under study, unlike its trade with Brazil. These two countries represent a market to which Argentina exports a wide variety of products but imports insignificant amounts, particularly compared to its imports from Brazil.

An interesting feature of Argentina's trade with these two countries is that within the 4-digit headings in the sample, none has been selected as important simultaneously for Argentina's imports and exports to each destination.

This section will follow the same analytical scheme as used with Brazil, although the analysis of Argentina's trade with Uruguay and Paraguay, respectively, is clearly less important than that with Brazil, as shown by the fact that there are very few significant cases, unlike the situation with Argentina's largest MERCOSUR trade partner.

1. Trend of Argentine imports from Uruguay that display high levels of regionalization

Uruguay is of little importance as a supplier to Argentina. Only a few of the selected headings have become more regionalized, and jointly they have little importance in Argentina's total MIO imports. The products in question have very low values both in terms of imports from Uruguay and globally. Increasing regionalization stems mainly from a reduction in Argentine imports from the rest of the world.

With regard to headings that are becoming less regionalized, most cases reflect a reduction in Argentine imports from Uruguay combined with a stable level of imports from the rest of the world. These are also headings that are largely irrelevant in the trade between the two countries.

In both cases, the regionalization trend reflects import substitution processes involving an expansion of local production in Argentina.

2. Trend of Argentine exports to Uruguay that display high levels of regionalization

Unlike it exports to Brazil, there are many headings in Argentina's exports to Uruguay that are becoming more regionalized —products which, in 2005-2006, display a significant increase in their share of total MIO exported by Argentina. In turn, the variety of products shows that, while there is significant regionalization of exports from Argentina to Uruguay, these are dispersed among different industries, many of which are mainly represented by SMEs, such as textiles, footwear and bottles.

Secondly, although the amounts exported are mostly insignificant, they involve products where Argentina has not had a strong export position on external markets during the period. This helps to explain the heavy weight of exports to Uruguay, even though the latter is a small market.

At the same time, there is a wide range of product lines in which Argentine exports to Uruguay have become less regionalized. These include light-industry products such as textiles, paints and varnishes and other liquids and creams for various uses; and also small and medium-sized machines such as electric heaters, electrical transformers, television adapters, among others.

In both cases, exports to the neighbouring country between the two periods remained relatively stable or grew slightly, while sales of these products to the rest of the world increased sharply, thereby explaining the drop in regionalization as trade with other destinations has grown. Possibly the learning process facilitated by the existence of MERCOSUR provided the knowledge needed to start developing dynamic comparative advantages in these product lines.

3. Trend of Argentine imports from Paraguay displaying high levels of regionalization.

As in the Uruguayan case, there are few headings where regionalization increased during the period under study. Paraguay is not one of Argentina' leading

suppliers, and the type of products imported, mainly linked to the textile industry, suggests that high levels of regionalization stem from the geographic proximity of the two markets. In fact, the increasing regionalization shown between the years under study mainly represents a reduction in Argentine imports from the rest of the world, as part of an import substitution process rather than a major increase in trade with its partner.

There is also a very small number of headings for which (previously high) regionalization falls between the two periods. This strengthens the previous argument regarding Paraguay's minor role as a supplier of industrial products to Argentina, even though it is a trading partner with preferential tariffs.

4. Trend of Argentine exports to Paraguay displaying high regionalization

As in the case of imports, Argentine exports to Paraguay include very few headings with high levels of regionalization. Nonetheless, in some cases, such as footwear, the increase in regionalization with Paraguay reflects a sharp drop in Argentine exports of the product in question to the rest of the world (particularly to Brazil, as noted above). Lastly, exports of cellular phones (Code 8525) to Paraguay grew very fast between the two periods, despite being small in value terms.

Secondly, in keeping with the previous results, headings that show declining regionalization are mainly explained by a fall in Argentine exports to Paraguay. This decrease, which was offset in some cases by an increase in exports to the rest of the world, shows that, for some cases, Paraguay has served as an initial platform to generate learning processes in the production of goods such as paper and paperboard, cables, washing machines, and mechanical therapy or massage equipment, etc. Trade with Paraguay, boosted by the existence of MERCOSUR, may thus have helped Argentina gain access to a broad market and develop dynamic comparative advantages enabling it to subsequently expand its exports outside the trade bloc.

VI
Conclusions

This article set out to analyse the extent to which a more diversified pattern of specialization in Argentina's trade with Brazil, compared to each country's trade with developed countries, generated dynamic comparative advantages both at the regional level and in relation to external markets. For this purpose, the article analysed the recent trend of trade in industrial products which by 1998 were displaying high levels of regionalization (in terms of imports and/or exports) between two periods of study: one prior to the macroeconomic crises suffered by the two countries (1997-1998) and another more recent period (2005-2006).

Ten years after publication of the article by Yeats, far from confirming the conclusions of that author, the Brazilian experience (and, to a lesser extent, that of Argentina) seems to support those who consider that South-South trade not only does not damage trade with third countries but could also be beneficial for expanding and diversifying such trade in the medium and long terms.

Argentina is increasingly concentrating its purchases of industrial manufactures in Brazil while selling such goods to the rest of the world. This reflects very asymmetric regionalization trends in bilateral trade in industrial goods between the two main MERCOSUR partners.

Firstly, it shows an increase in the regionalization of Argentina's industrial imports in certain categories — the combined result of an increase in the proportion of imports from Brazil and a reduction in the proportion sourced from the rest of the world. In these product lines, Brazil has become the leading supplier. Does this imply inefficient diversion of trade from Brazil, as Yeats argued, or the development of new comparative advantages by this country? The statistics clearly show the latter, because for the industrial products identified, Brazil also reports a sharp expansion of exports to the rest of the world (with growth of between 80% and 300%).[11] These data seem to be more consistent with the approach proposed by Amsden, since Brazil shows a clear development of learning processes.

[11] For further detail, see annex 3.

The second aspect to highlight in Argentine-Brazilian trade relations is that various Argentine export categories are becoming less regionalized. This mostly reflects a decrease in exports to Brazil, but also an increase in sales to the rest of the world. There has also been an increase in the regionalization of Argentine exports in certain segments of the petrochemical sector.

This reveals the existence of highly asymmetric regionalization trends in the bilateral industrial goods trade of the two leading MERCOSUR partners.

What implications would this have for evaluating the impact of the regional integration process? On the Argentine side, it might mean that, in some cases, such as the automotive industry and certain petrochemical and plastic commodities, MERCOSUR has served as an initial export platform, for later expansion to the rest of the world. In this case it has been possible to develop learning processes and/or improved organization of production. From the Brazilian standpoint, in a context of domestic productive policies that favour competitiveness, MERCOSUR provided clear opportunities for strengthening certain industrial sectors based on the development of economies of scale and learning. We cannot ignore the fact that these trends reflect the globalizing strategies of multinational enterprises that have made better use of the benefits of the integration process thus far.

A detailed analysis of the results obtained, and considering South-South trade in industrial goods as beneficial, firstly highlights exports of motor vehicles and autoparts. The trend of trade in this type of product has been varied. What initially helped sustain the Argentine bilateral trade balance through growing exports to Brazil, now shows a different face. Whereas imports of motor vehicles and autoparts (chapter 87) from Brazil have grown considerably in recent years, Argentine exports have declined slightly. Nonetheless, the interesting point here is the significant diversification achieved by Argentine exports of this type to the rest of the world. Although Brazil remains the leading destination for Argentine sales of motor vehicles and autoparts, other destinations are also gaining ground. When Brazil started to reduce its purchases of automobiles and autoparts from Argentina, the latter was able to divert and expand its sales to other countries.

Plastics are another major product line in Argentina; and a key feature of this group is that production is atomized among nearly 1,700 firms, mainly SMEs (Briner et al, 2007).

Despite the sharp rise in Argentina's industrial imports from Brazil, the latter's exports to Argentina are becoming less regionalized, in the wake of a rapid expansion to external markets. Whereas in 1997-1998, 21% of Brazil's MIO exports went to Argentina, the share had declined to 15% in 2005-2006. In the case of certain industrial products, trade with Argentina clearly gave Brazil a significant boost to develop dynamic comparative advantages and subsequent expansion to the rest of the world.

In contrast, from the Argentine standpoint, it could be argued that exports based on static comparative advantages (primary commodities and a few agricultural manufactures) gave poor results in its trade with Brazil in the medium term. Moreover, that result could have been worse if the strategy had been maintained, because Brazil is becoming either self-sufficient or else a major exporter of those products. Hence, the large trade surplus that Argentina maintained during the 1990s steadily dwindled, to become a deficit driven by trade in industrial goods from 2002 onwards.

Argentina has been the main beneficiary in its trade with Uruguay and Paraguay. Both geographic proximity and the existence of MERCOSUR enabled it to export certain products to these partners, developing a learning-by-exporting process that enabled it later to expand its sales to the rest of the world. This shows that for certain products, Argentina was indeed able to develop dynamic comparative advantages, which are being strengthened by the negligible levels of regionalization that currently exist between Argentina and Paraguay, and between Argentina and Uruguay, respectively. On the other hand, Paraguay and Uruguay have to some extent been relegated in the process of developing dynamic comparative advantages as a result of intra-MERCOSUR trade.

This article clearly shows that MERCOSUR has served as a tool for developing dynamic comparative advantages in its larger member countries. The question now is to what extent the integration process can continue to play that role. A broader question, whether integration could be achieved more equitably for all participating countries, which means reducing economic-policy asymmetries and extending its benefits to the smaller members. These are the major challenges facing the integration process in the future.

(Original: Spanish)

ANNEX I

The regional trade orientation index

For exports, the index is defined as follows:

$$IRX_t = \frac{X_{i,BRA;t} / X_{MOI,BRA;t}}{X_{i,ROW:t} / X_{MOI,ROW;t}}$$

where:
IRX_t: Regional orientation index for exports in year t
$X_{i,BRA;\,t}$: Exports of product/heading i to Brazil in year t
$X_{MOI,BRA;\,t}$: Total exports of MIO to Brazil in year t
$X_{i,ROW;t}$: Exports of product/heading i to the rest of the world in year t
$X_{MOI,ROW;t}$: Total exports of MIO to the rest of the world in year t

and $\sum_l^n X_{MOI}$, in other words, the sum total of items i is equal to total MIO exports.

The procedure in the case of imports is analogous.

$$IRM_t \frac{M_{i,BRA;t} / M_{MOI,BRA;t}}{M_{i,ROW;t} / M_{MOI,ROW;t}}$$

where:
IRM_t: Regional orientation index for imports in year t
$M_{i,BRA;\,t}$: Imports of product/heading i from Brazil in year t
$M_{MOI,BRA;\,t}$: Total imports of MIO from Brazil in year t
$M_{i,ROW;t}$: Imports of product/heading i from the rest of the world in year t
$M_{MOI,ROW;t}$: Total exports of MIO from the rest of the world in year t

and $\sum_l^m M_i = M_{MOI}$, in other words, the sum total of items i is equal to total MIO imports.

MIO: Manufactures of industrial origin

ANNEX II

Sample selection

This article drew upon the entire universe of Argentina's exports and imports divided into those traded with Brazil and those with the rest of the world.[12] From this universe, a sample of exports and imports was chosen to include headings which, in at least one year during the time period analysed, exceeded US$ 10 million. This reduces the export sample to 61 tariff headings, representing on average 85% of sales to Brazil and 73% of sales to the rest of the world. The import sample was similarly reduced to 184 headings, on average representing 90% of imports from Brazil and 65% of imports from the rest of the world.

From that initial selection, the analysis used headings displaying a regionalization index (either for exports or for imports) higher than 1.[13]

The final selection criterion consisted of choosing headings for which intra-MERCOSUR imports (exports) accounted for over 30% of total imports (exports).

[12] This produced two large groups: exports, consisting of 919 four-digit tariff headings under the MERCOSUR Common Nomenclature (MCN4); and imports encompassing 928 four-digit headings under the same classification.

[13] A regionalization index of over 1 means that, for the heading in question, trade (exports or imports, as the case may be) is regionalized between Argentina and Brazil.

ANNEX III

Brazilian exports to the rest of the world in the main industrial chapters, and headings exported to Argentina

Brazilian exports to the rest of the world
(US$ million F.O.B.)

	Chapter	1997-1998	2005-2006	Inter-period variation
28	Inorganic chemical products; inorganic or organic compounds of precious metals, radioactive elements, rare earth metals or isotopes	360.7	1 223.1	239.1%
29	Organic chemical products	892.5	1 630.7	82.7%
30	Pharmaceutical products	118.2	470.8	298.2%
84	Nuclear reactors, boilers, machinery, and mechanical appliances; parts thereof	3 593.8	9 068.7	152.4%
85	Electrical machinery and equipment and parts; sound recording or reproduction equipment, image and sound recording or reproduction equipment in television; parts and accessories thereof	1 426.3	4 722.4	231.1%
87	Motor vehicles, tractors, cycles and other land vehicles; parts and accessories thereof	3 326.6	8 828.5	165.4%

Exports
(US$ million F.O.B.)

	Heading	Average value of Brazilian exports to Argentina		Average value of Brazilian exports to the rest of the world	
		1997-1998	2005-2006	1997-1998	2005-2006
8418	Refrigerators, freezers and other material, other non-electrical freezing equipment; heat pumps, excluding air-conditioning machinery and equipment under heading No. 8415.	51	120	63	308
8525	Transmission apparatus for radio telephony, radiotelegraphy, radio or television broadcasting, with a built-in receiver or apparatus for recording or reproduction of sound; television cameras; video cameras, including still cameras.	66	685	54	2 000
8701	Tractors (other than works trucks) of heading No. 8709).	143	338	113	901
8702	Motor vehicles for the transport of 10 or more persons, including the driver.	21	96	141	223
8703	Motor cars and other motor vehicles mainly for transporting persons (excluding those in heading No. 8702) including family type vehicles ("break" or "station wagon"), and race cars.	649	1,390	892	3 106

Source: Prepared by the authors on the basis of INDEC data.

Heading		RI of Brazilian exports to Argentina	
		1997-98	2005-2006
8418	Refrigerators, freezers and other material, other non-electrical freezing equipment; heat pumps, excluding air-conditioning machinery and equipment under heading No. 8415.	3.0	2.3
8525	Transmission apparatus for radio telephony, radio telegraphy, radio or television broadcasting, with a built-in receiver or apparatus for sound recording or reproduction; television cameras; video cameras, including still cameras.	7.8	2.0
8701	Tractors (other than works trucks) of heading No. 8709.	4.9	2.2
8702	Motor vehicles for the transport of 10 or more persons, including the driver.	0.6	4.1
8703	Motor cars and other motor vehicles mainly for transporting persons (excluding those in heading No. 8702) including family-type vehicles ("break" or "station wagon"), and race cars.	2.8	2.6

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC).

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KEYWORDS

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Development banks in the financial-liberalization era: the case of BNDES in Brazil

Jennifer Hermann

This article considers the potential repercussions of financial liberalization on the role played by development banks, particularly the National Bank for Economic and Social Development (BNDES), as the main source of funding for Brazil's economic development process. Although liberalization can foster financial development, the latter tends to respond incompletely to the needs of economic development in less developed countries, such as Brazil. Analysis of the Brazilian case seems to confirm this thesis and shows that BNDES not only preserved but actually expanded its position on the domestic market in 1990-2006, despite the financial-liberalization policy that was implemented in that period.

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I
Introduction

Development banks were originally created to promote national economic development in countries where the domestic financial system was unable to sustain a rapid expansion of aggregate investment. Most of these institutions were founded in the initial or intermediate phase of the industrialization process, to promote and, in particular, speed up the process. Nonetheless, the fact that development banks also exist in G-7 countries —for example, Germany's Kredintaltanlt fur Weidarufban (KfW), the Japan Development Bank and the Business Development Bank of Canada (BDC), all of which are wholly government owned— shows that they are not rendered obsolete by more advanced levels of economic and financial development, but they merely adapt.[1]

The National Bank for Economic and Social Development (BNDES) is no exception to this rule. Ever since it was founded in 1952, it has tailored its activities to suit differing political, macroeconomic and financial contexts. Until the 1980s, BNDES played a fundamental role in financing the Brazilian industrialization process, based largely on government investment and funding (supported by external financing). The 1990s brought a radical change when Brazil followed the example of various developed and developing countries by adopting the financial liberalization model as part of a new development policy. Under that model, economic development is supposed to be guided by private-sector (or market) initiatives and interests, rather than by actions directed or financed by the State. In the financial-policy domain specifically, the objective was to stimulate capital-market expansion and diversification with saving channelled through private-sector financial institutions. Consequently, the recommendation was to deregulate and open up the financial markets, and greatly scale back, or even eliminate, the mechanisms of direct State involvement, in the belief that they would be rendered unnecessary by the private-sector development that would result from the liberalization policy.

Regardless of the validity of the premises and technical analysis that inspired the financial-liberalization policy, discussion of which goes beyond the scope of this article, the financial- deregulation and government-downsizing measures implemented in the various countries that adopted this model changed their respective financial systems.[2] Among other things, the volume of financial transactions undertaken in banking and capital markets throughout the world expanded greatly from the 1990s onwards; and it is probably more than a coincidence that this has accompanied the financial liberalization process in many countries. The theoretical approach adopted in this article suggests that, although liberalization has fuelled an expansion of financial activity, the actions of development banks have not become superfluous, particularly in countries such as Brazil that still have a long way to go along this road. Nonetheless, the new setting in which these banks operate naturally calls into question the former role of the Government and development banks in the development process.

This article reviews the potential effects of financial liberalization on the role of development banks, and BNDES in particular, as the leading financier of the economic development process in Brazil. It is structured as follows: the second section makes a preliminary and speculative approach to the topic of development banks generally, while the subsequent sections deal with the specific case of Brazil. The third section summarizes the conditions under which BNDES operated in the period 1950-1989, before the financial-liberalization process in Brazil began. The fourth section analyses the post-liberalization phase, from 1990 to 2006, and the fifth sets forth the conclusions.

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[1] According to available online data (www.kfw.de; www.dbj.jp; www.dbc.ca), the respective federal governments own 100% of the equity of the Japan Development Bank and BDC and 80% of KfW, in which the remaining 20% is held by state governments.

[2] See Hermann (2010a) for a theoretical discussion of the role of development banks, and public banks generally, in industrialized and developing countries.

II

Financial liberalization and development banks

1. Functions and characteristics of development banks

Debate over the role and functions of development banks in the financial system has not yet been widely expounded and systemized.[3] In general, such discussion tends to arise as a, sometimes slightly forced, extension of conclusions regarding the role of the State in the financial market. In fact, this question logically precedes discussion of development banks, which are just one of the modes of State involvement in the financial system but clearly not the only one. While that debate will not be pursued in this article, it is useful to identify the positions that polarize it, to provide a theoretical backdrop for the empirical analysis on which this article is based.

The debate over the role and modes of State action in the financial market is polarized in two approaches: (i) the model proposed by Shaw and McKinnon, which defends the financial liberalization policies in question and consequently supports minimal noninterventionist State action in the sector; and (ii) Keynesian-type models, based on arguments propounded by neo-Keynesian and post-Keynesian schools of thought, which justify wide-ranging State action in the financial market, including through development banks.

The theoretical premise of the defenders of liberalization is the validity of the "efficient-markets" hypothesis, which assumes that, with full access to information, the asset market can generate correct incentives for efficient resource allocation —in other words in "fair" quantities and prices that correctly reflect the rates of return and risk of the assets being traded. Naturally, this approach does not justify the existence of development banks.[4] The Keynesian-type approaches on which this article is based, sustain the opposite: that the existence of inherent failures and uncertainties in the financial market invalidate the efficient-markets hypothesis. Consequently, financial markets tend to expand "incompletely" and do not adequately meet needs in relation to growth, and particularly, economic development. Under such conditions, regardless of how advanced the financial system is, State action through financial regulation and development banks is an effective way of making the sector more efficient.

According to the theoretical approach adopted in this article, the creation and regular action of a development bank is justified by conditions that are inherent to the economic development process and the way local financial markets typically function. Although the range of conditioning factors that leads to the creation of various development banks is quite broad and varies from one country to another, two basic conditions apply in all cases: (i) the development process is characterized by major uncertainties, generally linked to infrastructure investments (owing to the long gestation phase involved) and the emergence and spread of new sectors, products and productive processes; and (ii) savers (private individuals and financial institutions) tend to eschew risks that are perceived as very high and are harder to evaluate and incorporate into required rates of return —either because of the high level of uncertainty that makes it difficult or impossible to foresee and calculate the risks involved, or because of constraints in terms of demand for resources, when perceived high risks are factored in to rates of return.

These conditions explain the "incomplete" nature of the financial market in the segments that are most important for the economic development process, such as general funding for innovations, for long-term operations (particularly infrastructure investment) and activities whose main "attraction" for society —but not necessarily for financiers— is the expectation of high social returns. These include works to expand urban sanitation grids and the investments of small and medium-sized enterprises, which are major job creators.[5] This gap in the financial markets, which

[3] For a commented summary of that debate, see Panizza, Yeyati and Micco (2004) and also Hermann (2010a).

[4] This argument will be justified in greater detail below.

[5] A market is said to be incomplete when segment that is theoretically possible is non-existent in practice, owing to a lack of interest either on the supply side or on the demand side, owing to information asymmetries between the main potential participants, major uncertainty (lack of reliable information), or simply inadequate incentives. In the latter case, the incomplete nature of the market can easily be corrected through targeted economic policies. As will be argued below, this hypothesis underlies the proposal of financial liberalization policies.

exists even in countries that are at an advanced phase of economic and financial development, justifies the creation and survival of development banks, whose sphere of activity ideally complements that covered by the local private financial system.

In terms of the functions fulfilled by development banks, international experience and the literature on the subject —Diamond (1957); Aghion (1999); Bruck (2001 and 2002); Pena (2001); Panizza, Yeyati and Micco (2004); United Nations (2005), among others— distinguish two modes of action: a restricted one, where the development bank is viewed merely as a financial institution; and a broader one, where the development bank adopts a hybrid form and fulfils multiple roles in the development process.

Under the more restricted approach, the development bank adopts a relatively passive stance towards the development process and meets the demand for financing, generated spontaneously by ongoing investments, that has not been satisfactorily met by the existing financial system. This basically includes the activities most affected by the typical "market failures" of the financial system, which stem from asymmetric information, externalities, and returns that are hard to predict, including investments with long maturation periods and those in agriculture. Under this approach, the development bank's main function is to finance "repressed demand" for long-term credit; and that is why sector-specific banks tend to dominate (agriculture, housing, exports, and others).

Under the broader approach, development banks also participate more actively in the development process —anticipating demand; identifying new sectors, activities, strategic products and productive processes for national development; and promoting investment programmes in those areas. In addition to the typical activities of the financial system (accepting voluntary or compulsory saving and channelling it into selected investments), this form of action also involves research, technical support, and possibly the formulation of investment and financing programs (Bruck, 2002, p. 62).

Both types of development bank can serve economic development. Nonetheless, as this process is dynamic by nature, and both investment needs and the opportunities to be exploited change over time, the second approach is more appropriate. Under the narrower approach, the development bank ends up acting procyclically and, consequently (albeit with different asset-selection criteria), with the same macroeconomic dynamic as a private bank which, in principle, does not have a commitment to support economic development.

Although the lending function of a limited-scope development bank is clearly relevant in periods of economic growth, this is also true of all financial institutions (private or public) that are interested in meeting the demand for credit. It could also be argued that the development bank would be more useful if it also participated, albeit indirectly, in the decision-making process for new investments, indicating its development priorities and strategies. This could attract investments into important areas that are not spontaneously foreseen by the private sector.

In the downswing phase of the business cycle, the functionality of a development bank that merely responds passively to demand would be seriously compromised. The effective contraction of sales and profits tends to "contaminate" expectations of enterprise profitability and increase business pessimism. In that setting, the "perceived" risk of new investments increases, while the incentive for risk-taking declines: prediction errors are more likely, because future incomes and costs become even more uncertain than they are in economic growth periods; and, even if predictions are correct, the expected gain from a new undertaking tends to be lower than in times of stronger economic growth.

In such conditions, it is natural that the most innovative enterprises (involving new products, productive processes and markets), which are the engine of the economic development process, are disproportionately affected; and only investments to replace already existing capital are maintained, at best. Doubtless, the support of a development bank for such "spontaneous" investments helps to restrain the downswing; but in that setting, it would be desirable for a development institution also to play a countercyclical role —counteracting the loss of investment momentum instead of compounding it. Moreover, as noted by Gerschenkron (1962, p. 10), given the complementarity that exists between new and already established sectors, maintenance of a reasonable growth rate in the latter is a necessary (but not sufficient) condition for expansion of the former. This reinforces the recommendation that a development bank should act countercyclically and provide financial backing for certain already established sectors that have close links with those to be promoted as part of an economic development programme. To do so, the development bank needs to assume broader functions than those of a "common

bank", identifying and stimulating sectors that are capable of leading the economy out of stagnation or recessionary phases, through investment programmes and financial support.

The functions attributed to a given development bank indirectly define two of its key institutional characteristics. In general, the broader and more diversified the role expected from the development bank, the closer should its political and financial links be with the Government; and probably, the greater will be the latter's participation in the bank's capital. It is no coincidence that wholly government-owned institutions predominate among the development banks created since the Second World War in developing countries (Aghion, 1999, p. 87). This is largely explained by the scale of the challenge posed by industrial development in those countries at that time, which had advanced industrialization countries as both "models" and competitors (Gerschenkron, 1962). In that context, development banks were responsible not only for meeting pre-existing demand for long-term funds (which was not being satisfied by the financial system in that period), but also to promote new demand by implementing programmes to stimulate investments in sectors that were seen as strategic (Diamond, 1957).

In such cases, the development bank acts simultaneously as a lender and as a development promotion agency, while also fulfilling macroeconomic functions (planning, formulation or execution of national policies). As it is difficult, if not impossible, for wholly privately owned financial institutions to fulfil those functions, since their interests are naturally microeconomic, the predominance of government capital is virtually unavoidable.

In short, it is not only the focus on providing long-term finance, or funding for sectors which are important for economic development in a given period, that distinguishes a development bank from other types of financial institution. Privately owned institutions can also operate in those areas and contribute positively to national economic development; but this does not make them development banks unless this type of action is specified in their articles of association as a key institutional objective. It is the commitment to funding the national economic development process that distinguishes a development bank from other institutions that may also play this financing role on an occasional or casual basis. This type of commitment is not in the nature of private financial institutions, whose activities are primarily profit-seeking. Thus, the predominance of the public sector in the capital structure and, consequently, the management of development banks created in the post-war period, is not a mere historical detail, but should be viewed as one of defining features of this type of institution.

2. The challenges of financial liberalization for development banks

There is a wide ranging and polemical debate on the effects of liberalization on financial-market development.[6] While that debate goes beyond the scope of this article, it is useful to summarize the main polarizing arguments, to infer its repercussions on the role of development banks.

For supporters of liberalization, the incomplete nature of the financial market is the result of financial repression policies, widely practised in the 1950s-1970s in various developed and developing countries.[7] The "repression" stemmed from the maintenance of a number of regulatory barriers whose main objective was to guarantee security for the financial system and its users, and the presence of the State as a fund provider. There was also a macroeconomic dimension to the financial-repression policy, involving a combination of systematic public deficits and high levels of taxation, public debt and inflation, reflecting high and frequent State expenditure (not only in the financial sector).

Economies that emerged from a long period of "financial repression" believed that a "complete" liberalization policy required two permanent lines of economic policy: (i) financial deregulation and openness; and (ii) macroeconomic adjustment to stabilize prices and reduce the Government's participation in the economy (not only in the financial sector) through privatizations and balanced budgets.

[6] See, for example, the selection of articles compiled by Dixon (1997) and Levine (1997 and 2004). For arguments in favour of the model (albeit not without criticism) see World Bank (1989); McKinnon (1993); Fry (1995 and 1997); Agènor and Montiel (1999), among others. For critical opinions, see Kregel (1992); Sachs and Radelet (1998); UNCTAD (1998); Batista Jr. (2001); Hermann (2002a) and Stiglitz (2002), for example.

[7] A country with a well-known practice of financial repression at that time was the United States, where a wide-ranging programme of financial liberalization was implemented as from 1980. The main radical exponents of the financial liberalization policy were E. Shaw (1973) and R. McKinnon (1973). More synthetic expositions of the Shaw and McKinnon model can be found in Fry (1995, chapters 2 and 14) and Agénor and Montiel (1999, chapters 6, 14 and 17).

Under those hypotheses, State action in the financial sector should be limited to two functions: supervision of the market to guarantee transparency (maximum information) and legal certainty for businesses; and the maintenance of a "healthy" macroeconomic environment, meaning systematic monetary and fiscal balance. According to this approach, development banks would have their days numbered: the financial liberalization and macroeconomic adjustment policies of the 1990s-2000s were expected to promote the development and "completion" of financial markets and thus gradually render development banks unnecessary.

As noted above, the critics of liberalization consider that financial markets are intrinsically "inefficient" at the macroeconomic level. Guided by individual profit-seeking motives and expectations of return and risk that are necessarily uncertain (and therefore error-prone), financial institutions tend to behave display in a procyclical and destabilizing manner: they restrict credit in periods of weak economic growth (when, in fact, the risks are greater), and they tend to expand it imprudently at times of greater optimism. In both cases they aggravate the trend towards recession or overborrowing and make the economy more financially fragile. In addition, they tend to ration credit to sectors that are important for economic growth, in which the risks are assumed to be greater. Under this approach, free markets and policies of fiscal and monetary balance are not a panacea for the maturity of the financial system or for solving problems in financing economic development. On the contrary, while they recognize that liberalization may expand and diversify financing sources and thus stimulate economic growth, not necessarily through sectors that are crucial for development, the critics of this policy believe that it also creates new risks by aggravating the tendency towards financial fragility and inefficient allocation of resources in the economy.

The new risks would arise from the typical features of deregulated markets, including: (i) more volatile interest rates, exchange rates and asset prices; (ii) greater competition between financial institutions, which could foster more aggressive strategies to capture funds (raising liability costs and risks) and expand (or defend) market share (thereby increasing balance-sheet risks); (iii) an increase in the risks financial institutions take on when they enter as yet unexplored market segments; (iv) greater market risk linked to the expansion of capital markets which normally lack "institutional bailout" mechanisms; (v) greater liquidity risk associated with operations in futures markets; and (vi) an increase in domestic and external borrowing by firms and financial institutions (and also by families domestically) resulting from the exploitation of new market opportunities, which increase the credit and exchange-rate risks to which lenders and borrowers, and, indirectly, the economy as a whole, are exposed.

As all of those changes became permanent features of financial markets following liberalization, greater risk exposure and uncertainty cannot be seen as transitional. The financial crises that occurred between 1997 and 2002 in various developing countries in which the liberalization model was adopted, and also in United States and other developed nations in 2008-2009, seem to suggest that pessimism as to the capacity of liberalization to increase the macroeconomic efficiency of national and international financial markets was correct.[8]

Although many of those crises also went hand-in-hand with major macroeconomic imbalances (current-account deficit, public deficit and inflation), the partial responsibility of liberalization policy is clear, considering that periodic macroeconomic imbalances are an integral part of the "normal" *modus operandi* of market economies, which have historically experienced periods of instability. The long period of "financial repression" saw high rates of economic growth accompanied by intermittent periods of macroeconomic imbalance, but no systemic financial crises such as those that occurred in the 1990s. Consequently, it seems undeniable that financial liberalization facilitated and expanded the extent of "contagion" from those financial market imbalances, by enabling economic agents to take excessive risks.

As noted above, in situations of major uncertainty, the key sectors for economic development also tend to be the hardest hit. Moreover, financial-liberalization policy lacks elements to promote funding for innovations or long-term investments, so the argument that the implementation of liberalization policies rendered development banks unnecessary is implausible to say the least. On the contrary, although those policies encouraged financial-market expansion and diversification, development banks

[8] The "Asian tigers" (South Korea, Philippines, Indonesia, Malaysia and Thailand) in mid-1997, Russia in 1998, Brazil and Chile in 1999, Ecuador in 2000 and Argentina in 2001-2002.

have a well-defined function in the "liberalization era", which consists specifically of filling the gaps in that expansion.

Depending on the specific results of liberalization in each country, the development bank in question may have to change its mode of operation to remain functionally relevant to the development process. For example, if the capital market or long-term bank credit displays significant structural growth, then the development bank may perceive a contraction in the demand for credit from larger firms and those with a good reputation on the market, which private institutions start to serve. Thus, in cases where liberalization policy has been successful, the role of development banks, and their mode of operation, may shift towards a higher concentration of assets in sectors where risk is harder to evaluate (through not necessarily higher), which are more constrained by the private financial system even in countries with a reasonable level of financial development. Although this could represent a change in the sector-composition of development banks' balance sheets, the concentration on those sectors is not a new situation for such banks but in fact justifies their existence. The group of sectors on which the development bank concentrates merely tends to change through time.

Nonetheless, liberalization may require a review of risk management models to broaden protection against the risks of open markets. Capital-market expansion, normally associated with the liberalization process, tends to create new forms of risk mitigation, for example by facilitating the organization of debt securitization operations and project financing, among others. However, as happens in the case of private banks, development banks find it harder to operate in the new context, because the "liberalization era" is undoubtedly more subject to the volatility of domestic and international financial markets than was the "age of financial repression". Moreover, the financial crises of the 1990s-2000s showed that, no matter how sophisticated the markets, there are no perfect hedging instruments that guarantee "financial armour" for investors in all circumstances, because ultimately only contexts that are foreseen can guide operations. Lastly, even wholly publicly owned development banks, which have funds and hedging instruments outside the market, are not immune from market conditions that affect private financial institutions —nor for that matter is the National Treasury.

These difficulties are unrelated to the specifics of development banks and affect all financial institutions. Like their private-sector counterparts, development banks can remain financially viable in the "liberalization era", provided they make prudent use of new financing instruments and the hedging generated by the financial liberalization process itself.

III

Before liberalization: BNDES in the 1950s-1980s

Throughout the 1950s-1980s, and despite a number of attempts to create a private structure of long-term financing, the progress of industrialization in Brazil was based on a combination of self-financing, external capital (bank loans and direct investments) and government credit. The latter was provided basically by Banco do Brasil, particularly in the agricultural sector; the federal savings bank, *Caixa Econômica Federal* (CEF), which mainly targeted the real estate sector; and BNDE, which focused on industry (Monteiro Filha, 1994; Guth, 2006).[9] Although the importance of these three sources varied, they provided the financing structure for the "Goals Plan" of the government of J. Kubitscheck (1956-1961), the "Economic Miracle" (1968-1973) of the government of G. Médici, and the Second National Development Plan (II PND) of the administration led by E. Geisel (1974-1978).

The first institutional attempt to encourage the formation of a private system of long-term financing in Brazil consisted of the financial reforms introduced in 1964-1967 during the Castelo Branco government. Taking the model that underpinned the North American industrialization process as an example, an attempt was made to create a segmented financial system largely supported by the capital market. This plan was a dismal failure, as is well known (Studart, 1995; Hermann, 2002b).

[9] When it was created in 1952, it was known as the National Economic Development Bank (BNDE). It became the National Economic and Social Development Bank (BNDES) only in 1982.

During the 1960s and 1970s, BNDE was not only the only domestic source of long-term financing for industry, but its contribution to gross fixed capital formation (GFCF) grew in each new phase of the industrialization process. On average, the bank's disbursements accounted for 3.2% of Brazilian GFCF in the low-growth period of 1964-1967, rising to 5% in the period 1970-1973, and to 8.9% in 1975-1979, both of which were characterized by a sharp increase in overall investment, led by industry.[10] The relative positions of the public and private sectors in BNDE loans also reversed in that period: the former, to which on average 90% of the bank's disbursements were channelled until the mid-1960s, saw its share shrink to nearly 20% in 1976-1980, while the difference was directed to large private-sector firms (Guth, 2006, p. 98). In that period, BNDE thus occupied a position in the Brazilian financial market, which otherwise —in a more developed market— would be held at least partly by private institutions.

There was no other sustained expansionary cycle in Brazil in the 1980s. As it is well known, that decade was characterized by monetary instability and economic stagnation in this country and elsewhere in Latin America, for which reason it has been dubbed the "lost decade". This backdrop alone would have been sufficient to inhibit financial development in Brazil and to obstruct or prevent the success of any financial policy to stimulate long-term operations. The actual situation was even worse, however, because the external and fiscal constraints caused the failure of the current financing model, since the supply of public credit declined sharply, and foreign capital flows into the country dried up completely. In that context, although BNDES maintained its field of action, as there was no private competition of any kind in its traditional market segments, its level of operations declined drastically: disbursements shrank by 64% in real terms between 1979 and 1990 (from 17.7 billion real to 6.3 billion real at 2001 prices) and, in relation to GFCF, dropped from 10.6% to 3.3% over the same period (Guth, 2006, pp. 174-175).

Nonetheless, the reduction in the ratio between disbursements and GFCF did not occur continuously over that period. Up to 1987, the ratio remained steady around 8%, before dropping to 5.7% in 1988 and to an average of 3.2% in the 1989-1990 biennium. Maintenance of the level and regularity of disbursements up to 1987 is basically explained by three factors: (i) the actions of BNDE in the energy sector (the bank started to support the National Alcohol Programme in 1979), where it played a leading role in its credit policy; (ii) the attempt, not always successful, to implement investments approved at the start of the decade (in fact some were interrupted); (iii) extension or strengthening of the bank's action in new areas: basically agriculture (and above all with a view to increasing exports), small and medium-sized enterprises (with a view to job creation), and social programmes, which added the "S" to the bank's initials as from 1982 (Guth, 2006, pp.104-105). In that year, BNDES Participações S.A. (BNDESPAR) was also created, which institutionalized the bank's action by taking direct equity holdings in firms and capital markets.

That effort to adapt to the new conditions and challenges facing the Brazilian economy in the 1980s was based on creating new sources of funds for the bank through compulsory saving mechanisms: (i) the Social Investment Fund in 1982; (ii) the Merchant Navy Fund, which already existed but came under BNDES management as from 1983; (iii) the Workers' Protection Fund (FAT, created in the 1988 Constitution of the Federative Republic of Brazil, to replace the Social Integration Program), which channelled 40% of its resources (obtained from business sales and from the revenue earned by the three spheres of government) to the bank, as a sinking fund —in other words without the obligation to repay principle, and with a fixed interest rate of 6% per year. The Workers' Protection Fund became the main source of BNDES funding (accounting for roughly 35% to 40% of its total liability) since its creation.

Thus, although its activities shrank in the 1980s, BNDES preserved its traditional functions as a nucleus of compulsory saving and financing for strategic investments in Brazil during that period. Although this firstly reflects government efforts in that direction, the result is also substantially due to the total failure of private competition in the new and old areas of the bank's action. Nonetheless, unlike what might be expected and actually happened in other Latin American countries affected by the debt crisis (such as Argentina, Chile and Mexico), the shortage of private credit in Brazil in the 1980s did not reflect the financial strangulation of private banks. This

[10] Period averages calculated from annual data contained in Guth (2006, pp. 89 and 100). With regard to GFCF in industry, which was the engine of economic development in that period, BNDE outlays rose from 15% in 1974 to 35% in 1978 (Guth, 2006, p. 100).

sector not only survived without problems but also obtained high profits throughout the economic crisis period (FUNDAP, 1993; Hermann, 2002b).

As part of the financial liberalization policy, a new attempt was made in 1988 to set up a long-term private financing system in Brazil, through a banking reform that authorized the formation of multi-service (or universal) banks. The new rules allowed commercial and investment banks to merge with each other or join other financial institutions and saving and loan associations to form a multiservice bank. The reform formalized the expansion of banks and non-bank institutions into new areas; eliminated nearly all the old links between sources of funding and investment for multiple-service banks; and allowed those set up by October 1989 through the merger of pre-existing institutions, to attain just 50% of the minimum capital required at the time of their formation and leave the remaining 50% to be paid in over a five-year period.[11] The 1988 reforms thus stimulated bank concentration and represented a radical break with the financing model idealized in the 1960s, and an approach to the German model based on private bank lending. Nonetheless, as shown below, that attempt also was unsuccessful, so the traditional field of action of BNDES remained intact.

IV

BNDES in the 1990s and 2000s

1. The new context of the Brazilian financial market[12]

As noted above, the financial liberalization model is based on two economic-policy pillars: a financial policy aimed at deregulating and opening up the financial system; and a "supporting" macroeconomic policy, with fiscal adjustment and price stability as its permanent short-term objectives. In Brazil, that model was implemented in three stages: the first began in the late 1980s when the financial policy was first put into practice, before being gradually intensified; the second, as from 1995, when the monetary stabilization "phase" was implemented and fiscal adjustment began; and the third, from 1999 onwards, which consolidated the previous phase in a new model.

Bank deregulation was implemented alongside the 1988 reform. The first financial openness measures date from 1987 (during the J. Sarney administration), when National Monetary Council Resolution 1289 authorized foreign investors to participate in the Brazilian capital market provided they set up specific institutions for that purpose (annexes I, II and III of the resolution). Nonetheless, the key step in that direction occurred under President F. Collor (1990-1992), with the publication of annex IV to Resolution 1289 (in 1991) authorizing the direct participation of foreign investors in the Brazilian capital market (in the primary and secondary segments) without the need to create a specific legal entity.

Financial openness gathered pace under the government of Itamar Franco (1992-1994), when a policy of high real interest rates was implemented to attract foreign capital, and capital-market liberalization was extended to fixed-income securities (annex VI to Resolution 1289). In 1994, two other factors completed the country's effort to reintegrate into the international financial market: the conclusion of the long process of renegotiating Brazil's external debt, based on the Brady Plan; and Brazil's affiliation to the Basel Agreement, coordinated by the Bank for International Settlements (BIS). This accord instituted international rules on prudent banking, based on a minimum capital requirement as a proportion of bank's assets, according to a risk scale defined by BIS.[13]

[11] The multiple-service bank model created in Brazil virtually reproduced the structure of financial conglomerates formed in the 1970s. The 1988 reform did not cause a significant structural change in the sector. On this point, see Hermann (2002b).

[12] This subsection does not aim to provide a detailed description of the financial-liberalization process and its effects on Brazil, but to merely "list" the main events and trends that characterized it, to provide a backdrop for the subsequent analysis of BNDES actions. Detailed descriptions and analyses on the topic can be found in Freitas (1999); Hermann (2005); Ferrari Filho and Paula (2006); Sicsú (2006); Hermann (2010b), among others.

[13] The minimum ratio adopted in Brazil in 1994 was that defined by the Bank for International Settlements: 8%. As from 1997, this was raised to 11% by the National Monetary Council.

The "macroeconomic stage" of the liberalization policy began during the first term of President Fernando Henrique Cardoso (1995-1998); and the monetary stabilization process that had started under the Real Plan of 1994 was consolidated from 1995 onwards. As this stabilization plan was based on an exchange-rate anchor, it was supported by new trade and financial liberalization measures (Hermann, 1999). The Cardoso government also implemented a wide-ranging programme of privatization of State banks and enterprises (basically infrastructure).

The Brazilian economy's adaptation to the liberalization model was only completed under the second administration led by Fernando Henrique Cardoso (1999-2002). The exchange-rate crisis that hit the country in 1999 was followed by adjustments to the macroeconomic policy model, in which the exchange-rate anchor was replaced by a flexible exchange-rate system; monetary policy was made subject to an inflation-targeting model, and fiscal policy was subordinated to a scheme to of primary surplus targets, and also by the Fiscal Responsibility Act as from mid-2000.[14]

[14] The Fiscal Responsibility Act institutionalized a number of rules of conduct for budget formulation and execution in all three spheres of government, with the main objective of controlling public-sector borrowing.

The exchange-rate crisis, however, did not produce qualitative changes or reversals in financial policy. In the second Cardoso government and the first administration led by Luiz Inácio Lula da Silva (2003-2006), financial liberalization proceeded alongside a strengthening of prudential regulation and a number of measures that increased the openness of the Brazilian market by reducing bureaucratic obstacles and costs (basically taxation) that affected capital inflows and outflows. The model was thus implemented gradually in the country, and it has continued to be applied for nearly two decades —long enough to produce results. Nonetheless, the reaction of the credit and capital markets was quite modest during the period analyzed.

Table 1 shows selected data from those markets between 1990 and 2006, divided into sub-periods in which major changes occurred in the Brazilian economy with potential repercussions on the financial market: 1989 (or 1990 in the case of the capital market) as an initial framework; the years 1990-1994, now under the liberalization policy but still characterized by high inflation; 1995-1998, when price stability was consolidated; the 1999-2003 period, marked by major instability on domestic and international financial markets, owing to the Brazilian currency crisis and fragile world economic growth (including in Brazil); and the 2004-2006 triennium, characterized by low inflation, financial stability and the resumption of

TABLE 1

Selected indicators of the Brazilian financial market, 1989-2006
(Annual period averages)

Period	Credit market (*Percentages*)										Capital market (*Millions of dollars*)			
	Credit/	Origin (*Percentages*)		Total (%)	Destination (%)						Primary issuance[a]		Secondary market	
	GDP (%)	Public credit	Private credit		Industry	Commerce	Housing	Natural persons	Public sector	Others	Millions of dollars	Percentage of GFCF[b]	Business volume	Percentage of foreign investment
1989	24.1	69.3	30.7	100.0	16.4	4.3	35.8	2.5	27.8	13.2	...	...	...	...
1990-1994	28.5	61.8	38.2	100.0	21.8	7.9	24.1	4.1	22.4	19.6	11 098	14.3	31 637	16.9
1995-1998	28.9	54.1	45.9	100.0	24.8	11.1	19.4	10.7	12.4	21.6	16 633	11.6	139 589	23.5
1999-2003	24.4	41.2	58.8	100.0	28.6	10.3	11.0	20.9	4.2	25.2	8 036	8.6	75 722	23.0
2004-2006	27.7	37.2	62.8	100.0	23.5	10.8	4.9	30.2	3.3	27.3	27 857	17.9	181 950	33.3

Source: Prepared by the author on the basis of data from the Central Bank of Brazil, *Boletim mensal (Monthly Bulletin)*, various issues, and the Security and Exchange Commission (CVM), *Informativo mensal (Monthly Report)*, various issues; São Paulo Stock Exchange (Bovespa) for the last column.

[a] Includes securities of all types (shares, bonds and others).
[b] GFCF = Gross fixed capital formation.

economic growth in nearly all developed and developing countries (including Brazil).[15]

The fundamental tenets of the liberalization model would predict a positive reaction by the Brazilian banking and capital markets throughout the period, particularly from 1995 onwards (owing to stabilization); then a reversal or stagnation in the period 1999-2003, followed by a recovery as from 2004 in response to more favourable conditions. Although the indicators do seem to confirm this pattern, the two markets clearly also display the weakness (or failure) of the liberalization policy as an engine of financial development.

In the credit market, the ratio between credit and GDP remained below 30%, even in the upswing phases (1995-1998 and 2004-2006), whereas the figure fluctuates between 60% and 100% in financially developed countries. In terms of distribution by destination, the only sector whose share of total credit grew continuously and rapidly was lending to private individuals, but, as is well known, maturities in this segment are generally short (one or two years, except for automobiles) and its dynamic is not decisive for economic development. Although participation by public-sector banks in the sector did shrink as expected, the foregoing indicators clearly show that this was not matched by a greater commitment among private banks to finance development, since this would imply a substantial increase in the ratio between credit and GDP, driven by long-term lending to industry, services and housing.

On the capital market, foreign investors have a very significant participation on the secondary market segment, which affects volumes traded, liquidity and asset prices —perhaps excessively— even on the primary market which is affected by these conditions. Lastly, despite the recent expansion, primary issues have fluctuated sharply since the early 1990s, a characteristic that is uncommon on well established markets, precisely because this type of behaviour inhibits market development.

2. Indicators of BNDES action in the 1990s and 2000s

Table 2 shows selected data on BNDES activities in the 1989-2006 period. As the aim of this article is to evaluate the BNDES sphere of action in the Brazilian financial system as a financial institution alone —thus ignoring its other functions as executing agency of development policies— only aggregate data on the bank's disbursement were used as indicators of its actual supply of credit. These data were compared with three other macroeconomic indicators: total credit extended by the Brazilian financial system, gross fixed capital formation (GFCF), and the real GDP growth rate. Those indicators were selected for their key role in the economic development process that guides BNDES actions.

Although the rise in the bank's annual average disbursements as from 1999 is clear,[16] indicators tracking this process suggest that it began in 1995-1998. While BNDES disbursements accounted for an average of 3% of outstanding credit in the Brazilian financial system between 1989 and 1994, they rose to 5% between 1995 and 1998 and to nearly 8% in the two subsequent periods (between 1999 and 2006). The trend showed banking operations recovering slowly after their sharp contraction in the late 1980s —at the height of the external and fiscal crisis that buffeted the Brazilian economy in that decade. Nonetheless, the recovery did not occur in the same areas as in the 1970s and 1980s. As Guth summarizes:

> *Following the completion of investment projects that began under the second national development plan (II PND) [...], heavy industry began to lose importance while the domestic economy started to engage more competitively in the international economy. Consistently with the rationale of the new development model, the bank is thus prioritizing the privatization process and export sectors, along with small and medium-sized enterprises and social projects* (Guth, 2006, p. 131).

In the long-term credit segment, the engine of the recovery of BNDES operations in the 1990s was the privatization programme, officially inaugurated in 1990. While privatizations began as early as 1991, they were mostly concentrated in the period 1996-2000 (84% of sales between 1991 and 2001) and, in particular, in 1996 and 1997 (63% of sales up to 2001).[17]

[15] The brief analysis that follows summarizes the author's recent work. See Hermann (2010b).

[16] As table 2 shows, lack of data expressed in millions of real for 1990-1994 makes it hard to compare monetary disbursements in this period with the first year of our series (1989) and the subsequent period (1995-1998).

[17] The cumulative value of privatizations between 1991 and 2001 was US$103.3 billion (BNDES, 2001).

TABLE 2

Indicators of disbursements from the BNDES system[a] 1989-2006
(Annual period averages[b])

Period	BNDES disbursements		(A)/GFCF	(A)/ Total credit in the Brazilian financial system	GFCF[c]/GDP	Real GDP growth
	Total *(Million real)*	Exim/Total *(Percentages)*	*(Percentages)*	*(Percentages)*	*(Percentages)*	*(Annual percentages)*
	(A)	(B)	(C)	(D)	(E)	(F)
1989	...[d]	...	3.1	2.9	26.9	3.2
1990-94	...[d]	2.6[e]	4.1	3.0	19.4	1.2
1995-98	13 414	7.2	8.7	5.2	17.4	2.5
1999-03	27 453	27.4	12.4	8.2	16.2	1.9
2004-06	46 044	28.2	13.3	8.3	16.2	4.3

Source: Prepared by the author on the basis of data from the National Economic and Social Development Bank (BNDES), *Estatísticas operacionais* and *Relatórios anuais (Operational Statistics* and *Annual Reports*), various issues (columns A and B). Felipe Guth, *O BNDES nos anos 1990: uma análise keynesiana (The BNDES in the 1990s: a Keynesian analysis)*, Rio de Janeiro, Institute of Economics/ Federal University of Rio de Janeiro (UFRJ), 2006; Central Bank of Brazil, *Relatórios anuais (Annual Reports)*, various issues, for total credit of the Brazilian financial system; and IpeaData (columns E-F).

[a] Includes acquisitions by BNDESPAR on the capital market.
[b] Geometric mean for column F, and simple arithmetic mean for the other columns.
[c] GFCF = Gross fixed capital formation.
[d] Original data in millions of real at current prices. Owing to a lack of data expressed in real for column A, it was decided to show them as unavailable in this table.
[e] Average 1991-1994
Note: Exim is the BNDES export-import support program.

The bank managed the programme and served as one of the financiers in the acquisition and pre- and post-sale phases, in other words in the preparation (financial cleanup) of firms for privatization, and then in financing investments by the new owners. This explains the apparently paradoxical increase in the bank's disbursements to the public sector when the "liberalization era" was at its peak. Although government GFCF declined in the second half of the decade at all three levels —from an average of 2.6% of GDP in 1990-1994 to 1.9% between 1995 and 1998— the public-sector share of BNDES disbursements rose sharply —from 4% in 1995 to 12% in 1998— before returning to a level of 3% the following year (Plattek, 2001, p.108).[18]

Like long-term credit for heavy industry and infrastructure, the newer areas of BNDES action in the 1990s aroused little interest in the private financial system. This is explained not only by the maturity terms (which are generally shorter than those required for financing industry and infrastructure), but because of the higher credit risks normally attributed (but not necessarily confirmed) to social projects and operations with small and medium-sized enterprises. In the case of the export sector and domestic industry itself, the perceived risks clearly rose in the 1990s, as a result of the implementation of the trade liberalization policy and the exchange-rate anchor and the high-interest-rate policy that accompanied it. Between them, those policies penalized the expected return from exports and national production generally, thus indirectly helping to maintain the position of BNDES in the Brazilian financial system.

This backdrop began to change in 1999, following the introduction of a flexible exchange-rate regime, which gradually promoted the export sector and helped towards a substantial recovery in the country's external accounts during the 2000s. Nonetheless, this did not mean that the bank withdrew from the sector

[18] Figures for average government GFCF as a proportion of GDP were calculated on the basis of annual data provided by the Brazilian Institute of Geography and Statistics (IBGE, 2002, table 2). In the case of data on the public-sector share of total BNDES disbursements, it was decided not to use the averages for the analytical periods, because the annual data displayed high levels of dispersion, varying between 5.7% and 17.0% in the period 1990-1994, and between 3.9% and 12.2% in 1995-1998.

in favour of private institutions. On the contrary, the operations of BNDES Exim (the export-import support program created in 1997 as an expansion of another pre-existing programme) were broadened substantially as from 1999, not only in value terms but also as a proportion of the bank's total disbursements, which rose from an average of 7% in 1995-1998, to 27% between 1999 and 2003 and 28% in 2004-2006.

In 2004-2006, in addition to greater support for exports, another important factor that preserved and even expanded the BNDES field of action in the Brazilian financial system stemmed from a change, albeit incipient, in the Government's attitude towards economic development policy. As from 2004, the government led by Luiz Inácio Lula da Silva succeeded in reconciling the basic principles of the "liberalization model" with a return to the type of industrial policy that had been abandoned in the early 1990s. In March 2004, the administration introduced an Industrial, Technological, and Foreign Trade Policy (PITCE) (MDIC, 2007), under which government export-promotion programmes were integrated into industrial development programmes, targeting sectors with high innovation capacity and with a view to increasing competitiveness (Carvalho Jr., 2005).[19]

In conjunction with other government bodies, BNDES participated directly in formulating the PITCE and is one of its main public funders. The central role played by the bank in implementing this policy largely explains the recent increase in its disbursements as a proportion of GFCF, and the maintenance of its share of total lending at a time when the credit-GDP ratio has been rising (2004-2006). In reality, as these indicators are not mutually independent —since BNDES disbursements are part of total lending— and the 2004-2006 triennium was a period of major BNDES credit expansion, it is reasonable to argue not only that the bank maintained its share but that this also largely explains the increase in the ratio between credit and GDP during the period.

In relation to GFCF, BNDES lending grew continuously throughout the period of analysis: from 3% in 1989 (its lowest level since 1964) (Guth, 2006, p. 175) to just over 4% in the first half of 1990s, before doubling in the following period (1995-1999) to reach a level of 13% in 2004-2006.

Paradoxically, the increase in the ratio between BNDES disbursements and GFCF in the period 1990-2006 was contrary to the trend of fixed investment in the economy, which fell continuously (from nearly 27% in 1989 to 16% between 1999-2006), and in a context of quite modest economic growth until 2003. In principle, this gap between the three indicators might suggest a reduction in the relevance of BNDES for economic development; ultimately, the proportionately larger volume of bank credit was not accompanied or followed by higher rates of investment or GDP growth. Similarly, from a broader perspective of the functions of development banks, it can be seen that the countercyclical role —no less important for the bank— predominated in this period, and it averted an even steeper fall in the ratio between credit and GDP, and probably also in rates of investment and economic growth themselves (Torres Filho, 2006). This hypothesis seems to be confirmed by the behaviour of the ratio between BNDES lending and total credit in the Brazilian financial system, which holds steady or rises modestly in the strongest economic-growth phases (1995-1998 and 2004-2006) but climbs more steeply in the slowdown phases (1999-2003).

V

Summary and conclusions

Development banks are hybrid institutions that act simultaneously as government institutions —with functions in the formulation and implementation of development policies— and financial institutions in the strict sense, with the typical functions of a bank. As such, their mode of operation is defined politically and historically by the profile of ongoing government development policies and by the trend of the national financial system. In relation to this second aspect, a development bank's field of action complements that of local private financial institutions. More specifically, the *raison d'être* of development banks stems from the "incomplete" nature of financial markets in segments

[19] The priority sectors chosen in the PITCE framework were pharmaceuticals, semiconductors, computer programs and capital goods.

that are extremely important for economic growth, namely long-term investments, and innovations and activities for which the estimated social return is greater than the private return. In theory, as those markets develop, the scope for development banks tends to become restricted.

The financial liberalization policies implemented in most of the world since the 1980s sought to reduce the incomplete nature of financial markets to innocuous proportions. The premise was that markets freed from regulatory barriers and direct State action would tend to develop more efficiently, thereby making resource allocation more flexible and expanding investor access to the financing of all types.

The critics of liberalization claimed that free financial markets tended to increase the exposure of creditors and debtors to new risks, which in the medium term could cause major difficulties of access to financing generally, and particularly in relation to the activities that were most important for economic development. Moreover, even in the boom phases of financial markets, there was no reason to expect that resource allocation guided merely by private evaluations of risk and return would systematically ensure adequate conditions for financing activities that were strategic for economic development at each of its stages. Under these conditions, despite promoting financial expansion and diversification, liberalization policy probably did not remove the need for development banks, particularly in the least developed countries, where considerable challenges still remain, given the need for investments in innovation, the incorporation of new technologies and social projects. The case of BNDES seems to confirm this hypothesis.

In Brazil, the liberalization model was adopted in the late 1980s and progressed gradually until the first half of the decade of 2000. Nonetheless, the reaction of the banking system and the capital market was quite modest during the period analyzed (1990-2006), so the BNDES field of action was maintained. Furthermore, in the period 1990-2006, there was a clear relative increase in the bank's lending, both in nominal terms and as a proportion of total credit in the Brazilian financial system and the country's GFCF. Two sets of factors basically explain these trends: (i) development challenges after trade and financial liberalization, which now depended more on increasing competitiveness and hence the capacity of local enterprises to innovate and incorporate new technologies; and (ii) the insufficient scale of operations on the domestic capital and credit markets in providing financing for the firms in question.

(Original: Portuguese)

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Paraguay's *Tekoporã* programme for cash transfers: debating targeting methods for beneficiaries

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This article analyses alternative targeting methods for Paraguay's conditional cash transfer programme, *Tekoporã*. The major practical choice is currently between a multidimensional quality-of-life index, which has been used since the programme started, and a proxy means test. This note evaluates the relative performance of these two alternatives. The simulations conducted herein suggest that changing the targeting mechanism from the quality-of-life index to proxy means does not offer any gains in either the efficiency or the efficacy of the programme. If the intention of policymakers is to improve efficacy in reaching the poor, then maintaining the current targeting mechanism with a higher cut-off point is the best option. If the intention is to alleviate extreme poverty, the most efficient impact is also given by the quality-of-life index, but with a lower cut-off point. However, a higher threshold may provide a considerable gain in coverage without a substantial increase in leakage.

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I
Introduction

There is a lively global debate on how to target beneficiaries of conditional cash transfer (CCT) programmes. This note analyses alternative targeting methods for Paraguay's CCT programme, *Tekoporã*. The major practical choice for Paraguay is between a multidimensional quality-of-life index and a proxy means test for income. This note focuses on the efficiency and efficacy of these approaches by examining primarily the trade-off between leakage and coverage.

Tekoporã is a CCT programme that is being scaled up in Paraguay. Like other recent CCT programmes, it was designed in the context of a national strategy for combating poverty, as part of the general effort to achieve the Millennium Development Goals.

Its pilot started in August 2005, covering 4,500 households in five districts of two departments. *Tekoporã* is gradually expanding, but with some delays in relation to the original plan. According to its 2006 operating manual, the intention was to cover 35 districts by 2008; however, it managed to achieve only 15 districts by the end of that year. According to the guidelines of the new Government, by July 2009 it should have incorporated 13 new districts into the programme as well as increased its coverage in districts where the programme is now being implemented. In total, it was expected to reach 43,000 beneficiaries by mid-2009. These districts were selected from the pool of 66 districts judged to have the most vulnerable populations, according to a scoring system based on a geographic prioritization index, or GPI (índice de priorización geográfica, IPG).

The objective of *Tekoporã* is to break the intergenerational transmission of poverty by means of cash transfers and follow-up activities for beneficiary households. This follow-up consists in monitoring co-responsibilities (between beneficiaries and the programme) with regard to the supply and use of health and education facilities and the development of related family support activities.

The programme provides a monthly transfer to extremely poor households in rural areas that include children up to 15 years old, a pregnant woman or both. These households are entitled to a benefit of 30,000 guaraníes (US$ 6) per child or pregnant woman up to a limit of four eligible beneficiaries, in addition to a base-level grant of 60,000 guaraníes (US$ 12) per month. Thus, eligible households could receive a monthly transfer worth between 90,000 and 180,000 guaraníes (US$ 18 to US$ 36).[1]

To identify eligible households during the pilot phase, the Department of Social Welfare (SAS) adopted a non-monetary quality-of-life index (*índice de calidad de vida*—ICV) as its targeting tool. Such an approach has been common throughout Latin America, where the monitoring of poverty has often relied on a composite index of unmet basic needs.

However, a study sponsored by the Inter-American Development Bank (IDB) —a loan from which is financing a similar CCT programme in Paraguay, the Social Investment Programme (PROPAIS)— has suggested that a proxy means test (PM) for income level would be a better instrument than the composite ICV (Robles, 2006). In addition to the relative merits of each approach, the SAS will have to take into account the likely transitional costs involved in changing its method of targeting. For example, the change could imply significant adjustments in the current registry and administrative systems.

Accordingly, this note seeks to evaluate the relative performance of the ICV and the proxy means test. First, the targeting approaches that have been proposed are explained. Second, these targeting options are compared in terms of the composition

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[1] A recent revision of the programme design has extended its coverage to the population under 18 (previously it was under 15), to the elderly (older than 65), to people living with a disability and to the indigenous population as long as the household fulfils the eligibility conditions discussed below. The age and disability benefits can be drawn simultaneously subject to a maximum of two people per household, and have the same value as the child benefit (G 30,000). Another change worth mentioning is that land reform settlements will be given priority.

of the target population (poverty incidence) and the cost of coverage. Third, some standard indicators of targeting performance to evaluate the targeting options are used. This evaluation is sensitive to the cut-off points chosen by each targeting approach. Therefore, an analysis of the relationship between leakage and coverage when the eligible population is selected according to each targeting approach is also conducted. This analysis makes it possible to determine which selection mechanism delivers the lowest leakage given a specific coverage or cut-off point. Fourth, to shed light on the choice between low leakage and high coverage, an index that combines both performance criteria in the targeting analysis is proposed. Lastly, some conclusions are offered based on the differing results of the proposed targeting approaches.

II
Targeting tools

Tekoporã focuses on the extremely poor, which means that it does not set out to be as far-reaching a CCT programme as other well-known programmes of the same kind that focus on the poor population, such as Bolsa Família in Brazil and Oportunidades/Progresa in Mexico. Accordingly, its approach has been to first use geographic targeting to rank districts by poverty and unmet basic needs. This targeting has been based on the GPI, which is composed of both monetary and non-monetary indicators. Thus, districts have been included in the programme on the basis of their GPI score.

To prepare a list of potential beneficiaries *within* each selected district, the programme uses the multidimensional ICV index already referred to, which is derived from a principal-component analysis. The ICV ranges from 0 to 100 and is composed of variables relating to housing conditions; access to public services such as water, electricity, refuse collection and telephone; health care and insurance; the education of the household head and spouse; years of schooling "lost" by children aged 6 to 24; the occupation of the household head; ownership of durable goods; and the demographic composition of the household. In contrast to the geographic prioritization index, the ICV does not use any monetary variables.

At first, the SAS intended to use an ICV score of 25 as the cut-off point for eligibility. This meant that only households with a score below 25 would be included in the programme. However, when this cut-off point was implemented, the number of beneficiaries was below the number estimated to be living in extreme poverty in the pilot districts. This figure was based on estimates yielded by the GPI-based poverty map of these districts. For this reason, the SAS decided to raise the ICV threshold to 40.

This multidimensional framework was inspired by the Colombian experience with targeted social policies and was proposed by the consultants responsible for determining the best way for the Paraguay programme to distinguish poor households from non-poor households. The choice of the ICV was motivated, in part, by the assumption that the income information available in household surveys (upon which a proxy means test would be based) did not adequately capture the permanent income status of rural households. Given these concerns, the team responsible for choosing the targeting method opted to treat poverty as a multidimensional phenomenon and proposed the ICV as the best tool.

In Colombia, the ICV is used to identify household eligibility not only for cash transfer programmes but also for a wide range of social benefits (Sarmiento and Ramírez, 1998). However, if the principal aims of cash transfer programmes include reducing income deprivation as well as addressing associated social problems, then it would be logical to target transfers on the most income-deprived households. Hence, a multidimensional index such as the ICV would be a suitable targeting tool for cash transfer programmes only if it were closely correlated with household income.

The proxy means test proposed as an alternative by Robles consists in using data from the National Household Survey to estimate the coefficients on various socio-economic covariates of income (Robles, 2006), with the coefficients then being used to predict household income. The coefficients estimated would be entered into the registry system database in order to predict the income of potential beneficiary households and rank them for eligibility.

In theory, the proxy means approach might perform better than the multidimensional ICV

method if the primary goal were to concentrate on income-deprived households. However, adopting the proxy means approach in Paraguay now could entail substantial costs, such as retraining personnel, changing computer software, rewriting the operating manual and revising the household questionnaire.[2] Hence, in a practical sense, such a change would be justified only if the proxy means test performed significantly better than the current method. This issue is addressed in the following sections.

III

Comparing target groups

Using the 2005 round of the Paraguayan Permanent Household Survey (EPH), this study identifies five groupings of households based on five approaches to targeting. These different approaches include: (1) two different cut-off points for the ICV, (2) the proxy means test and (3) a combination of the ICV and proxy means.

The first baseline group, which for the purposes of this article is labelled the "Geographic group", is composed of all rural households with children younger than 15 residing in the 35 districts that took part in the programme in 2008 on the basis of the scores derived from the GPI.[3] Hence, this group represents a "universal coverage" approach, since neither a proxy means test nor an ICV approach is used to narrow the target population.

The other four groupings are smaller subsets of the Geographic group:

— ICV40, which includes households with an ICV score of less than 40
— ICV25, which includes households with an ICV score of less than 25
— PM (the proxy means test), which includes households whose predicted per capita income is below the indigence (extreme poverty) line
— ICV-PM, a combined approach which includes (a) households with an ICV score of up to 25 and (b) households with an ICV score of up to 40 as long as their predicted per capita income is below the indigence line

The "National coverage" panel in figure 1 shows the percentages of the whole country's total poor and extremely poor rural populations covered by each resultant target grouping.

The "Group headcount" panel in figure 1 shows the percentages of the poor and extremely poor within the all groupings covered by the programme.

The "Amount of transfers" panel in figure 1 presents the total aggregate value of the transfers that each targeting method entails. The first two bars represent the amount of transfers necessary to cover all of the poor and all of the extremely poor in the country's rural areas. Thereafter, the bars represent the amount of transfers necessary to cover all households in each target group.

The resulting Geographic group, which by definition represents the maximum coverage of the programme, includes about 26% of both the poor and the extremely poor in all rural areas of the country.[4] However, this broadly targeted approach is not likely to be feasible since it requires a large budget and entails a high rate of leakage to the non-poor (as can be seen from the low bars in the "National coverage" panel in figure 1).

Indeed, only about 31% of the households covered by the Geographic approach are extremely poor and only about 53% are poor (see the first bars in the "Group headcount" chart).

In addition, the annual cost of the total transfers for such a grouping, US$ 24 million, approaches the annual cost of the total transfers that would benefit all of the extremely poor in all rural areas of the country, put at US$ 27 million (see the second and third bars of the "Amount of transfers" panel in figure 1).

Other than the Geographic targeting approach, the ICV40 approach (which targets households with an ICV score of less than 40 in the 35 selected districts) is

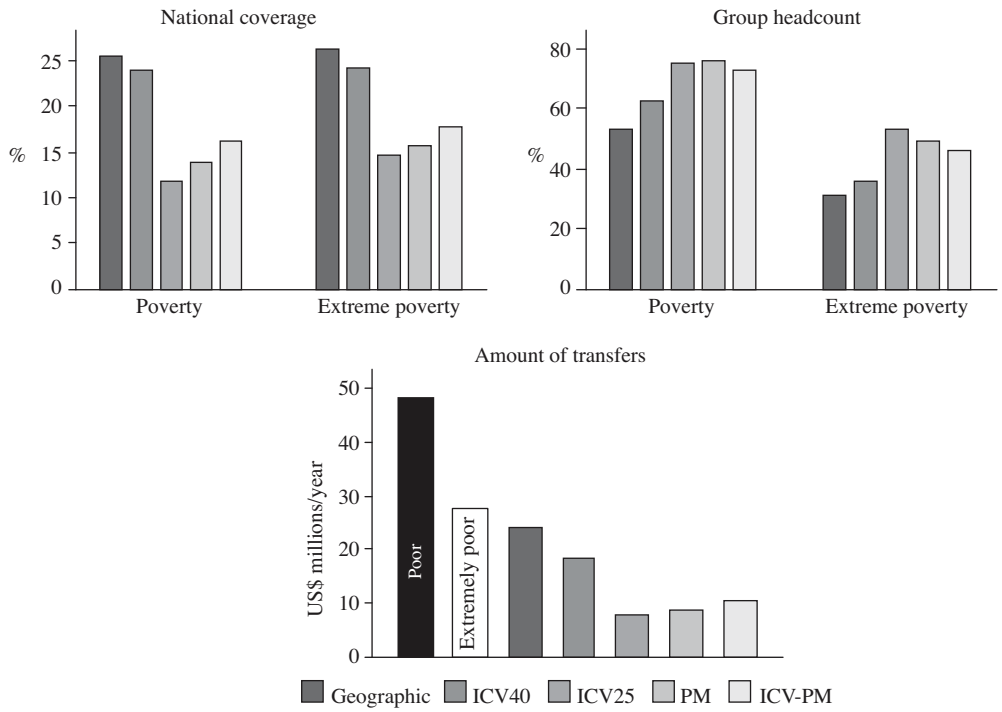
[2] Note that the proxy means test being proposed is limited to the variables contained in the current questionnaire. But a proxy means methodology, to be effective, should be based on the newest household survey data available, and this would necessitate the design of a new questionnaire.

[3] This yielded 1,327 individual observations.

[4] This figure is quite remarkable since the programme is going to take place in only 15% of all districts (35 of 224 districts).

FIGURE 1

National coverage of rural poverty, group headcount and total value of transfers for different population groupings identified by five targeting methods



Source: Authors' calculations based on Paraguay's Permanent Household Survey 2005.
Note: US$ 1 = G 5,030.

ICV: Quality of life index
PM: Means test

the one with the widest coverage, at about 24% of all the country's poor and extremely poor households.

The ICV25 targeting approach (which targets households that have a lower ICV score and are, therefore, presumably poorer) has the narrowest national coverage. It covers 12% of the poor and 14.6% of the extremely poor in all of Paraguay's rural areas.

However, the annual cost of transfers implied by the ICV40 approach, US$ 18 million, is considerably higher than that of the ICV25 approach, US$ 7.5 million (see the fourth and fifth bars of the "Amount of transfers" panel in figure 1).

Despite its low national coverage, the ICV25 approach reaches the highest percentage of the extremely poor, 53%, within the population that it covers (see the "Group headcount" panel in figure 1). The PM approach has the second-highest percentage, 49%. Both approaches include about the same percentage of the poor, some 76%, among the population they cover.

The next relevant question is the extent to which the populations selected by the ICV25 and PM approaches overlap. Table 1 provides this information. Each line in table 1 represents the percentage of the population that would be covered if each criterion in the columns were adopted. It shows that 74% of the grouping selected by the ICV25 approach is included in the grouping selected by the PM approach; conversely, just under 65% of the grouping yielded by the PM approach is included in the grouping selected by the ICV25 approach.

An examination of the grouping selected by the combined ICV-PM approach shows that 71% of the same households would also be selected by the ICV25 approach and 82% by the PM approach. So the correlations between the three approaches are fairly high. The annual cost of the transfers implied by each of the three approaches is similarly low (compared to the Geographic and ICV40 approaches). The cost of the ICV25 approach is the lowest, but only slightly below that of the PM approach.

TABLE 1

Overlap of targeted groupings
(Percentages)

Actual targeting within groups	Targeting criterion				
	Geographic	ICV40	ICV25	PM	ICV-PM
Geographic	100.0	79.2	32.7	37.6	46.0
ICV40	100.0	100.0	41.3	47.5	57.2
ICV25	100.0	100.0	100.0	74.3	100.0
PM	100.0	100.0	64.7	100.0	100.0
ICV-PM	100.0	100.0	71.2	81.7	100.0

Source: Authors' calculations based on Paraguay's Permanent Household Survey 2005.

ICV: Quality of life index
PM: Means test

IV
Evaluating the efficiency and efficacy of targeting

The leakage rate (inclusion error) is the percentage of total beneficiaries who are non-poor. The under-coverage rate (exclusion error) is the percentage of the poor not covered by the programme. A better targeting performance should minimize these errors. These rates depend, of course, upon the choice not only of the poverty line but also of the poverty measure.

Two poverty lines have been chosen, one for poverty and one for extreme poverty, to analyse the targeting performance of the approaches defined above. Both lines have been calculated on the basis of data from Paraguay's Department of Statistics, Surveys and Censuses (DGEEC).[5] The headcount ratio (P0) is used to calculate under-coverage rates and leakage rates for five targeting approaches (including the baseline approach of universal Geographic targeting).

In addition, an attempt has been made to assess the targeting efficiency of these different approaches by using Kakwani's "normal targeting index" and applying it to the Foster-Greer-Thorbecke (FGT) class of poverty measures, namely P0, the poverty gap (P1) and the poverty severity measure (P2) (Kakwani, 1990). This index indicates the marginal poverty reduction achieved by transferring a given amount of money to a particular group rather than to the whole population (universal transfer).[6] If the index is above one, it is more efficient to target the particular group than to opt for universal coverage (in this case, selecting all households within the 35 districts). Universal coverage here does not mean choosing beneficiaries randomly and then giving them the same transfers as would be given to a specific group. Universal coverage means that every household would benefit but each would receive less since the total amount of transfers would be the same.

Table 2 presents Kakwani's index for the five targeting approaches referred to above. It also presents the leakage rate and under-coverage rate. The three targeting measures, in fact, address different issues. The leakage rate means efficiency in covering only

[5] A poverty line of G 250,074 for urban areas and G 151,315 for rural areas, and an extreme poverty line of G 143,152 for urban areas and G 98,517 for rural areas.

[6] The Kakwani index is given by the expression

$$k_i^* = \frac{-\theta_i\left(\eta_{\theta,i} - \varepsilon_{\theta,i}\right)/\theta \cdot \mu_i}{-\left(\eta_\theta - \varepsilon_\theta\right)/\mu},$$

where θ is the poverty index for the whole population; θ_i is the poverty index for group i; μ is the mean income of the whole population; μ_i is the mean income of group i; η_θ is the elasticity of total poverty with respect to the mean income of the whole population; $\eta_{\theta,i}$ is the poverty elasticity of group i with respect to the mean income of this group; ε_θ is the elasticity of total poverty with respect to the income inequality of the whole population; and $\varepsilon_{\theta,i}$ is the poverty elasticity of group i with respect to income inequality within this group. The poverty elasticities were derived using the method provided by Bourguignon (2002).

poor households, and thus excluding the non-poor. The under-coverage rate measures efficacy in covering all the poor. Kakwani's index gauges the efficiency of the programme in achieving poverty reduction.

Let the Geographic grouping of the programme's 35 districts represent the whole population of interest. Table 2 shows that the ICV40 group has the lowest under-coverage rate for both extreme and overall poverty, at 6% and 8%. The percentages are this low because the ICV40 threshold encompasses almost 80% of the whole population in these districts (see table 1).

However, ICV40 has a higher leakage rate, i.e., it benefits more non-poor. If this approach were used, 64% of beneficiaries would not be extremely poor and 37% would not be poor.

The approach that has the highest under-coverage rate but the lowest leakage rate is ICV25. It fails to reach 44% of the extremely poor and 53% of the poor. At the same time, only 47% of its beneficiaries are not extremely poor (compared to 50% or more for the other three approaches) and only about 24% are not poor (which is about as low as for the PM approach).

These statistics indicate that the differences in the leakage rates of the four target groups are not as large as the differences in their under-coverage rates. Indeed, if just the ICV25, PM and ICV-PM approaches are used, the *maximum* difference in leakage rates is seven percentage points whereas the *minimum* difference in under-coverage rates is 13 percentage points.

The PM approach has targeting statistics close to those produced by the ICV25 group; the former's leakage rate for the extremely poor is slightly higher but its under-coverage rate is slightly lower. An alternative targeting method, which has been discussed by Paraguay's Department of Social Welfare and the IDB, is to combine both these targeting methods in order to reduce the under-coverage rate without increasing the leakage rate.

For both extreme and overall poverty, the ICV-PM approach does indeed have a significantly higher coverage rate (lower under-coverage rate) and maintains a reasonably low leakage rate. Moreover, when it comes to targeting extreme poverty, the Kakwani index shows that the combined ICV-PM approach is the most efficient (with the highest score, at 1.2872), edging out the PM approach.

However, if the intention is to reduce poverty severity, which means alleviating poverty among the very poorest, the Kakwani index shows that the ICV25 approach is the most efficient (with a score of 1.9186). For targeting overall poverty, on the other hand, the Kakwani index suggests that the ICV40 approach is the most efficient (with a score of 1.0677).

For overall poverty, the other three targeting methods (ICV25, PM and ICV-PM) are less satisfactory than the Geographic approach since their Kakwani indices are less than one (meaning that the universalistic Geographic approach would perform better). A possible explanation for this result is that the 35 selected districts have a high overall poverty incidence (because they were selected precisely for this reason). Thus, any targeting within them serves only to differentiate the extremely poor from the moderately poor. If the intention is to reduce both moderate and extreme poverty, this result emphasizes the importance of coverage over targeting and benefit value within poor

TABLE 2

Leakage, under-coverage and Kakwani's index by target group
(Index values and percentages)

		Geographic	ICV40	ICV25	PM	ICV-PM
	Leakage (%)	68.85	63.63	46.99	50.54	53.77
P0 (indigence)	Under-coverage (%)	0.00	7.54	44.32	40.34	31.77
	Kakwani's index	1.0000	1.2269	1.2521	1.2757	1.2872
	Leakage (%)	46.85	37.01	24.28	24.10	26.56
P0	Under-coverage (%)	0.00	6.17	53.40	46.35	36.49
	Kakwani's index	1.0000	1.0677	0.9324	0.9630	0.9875
P1	Kakwani's index	1.0000	1.2689	1.5637	1.5268	1.4922
P2	Kakwani's index	1.0000	1.3423	1.9186	1.8227	1.7426

Source: Authors' calculations based on Paraguay's Permanent Household Survey 2005.

ICV: Quality of life index
PM: Means test
P0: Coefficient of number of persons
P1: Poverty gap
P2: Poverty severity measure

districts in Paraguay. In other words, it is better to provide a small transfer to every household than to provide a large transfer to some households.

In summary, there are two contrasting approaches and their corresponding outcomes. With regard to overall poverty, the ICV40 approach covers the greatest percentage of the poor but it also includes the largest percentage of the non-poor. By contrast, the ICV25 approach has one of the lowest leakage rates to the non-poor but it also has one of the lowest coverage rates of the poor.

These contrasting outcomes emphasize the problem of an inherent trade-off between efficiency (excluding the non-poor) and efficacy (reaching the poor). If a programme attaches less importance to inclusion errors (that is, to benefiting the non-poor), more money will be required for it to have the same impact on poverty as a more efficient programme. By contrast, if a programme attaches less importance to reaching as many poor households as possible, its impact on aggregate poverty might be lower even if it is able to improve efficiency.

V

The trade-off between leakage and under-coverage

It could be argued that the analysis above is not appropriate since the ICV40 has a lower under-coverage rate than the PM merely because it incorporates a much larger number of beneficiaries. Therefore, an investigation of the trade-off between leakage and under-coverage in a more general framework requires an assessment of the extent to which each approach achieves a lower leakage rate for any given coverage rate. That is, it is necessary to determine the extent to which each targeting mechanism is able to avoid selecting a higher proportion of the non-poor when it is attempted to increase the coverage of the poor population.

Figure 2 traces non-parametric functions depicting how the leakage ratio changes in response to increases in the coverage ratio for each targeting approach. In practice, a simulation is conducted to determine how the leakage ratio changes as the coverage ratio increases. The selection mechanisms assessed here are the ICV and the proxy means. In addition, the performance of the combined ICV-PM approach is shown. This mechanism consists in selecting the population by the ICV up to the cut-off point of 25, and by the PM above this point.

Notice that now the cut-off point is not relevant to this analysis. A rightward movement on the coverage ratio axis basically means moving to a higher cut-off point for both the ICV and the proxy means.

Figure 2 shows both what proportion of beneficiaries who are *not* poor (right-hand panel) and what proportion who are *not* extremely poor (left-hand panel) are incorporated into the programme as its coverage of the poor or extremely poor increases.

The vertical lines in the two panels correspond to the maximum coverage of each target group, as discussed in the previous section, in relation to the total number of extremely poor in the Geographic group.

The most efficient option for covering up to 40% of all the poor (right-hand panel) and up to 57% of the extremely poor (left-hand panel) is the ICV, since the ICV curve is below the PM curve.[7] To cover up to 85% of the poor and extremely poor, the most efficient mechanism is the proxy means, as the PM curve is below the ICV curve. At coverage rates higher than this, there is no difference in leakage rates between the three targeting mechanisms since all the curves overlap.

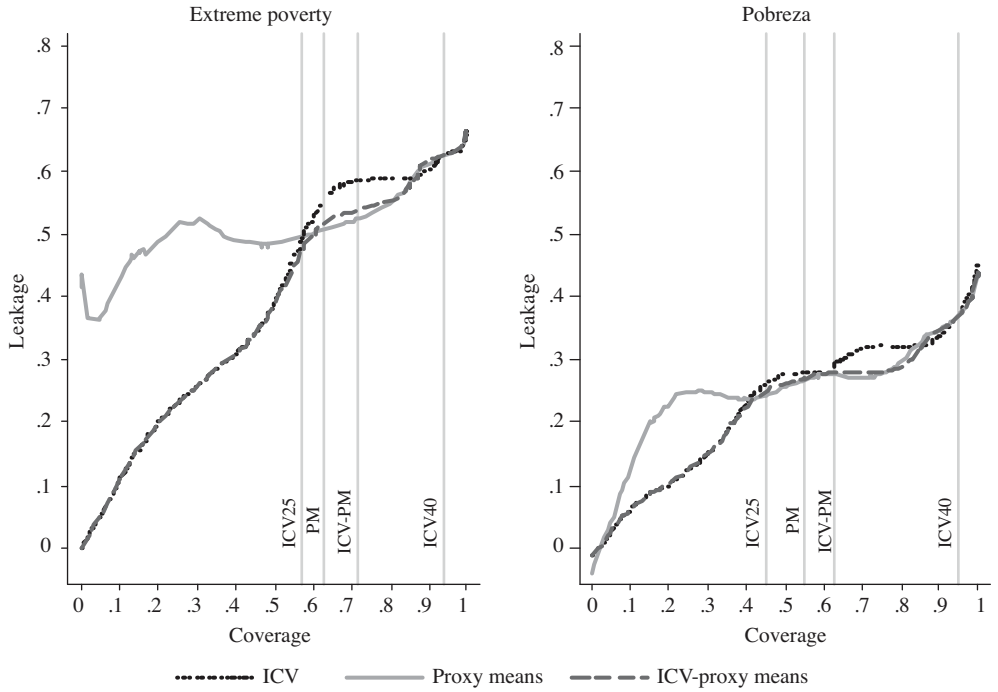
Note that the marginal increase in the leakage rate is significant (the slope of the line is steeper) up to the ICV25 coverage level in the right-hand panel and up to the ICV-PM coverage level for extreme poverty in the left-hand panel. Above these coverage rates, because the trade-off functions are flatter, expansion of the coverage rate does not imply a significant increase in the leakage rate.

This analysis shows how the different targeting approaches perform in terms of leakage for the same coverage rate, i.e., for the same number of

[7] Once the sample is ranked by the proxy means score, the first observation is non-poor. This is why the proxy means curve (figure 2, left-hand panel) does not start at the origin.

FIGURE 2

Leakage as a function of coverage, by targeting mechanism



Source: Authors' calculations based on Paraguay's Permanent Household Survey 2005.
Note: Bandwidth = 0.2.

ICV: Quality of life index
PM: Means test

beneficiaries. In general, the ICV performs better for coverage rates of up to around 40% and 57% for the poor and extremely poor, respectively, whereas PM performs better for coverage from this level up to 85%. For coverage rates above 85% there is virtually no difference between the leakage rates of the different approaches. Consequently, the ICV-PM combination provides a generally superior performance overall.

VI

The tough choice between leakage and under-coverage

Since there is no way to simultaneously minimize both exclusion and inclusion errors, policymakers are faced with a tough choice. This section seeks to identify the best choice for Paraguay's *Tekoporã* programme, assuming a range of preferences that runs from a total preference for minimizing inclusion errors to a total preference for minimizing exclusion errors.

To clarify the basis for the choices made in this study, a welfare index derived from a Cobb-Douglas disutility function is constructed. This disutility function measures the loss in welfare triggered by increases in either leakage or under-coverage. However, to gauge this welfare loss, it is necessary to weight the relative preference for each one. This was accomplished by using an arbitrary parameter α that varies from 0 to 1.

This parameter determines the political weight (preference) given to under-coverage in relation to

leakage. A value below α means that policymakers attach more weight to leakage of benefits to the non-poor (efficiency) whereas a high value means that they attach more weight to achieving greater coverage of the poor (efficacy).

The disutility index can then be represented as:

$$I = \frac{100}{N} UC^{\alpha} L^{1-\alpha},$$

where UC is the absolute number of poor people excluded from the programme (under-coverage); L is the absolute number of non-poor covered by the programme (leakage); and N is the population size, i.e., the total number of people in the Geographic grouping.

In contrast with the analysis presented above, here the under-coverage and leakage measures are presented as absolute values, not ratios. Had relative values (ratios) been used, the exclusion of one non-poor household might have provided a gain equivalent to the inclusion of many poor households, irrespective of whether the preference is for minimizing under-coverage or for minimizing leakage. For this reason, an absolute value approach was adopted, so that the exclusion of a non-poor household would be equivalent to the inclusion of a poor household.

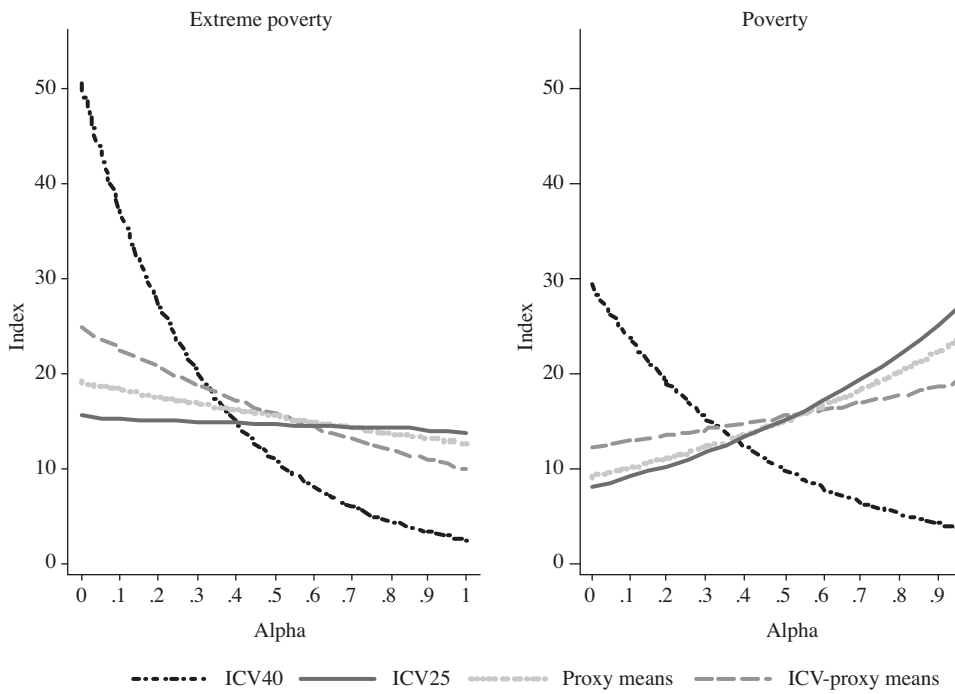
Figure 3 displays the disutility index of the targeting performance as a function of the weight, α, for all four target groups. If a high weight is attached to the leakage rate and, consequently, a low weight to the under-coverage rate —i.e., if α tends to zero— the ICV25 method yields the best combination of efficiency and efficacy (or the lowest disutility) for both poverty and extreme poverty (the ICV25 line is the lowest).

By contrast, if the weight of the under-coverage rate is increased (so that α is higher than 0.4), the ICV40 group becomes the best targeting approach. The two panels show that the ICV40 line is the lowest in this range.

Neither the proxy means approach nor the combined ICV-PM approach achieves the lowest disutility for any value of α.

FIGURE 3

Disutility index of targeting performance by target group



Source: Authors' calculations based on Paraguay's Permanent Household Survey 2005.
Note: Alpha = under-coverage weight.

ICV: Quality of life index
PM: Means test

Therefore, Paraguayan policymakers have basically two options: (1) to attribute more importance to the efficiency of the cash transfer programme and thus adopt the targeting mechanism that uses an ICV score of less than 25, or (2) to attribute more importance to the efficacy of the programme and thus adopt the targeting mechanism that uses an ICV score of less than 40. The latter is the current situation with .

VII
Conclusions

Tekoporã, Paraguay's CCT programme, is currently being scaled up and its targeting mechanism re-evaluated. However, the simulations presented in this note suggest that changing the targeting mechanism from the composite quality-of-life index (ICV) to a proxy means test for income is not likely to entail any gains in either the efficiency or the efficacy of the programme.

Although the general ICV approach (unlike the proxy means test) is not intended to predict per capita household income , the ICV mechanism that uses a score of less than 25 to identify the poor is the most efficient at excluding the non-poor from the programme.

In theory, the proxy means test should have been better than the ICV at identifying households that are income-deprived. But, in fact, the ICV is better able to distinguish the extremely poor. This result might stem from the fact that the parameters of the proxy means test are usually estimated using the entire income distribution of a population and thus might not accurately fit the lower tail of the distribution.

The Paraguay *Tekoporã* programme has already targeted the poorest districts in the country geographically. Thus, efficiency might not be as important as efficacy in implementing the current programme within these districts. However, a failure to use any targeting method at all *within* these districts would translate into high costs for the programme.

If the intention of policymakers is to improve the programme's efficacy in reaching the poor, then maintaining the current targeting mechanism, which uses a cut-off point of an ICV below 40, appears to be the best option. The results of this study show that this criterion provides a higher marginal impact on the headcount ratio for overall poverty. However, if the intention is to alleviate extreme poverty, the other criteria (and particularly the ICV below 25) would have a more efficient impact.

Given that, according to the leakage function, the gain in coverage of the poor is higher than the loss in leakage of benefits to the non-poor above the cut-off point of 25 for the ICV, the choice between an ICV below 25 or an ICV below 40 will depend on the budget available for the programme.[8] For ICV25 the cost would be US$ 7.5 million and for ICV40 it would be US$ 18 million. Another consideration, in addition to total cost, is that increasing the threshold from 25 to 40 might provide a greater gain in coverage of the poor without a substantial increase in leakage of benefits to the non-poor.

A final note of caution is in order. The programme did in fact initially adopt the ICV25 method but the application of this low cut-off threshold resulted in the number of beneficiaries selected in the pilot phase being below the number estimated to be extremely poor by the GPI-based poverty map. Not surprisingly, there was also a general perception in the five pilot districts that many extremely poor households were being left out of the programme. This triggered numerous complaints to the selection committees. As a result, the managers of the programme increased the threshold to an ICV of less than 40. To revert now to the ICV25 threshold could thus lead to similar reactions and weaken support for the programme at the local level.

(Original: English)

[8] Administrative costs are not considered in these statistics. The estimates used herein are based on the value of the transfers that should go to each target group. Consequently, the different targeting options would entail similar administrative costs.

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Preliminary Overview of the Economies of Latin America and the Caribbean 2009, LC/G.2424-P. United Nations Publication, Sales Number: E.09.II.G.149, ECLAC, Santiago, Chile December 2009, 162 pages.

After six years of uninterrupted growth, the GDP of Latin America and the Caribbean is expected to fall by 1.8% and per capita GDP by close to 2.9% in 2009. The international crisis hit the region hard at the end of 2008 and in early 2009, taking a toll on all of its countries. However, a recovery began to take shape in the second quarter and became more widespread in the second half of the year.

The break in economic growth cut into labour demand, and the unemployment rate is therefore expected to rise to about 8.3% for the region overall, and new jobs created will be of poorer quality.

The effects of the crisis were channelled through the real sector of the economies, damaging what had been the main engines of regional growth. Exports plunged, while the contraction of economic activity worldwide, together with the drop in international trade flows, lowered commodity prices, which hurt the region's terms of trade. At the same time, income from remittances and tourism fell, with Mexico and countries of Central America and the Caribbean suffering the most, and foreign direct investment plummeted by 37%.

Domestic activity also declined in some countries as a result of the tighter credit conditions in the private banking sector which stepped-up public sector lending failed to offset.

This convergence of factors, combined with deteriorating expectations, triggered a slump in private consumption and investment. In fact, public sector consumption was the only component of demand that grew during the first semester, thanks to the countercyclical policies implemented by many of the countries in the region, which accelerated the recovery in the second half of the year.

The positive stimulus of fiscal policy action was one of the distinctive features of economic management in 2009. The region's primary balance fell from a surplus equivalent to 1.4% of GDP in 2008 to an estimated primary deficit of 1% of GDP in 2009. Fiscal revenues have been substantially curtailed, owing to lower levels of activity and falling commodity prices. Also, up to the third quarter of 2009, current expenditures increased significantly, as did capital expenditures, though to a lesser extent.

The region's central banks lowered monetary policy rates and adopted measures aimed at ensuring liquidity in financial markets. In many cases, public-sector banks played a strategic countercyclical role by offsetting the tight credit stance of private banks. In order to defend the real level of the exchange rate to some extent and to sustain domestic liquidity, many central banks intervened in the exchange market, which in some cases enabled them to replenish international reserves.

During the second half of the year, positive signs began to emerge in the economies of the region. Manufacturing and exports picked up, while renewed global activity and expanding international trade volumes spurred demand for commodities, raising prices and improving terms of trade.

The fiscal stimulus packages introduced to boost domestic demand, together with the factors mentioned above and the gradual return to normalcy in the financial markets, often with help from central banks, created the conditions for the resumption of economic activity and the improvement of labour-market indicators. In addition, renewed access to international credit for some countries and the recovery of the stock markets furthered the process. This allowed the private sector to restructure its assets and helped normalize lending which, together with improved labour market indicators and recovery of private-sector confidence, should boost domestic demand.

Growth is projected at 4.1% for 2010 and is expected to be somewhat higher in the countries of South America than in the rest of the region, given their larger domestic markets in some cases, greater export-market diversification and closer trade ties with China. On the other hand, growth is expected to be slower in some of the more open economies that have a less diversified portfolio of trading partners and a heavier dependence on manufacturing. The same can be said of the Caribbean economies, some of which are facing complex financial and exchange-rate situations.

However, it remains to be seen whether or not the developed economies will be able to sustain growth once the copious stimulus packages implemented by the United States and Europe are withdrawn. This, together with increasing unemployment and the still-volatile international financial market, raises questions about the strength of the recovery that began in 2009.

The emergence from this crisis has been quicker than was expected, largely thanks to the ramparts that the countries of the region had built through sounder macroeconomic policy management. Upturns in several of the factors that drove demand in the years prior to the crisis, added in many cases to strong impetus from public policies, should enable a rapid recovery in the context of substantial idle capacity. But how can that recovery be transformed into a process of sustained growth beyond 2010?

In the short term, the countries of the region responded to the crisis to the best of their capacities —in the process revealing major differences among them. But the objective of regaining sustained growth poses fresh and more complex challenges. Accordingly, the Latin American and Caribbean countries now face the fundamental task of generating and expanding policy space. To do this, they must increase resources, create instruments and strengthen institutions, particularly those involved in coordination.

Other publications

La República Dominicana en 2030: hacia una nación cohesionada, Libro de la CEPAL No. 104, LC/MEX.14, United Nations publication, Sales No: S.09.II.G.40, ECLAC, January 2009, 582 pages.

This volume contains the definitive version of a document submitted in May 2008 at the thirty-second session of the Economic Commission for Latin America and the Caribbean (ECLAC), held in the Dominican Republic. Various events have changed the outlook since then, both within the Dominican Republic and internationally. The region has gone from the heady optimism sustained by six years of uninterrupted growth and significant gains in reducing poverty to the international food crisis and the current climate of uncertainty, which is part of the fallout of the global financial and economic crisis. These sudden swings have been strongly felt in the Dominican Republic, with severe consequences for investment, employment, exports and tourism.

La República Dominicana en 2030 examines the main challenges that this Caribbean country faces as it attempts to move towards a development model capable of standing the test of time and in which economic growth is compatible with equity, democratic governance and environmental sustainability as well as with strong social and territorial cohesion. For the country to make this transition and achieve its objectives, it will have to take decisive public-policy actions and implement interventions in fundamental areas. Responses must be found that will enhance the country's competitiveness, surmount obstacles in the energy sector, reduce inequalities between different subnational territories and ensure that institutions meet the goals that have been set for them —in sum, responses that will lead to a higher degree of social cohesion.

These are some of the issues addressed in this volume, the pages of which offer an overview, from a long-range perspective, of the country's recent economic and social history as well as possible future scenarios. Its main strength lies in the contributions it makes to the discussion on how to construct a development strategy for the Dominican Republic as part of a national consensus-building process involving the key political actors: Government, the private sector, civil society and academia.

It is the hope of ECLAC and the Ministry of Economy, Planning and Development of the Dominican Republic that this volume will provide input for a national debate to build consensuss on a long-term development agenda geared to consolidating a more just, equitable, wealthy, productive, competitive, cohesive and democratic nation.

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Vol. 49 abril-junio de 2009 Nº 193

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N° 116 Primavera 2009

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Economía y ética	*Joseph Ramos*
La tolerancia y los fines de la justicia global en *The Law of Peoples* de *J. Rawls*	*Mauricio Correa C.*
El rol de la argumentación en la alfabetización científica	*Antonia Larraín*
¿Quién tiene que preguntarse qué hacer con un dios en la república?	*Antonio Bascuñán*
Alfonso de Toro: Borges Infinito, Borges Virtual	*Roberto Hozven*
Borges revisitado	*Javier Pinedo*
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225
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226 En nuestro próximo número
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Volumen 11 *Número 29* *julio-diciembre de 2009*

Dossier: Crisis climática, tecnología y sustentabilidad

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Resistencias para la acción social responsable
Édgar González Gaudiano y Pablo Meira Cartea

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Aportaciones campesinas en la orientación de la innovación tecnológica para forjar sustentabilidad
David Barkin, Mario E. Fuente y Mara Rosas

Nanoalimentos. El aislamiento del consumidor
Édgar Záyago y Guillermo Foladori

****

Innovación y desarrollo tecnológico endógeno: factores decisivos en la captura de rentas económicas globales
María de los Ángeles Pozas

Inversión extranjera directa en América Latina.
El caso de Mercosur y México
María Esther Morales Fajardo

Transnacional social mexicana.
Alcances y limitaciones del Programa 3x1 para Migrantes en Guerrero
Alejandro Díaz Garay

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Vol. LXXVII (1) México, enero-marzo de 2010 Núm. 305

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