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What explains the recent decline of income inequality in Latin America?

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Abstract. This paper reviews the decline in income inequality that has taken place over 2002-2007 in several Latin American countries against the background of its steady increase between 1980 and 2002. The paper analyzes the factors that could explain this decline in inequality, and that may raise it during the current crisis. It focuses in particular on favorable external conditions, cyclical factors, improvements in the distribution of educational achievements, and changes in macroeconomic and social policies introduced in several countries, particularly in the increasing number of left-of-centre governments which have come to power during the last decade. The paper tests econometrically the above four hypotheses on the basis of a database including 18 countries for the years 1990-2007. The results indicate that, in addition to an improved business cycle and favorable terms of trade, the new policy model of fiscally prudent social-democracy which is emerging in much of Latin America generated a favorable impact on the distribution of income. This suggests that, if the above policy approach will survive the current crisis, part of the recent inequality decline will be permanent rather than temporary.

1. Introduction.

The gloom and doom caused in Latin America by the current financial crisis has obscured the positive changes that have taken place in the region since 2002. The most evident of them is the economic boom which has lasted till 2008. Indeed, over 2003-2008 the yearly growth rate of GDP averaged 5.5 percent for the region as a whole, lower only to that registered over 1967-74 (Ocampo 2008). Such steady expansion of output was to some extent a rebound from the stagnation recorded during the "half lost decade" of 1998-2002, but featured also a sharp increase in the investment rate that reached 21-22% of GDP, up from 16-17 % in 2002, and lower only to that reached at the end of the Seventies. The boom was accompanied also by a nine percentage points decline in the poverty rate and a significant drop in inequality.

The same period recorded other important changes which likely affected economic growth and the distribution of income, but which are less frequently emphasized in the literature. The first of such changes concerns the steady gains in educational achievements realized since the beginning of the 1990s by both center-right and left-of-center (LOC) regimes and the parallel decline in many aspects of educational inequality (Gasparini et al. 2009). As labor represents the main productive

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asset of the working population, an improvement in the level and distribution of human capital is likely to affect favorably the current and future distribution of income. The second change is the slowdown in the growth of the labor force which according to CELADE (2006) dropped from 3.1 percent in the 1990s to 2.2 percent during the current decade. Together with a faster growth of labor demand, a slower increase in labor supply possibly contributed to reducing unemployment and halting a decade-long decline in real wages. The third, and likely most important, change concerns the shift towards democratization and the election of LOC governments (Panizza 2005). As underscored once more by the election in mid March 2009 of Mauricio Funes in El Salvador, during the last decade the political centre of gravity of the region's has shifted with surprising regularity towards political regimes which place greater emphasis on distributive and social issues while avoiding the populist excesses experimented in the 1980s.

To what an extent do these and other factors explain the decline in income inequality recorded since 2002 in most of the region? To what an extent are these changes permanent and to what an extent they may be overturned by the present crisis? These are the main issues explored by the paper. Part 2 reviews the recent decline in income inequality. Part 3 discusses the factors that could explain the recent inequality decline, i.e. improved external conditions, a positive business cycle, a fall in educational inequality, and changes in macroeconomic, labor and social policies. Part 4 tests econometrically the relative importance of these factors in the recent inequality decline, while Part 5 draws conclusions and offers a few conjectures on the inequality changes that may be expected during the current recession on the basis of the econometric model estimated in Part 4.

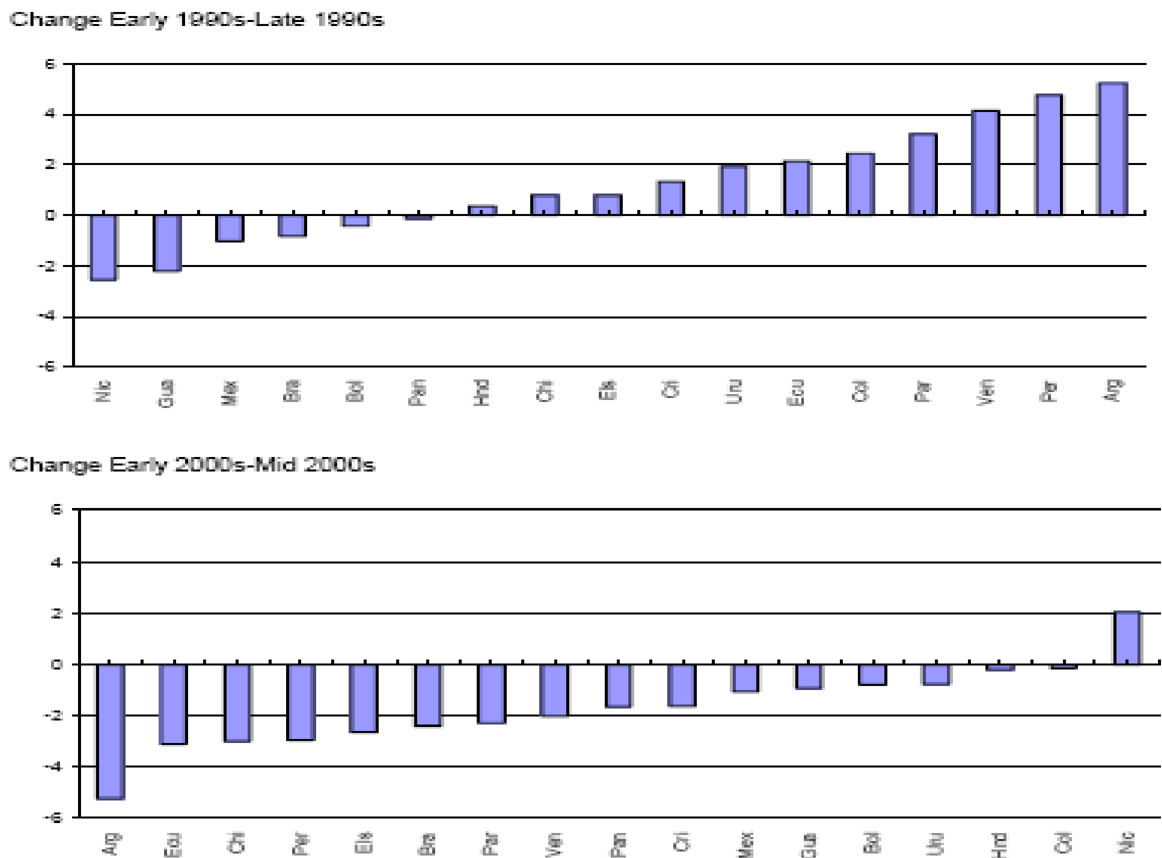
2. The distribution of income in Latin America in historical perspective

With the exception of Uruguay and Argentina, in the early-mid 1950s, Gini coefficients in Latin America ranged between 0.45 and 0.60, i.e. the highest in the world (Altimir 1996). This acute income polarization was rooted in a highly unequal distribution of land, and educational opportunities that benefited a tiny agrarian, mining and commercial oligarchy. The rapid growth which followed the adoption of the import substitution strategy in the 1950s and 1960s had - on average - a disequalizing impact. In the 1970s, however, inequality declined moderately in most of the region except for the Southern Cone (Altimir 1993, Gasparini et al 2009) where an extreme version of neo-liberal reforms had been implemented by the *juntas*. The combination of a rise in inequality over the 1950s-1960s and of a fall over the 1970s made that by 1980, all medium-large Latin American countries had a higher income concentration than in the early-mid 1950s.

During the 'lost decade' of the 1980s, inequality in Latin America was affected by the 1982-4 world recession, the debt crisis, a large decline in commodity prices, and the recessionary adjustments introduced to respond to these shocks. Altogether, the 1980s were characterized by regressive distributive outcomes and income inequality fell only in Colombia, Uruguay and Costa Rica out of 11 countries with available data (Altimir, 1996). Despite the return to moderate growth and the extensive liberalization of the external sector, income polarization did not decline during the 1990s and in half of the cases it worsened further if at a slower pace than in the 1980s (Gasparini et al.2009, and Figure 1). A review of inequality changes over the 1990s based on 76 standardized surveys for 17 countries covering 90 percent of the regional population shows that inequality rose in 10 countries and stagnated or declined in seven (Székely 2003). The worsening was particularly acute during the "half lost decade" of 1998-2002.

The income polarization of the 1980s and 1990s resulted from fast inequality rises during recessionary spells and slow inequality declines during periods of recovery. One of the features of these inequality rises was a decline in the labor share in total income and a parallel rise in the capital share. For instance, between 1980 and the late 1980s, the labor share declined by 5-6

Figure 1. Changes in the Gini coefficients of the distribution of household income per capita, from early to late 1990s, and from early to mid 2000s



Source: Gasparini et al (2009)

percentage points in Argentina, Chile and Venezuela and by ten in Mexico, and such trend was not reversed during the mild recovery of 1991-98. In several countries – as in Chile during the military dictatorship – the fall in the labor share was due – *inter alia* - to the relaxation of norms on workers dismissals, a restriction of the power of trade unions, the suspension of wage indexation, a reduction of public employment and the coverage of the minimum wage, as well as to the reduction or elimination of wealth, capital gains and profit taxes. From an analytical perspective, the fall in the labor share can be decomposed into five components. First, sluggish growth brought about a slowdown in jobs creation (Tokman 1986). Second, informal employment became much more common. Third, formal sector wages evolved less favorably than GDP per capita. Fourth, minimum wages mostly fell in relation to average wages. Fifth, wage differentials by skill widened, particularly during the 1990s, in parallel with widespread trade liberalization (Székely 2003).

In contrast to the trends observed in the 1980s and 1990s, during the 2000s income inequality fell in most of the region, particularly since the end of 2001-2. An analysis on CEPAL (2007) data indicates that inequality fell since 2000 in 11 of the 18 countries with available data. Likewise, a study by Gasparini et al. (2009) on CEDLAS data shows that inequality declined between the early 2000s and the mid 2000s in all 17 countries analyzed with the exception of Colombia, Nicaragua and Honduras (Figure 1). While the average regional decline in the Gini coefficient was of 2-3 points, in countries ruled for most of the 2002-6 period by LOC governments, such as Argentina, Brazil, Chile and Venezuela (Table 1), the drop was much more pronounced. The recent decline in inequality was also characterized by greater convergence at

lower level of inequality, a trend opposite to that experienced during the prior two decades, when the countries' Gini coefficients converged at a higher level of inequality[2].

Table 1. Trends in Gini coefficients in countries with LOC* vs. Conservative governments

LOC Governments in most years 2002-6				Conservative Governments in most years 2002-6			
	1990	2002	2006		1990	20002	2006
Argentina	0.501	0.590	0.510 ↓**	Colombia	0.569	0.569	0.584 ↑
Brazil	0.627	0.621	0.602 ↓	Dominican R.	0.418	0.544	0.578 ↑
Chile	0.554	0.550	0.522 ↓	El Salvador	0.507	0.525	0.493 ↓
Costarica	0.438	0.488	0.478 ↓	Mexico	0.536	0.522	0.506 ↓
Paraguay***	0.447	0.555	0.523 ↓	Panama	0.555	0.563	0.548 ↓
Venezuela	0.471	0.500	0.441 ↓	Uruguay	0.492	0.455	0.456 =

Source: CEPAL (2007) Notes: *countries are assigned to the LOC group if a progressive government ruled for most of 2002-6. ** The arrows indicate whether there was an increase, decline or no change in inequality between 2002 and 2006. *** In 2003, Paraguay elected the moderate Duarte Frutos who introduced some initial redistributive reforms.

3. Factors explaining the decline in income inequality during the last decade

3.1 External conditions

(i) Terms of trade gains. Since the beginning of the new century, the rapid growth of China and other Asian countries exerted a favorable impact on the exports and economic performance of Latin America. Already in 2006, China accounted for a third of world coal, iron ore and aluminum consumption, a quarter of world copper consumption, and a large share of the world imports of agricultural commodities. The pull effect of Asian growth has entailed a large increase in Latin America's exports, which became the most dynamic component of aggregate demand in the region. As a result, the regional export/GDP ratio rose from 13 to 22 percent of GDP between the 1990s average and 2006. The rapid increase in the value of exports was due to significant improvements in both export prices and volumes. In 2007, the index of the commodity prices exported by the region rose for the sixth year running, with the highest recent increases recorded by energy and agricultural products such as vegetable oils, flour and seeds (CEPAL 2007).

As a result, in 2007 the average regional terms of trade index exceeded by 33 percent its average level for the 1990s, generating in this way a positive yearly shock of 3.7 of the regional GDP between 2003 and 2007 (Ocampo 2008). However, the trend in terms of trade behaved quite differently within the region (CEPAL 2007). For instance, between the 1990s and 2007 the terms of trade index rose by 52 percent for South America, 21 percent for Mexico, and 13 percent for Mercosur, but fell by 13 percent in Central America, a region which depends on imported energy. Of the countries adversely affected by terms of trade changes, a first subset (Paraguay, Uruguay, Panamá and Nicaragua) remained specialized in the export of traditional agricultural commodities. A second group of Central American countries (Costa Rica, El Salvador, Guatemala, and Honduras) switched to the export of textiles and recorded a rise in emigration (Perez Caldentey and Vernengo 2007).

What was the likely impact on income inequality of the changes in terms of trade and export volumes? A partial equilibrium analysis would suggest that, given the high concentration of the ownership of land and mines (particularly by foreign TNCs[3]) prevailing in the region, the

[2] Gasparini et al (2009) show that the coefficient of variation of national Gini coefficients fell from 0.10 to 0.07 over 1992-2006.

[3] An important part of the commodity price increase left the region in the form of profit remittances, as the exploitation of natural resources in Latin America is often in the hands of TNCs. Chile and Peru account for over half of the regional outflow of profit remittances, though they account for only 8 percent of the region's GDP.

gains in terms of trade likely generated – *ceteris paribus* - a disequalizing effects on the functional and size distribution of income. Indeed, production in these sectors is very land, resource, and capital-intensive, and not unskilled labor-intensive, and their employment generation capacity is limited[4]. However, if the mining rents accrue to the state (as now in Bolivia), or if private rents are taxed (as, in part, in Argentina), and if the resources so obtained by the treasury are redistributed in a progressive way, the recent rise in land and mining rent would generate favorable distributive effects.

In the absence of a CGE model, the general equilibrium effects of the commodity boom on income inequality are difficult to map out. Improvements in the balance of payments can relax the foreign-exchange constraint to growth and stimulate production in labor intensive industries with the plausible effect of reducing income inequality. A second equalizing effect could occur via a reduction in interest rates (due to an expansion in money creation from abroad induced by growing export receipts) which favors firms and households and penalizes banks and rentiers. All in all, while it is plausible that the recent commodity bonanza had a favorable effect on growth, the impact on inequality is uncertain.

(ii) Rising migrant remittances. In recent years, Latin America enjoyed also a sharp increase in migrant remittances which benefitted in particular Central America, the Caribbean countries, Mexico and Ecuador. The surge in migration and remittances occurred mainly during the crisis years of 1998 and 2003, though it did not decline during the boom of 2003-2008. Official remittances to the region increased from US$ 2 to 59 billion dollars between 1980 and 2005 or from 0.23% to 2% of regional GDP (Table 2). In 2007, they accounted for 2.3 percent of the regional GDP (CEPAL 2007) but for over 11 percent in Central America, 2.8 percent in Mexico and about 20 percent in Grenada, Guyana and Jamaica. Interestingly, with the exception of Ecuador and Uruguay, remittances plaid a greater role in countries which did not experience terms of trade gains, meaning that Latin American countries support their current balance by exporting either primary commodities or migrant labor, and only a modest amount of manufactured goods.

In the above group of countries, one may be tempted to establish a causal link between rising remittances and falling inequality. Yet, the literature on the inequality impact of remittances suggests that their short and medium term effect tends to be un-equalizing. Indeed, in developing countries only middle-class people are able to finance the high costs of illegal migration. As a consequence, the remittances will accrue not to the poor but mainly to middle income groups. In addition, in the countries of origin the migration of skilled workers tends to raise their wage rate in relation to that of unskilled workers. Of course, the final distributive effect depends on if and how the families of migrants receiving remittances share them with low income groups. In addition, remittances may reduce inequality over long term, if the creation of migrant networks reduces migration costs, thus making migration accessible also to low income/unskilled people. The long term inequality impact of migration is mediated also by its effect on growth, i.e. whether it leads to brain drain, brain gain, or brain waste. In this regard, most of the available evidence (IMF 2004) shows that remittances raise current consumption, reduce volatility, and improve the creditworthiness in the countries of origin, but do not have a significant effect on the investment rate and growth rate of GDP. In view of all this, one would not expect that migrant remittances plaid a central role in reducing income inequality, either directly or indirectly.

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[4] For instance, in Argentina, agriculture accounts for a modest 8 percent of the total labor force.

Table 2. Remittances/GDP in countries affected by positive and negative terms of trade

	1980-1990	1991-2001	2002-2006
Countries that recently experienced favourable terms-of-trade effects			
Argentina	0,07	0,22	0,38
Bolivia	1,98	2,17	2,51
Colombia	1,49	1,87	3,32
Ecuador	0,60	3,50	6,46
Peru	0,80	1,64	2,07
Venezuela	-0,42	-0,22	-0,06
Mexico	0,96	1,19	2,36
AVERAGE	0,69	1,26	2,12
Countries that recently experienced unfavourable terms-of-trade effects			
Dominican Republic	4.40	8.67	11.37
El Salvador	8.85	14.01	15.86
Guatemala	1.51	1.95	10.47
Honduras	3.64	8.11	20.48
Nicaragua	5.48	10.05	14.84
Paraguay	…	1.77	2.91
Uruguay	0.17	0.29	0.77
AVERAGE	3.59	4.91	8.85

Source: Adapted from Perez Caldentey and Vernengo (2008)

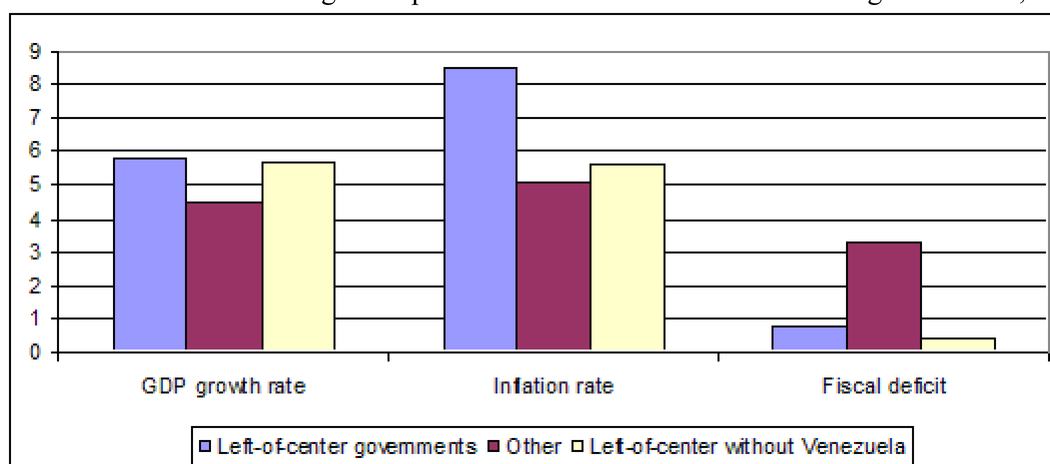
(iii) Increasing availability of external finance. Between 2004 and 2007, the region recorded a surge in capital inflows, the variation of which amounted to 2.4 percent of the region's GDP between 2002 and 2007 (Ocampo 2008). Portfolio flows to the private sector accounted for most of the rise in foreign financing while FDI stagnated at a high level. The portfolio inflows mainly consisted in purchases of shares and securities in regional stock markets which experienced in this way a major boom. For instance, the stock market capitalization of the seven largest regional economies quadrupled its value between middle 2004 and end 2007 (*ibid*).

Also in this case, it is difficult to trace the effect of financial exuberance on inequality. It is likely that – as in the case of terms of trade gains and rising remittances - the indirect effect on growth (and therefore on employment and growth) might have been positive due to the relaxation of the balance of payments constraint. Yet, *ceteris paribus*, financial exuberance tends to cause an appreciation of the real exchange rate which penalizes the labor-intensive traded sector of the economy and, with it, the distribution of income (Taylor 2004). As for the direct effect, the increased availability of finance benefitted mainly capital- and skill-intensive companies and large banks while it did not ease the financing problems of labor-intensive small and medium enterprises, possibly inducing therefore adverse distributional effects.

3.2 A positive business cycle

From end 2002 the region recorded a strong recovery. As noted, such growth rebound was made possible by a favorable international environment and, possibly, by better policies (see later). Growth of GDP/capita doubled between the average of the 1990s and 2002-7 in South America and improved by almost half a point in Central America. Only few countries (such as Chile, which recorded a Tiger-like growth already in the 1990s) did not improve their performance in relation to the 1990s. While all countries recorded a positive growth of GDP since 2002, over the 2003-5 period such growth appears to have been higher on average by about one point in countries ruled by LOC governments in relation to countries ruled by conservative regimes (Figure 2).

Figure 2. Macroeconomic and growth performance of New Left versus other governments, 2003-5



Note: left-of-center governments include Agentina, Brazil, Chile, Uruguay (2005) and Venezuela; other governments incluce Bolivia, Colombia, Mexico, Peru and Uruguay (2003-04).

Source: Moreno-Brid and Paunovic (2006)

Economic theory suggests that in developing countries an increase in GDP improves labor absorption and, under certain conditions, the wage rate, while a contraction of GDP raises inequality as wages drop and the workers made redundant are not covered by unemployment insurance. Past evidence from the region confirms this hypothesis. For instance, in Costa Rica the urban and rural Gini coefficients rose by 7 and 14 percent respectively during the recession of 1981-88, but fell by 6 percent during the 1988-90 recovery. Likewise, in Uruguay the urban Gini rose by 7 percent during the recession of 1981-6 but it fell by 9 percent during the subsequent recovery, while a similar phenomenon was observed in Chile (Altimir, 1993). A decline in inequality following a return to growth is, of course, far from automatic. It depends on whether the growth pattern is pro-poor, neutral or immiserizing. The evidence for the 2002-2007 period confirms that the vigorous recovery described above, as well as the labor policies analyzed in section 3.4, generated an equalizing effect on the distribution of wages. Urban unemployment dropped from 10.7 to 8 percent between 2002 and the third quarter of 2007 (Table 3). Over 5.3 million new jobs were created each year – a much higher rate than during the previous decade. The new jobs were mainly taken by low–income groups, thus contributing significantly to the drop in inequality.

Table 3. Labour market trends for Latin America as a whole, 1990-2007

	Participation rate (%)	Unemployment Rate (%)	% wage workers on total	% formal sector workers	%workers paying social sec.	Wages (constant 2000 US$)		
						Average	Formal Sector	Informal Sector
1990	63.8	6.2	71.0	46.7	63.3	384	372	278
2002	68.5	10.7	67.5	41.7	55.5	397	457	264
2005	70.1	9.7	68.5	42.6	56.7	405	449	267
2007	..	8.0	..	..	..	..	..	..

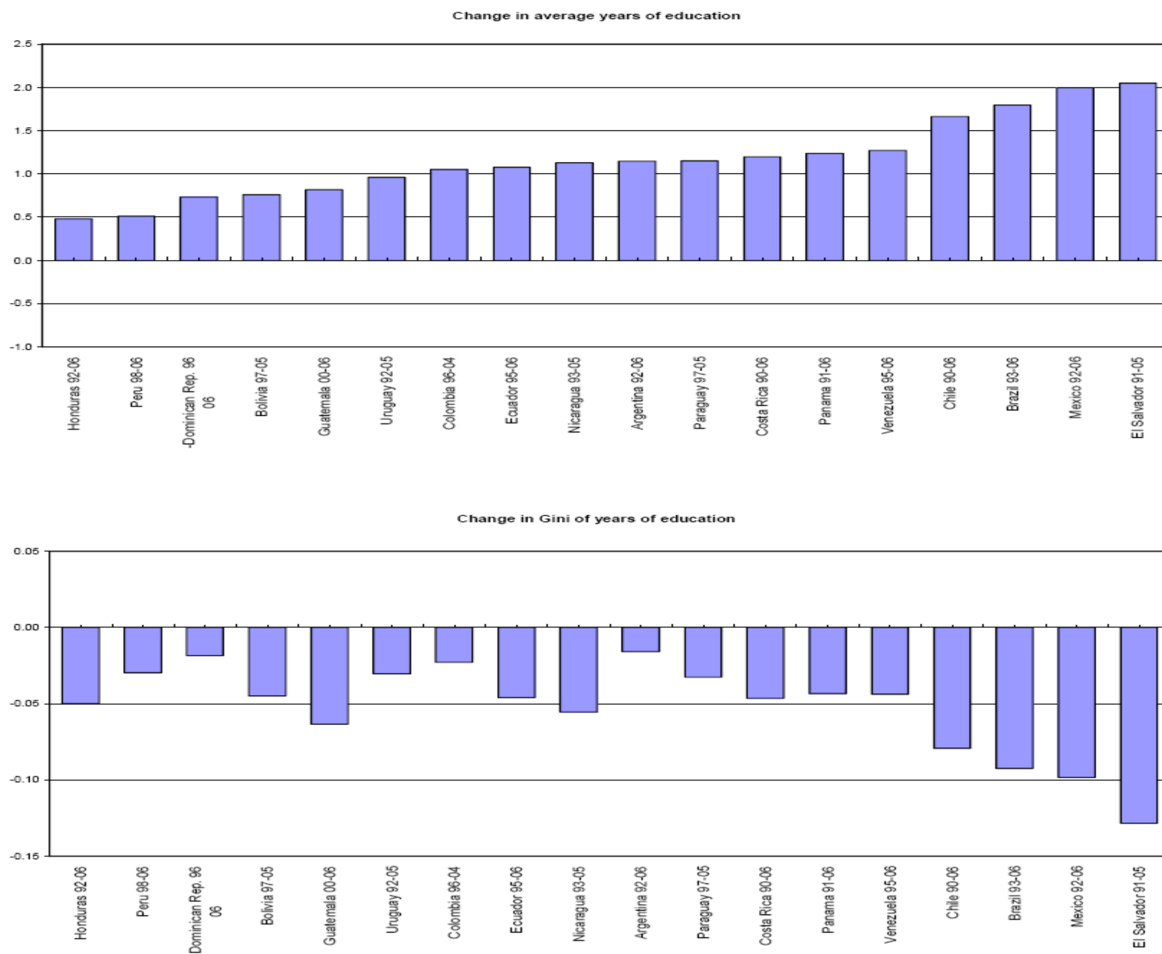
Source: author's compilation on different tables in CEPAL (2006) and other official sources.

3.3. An improvement in the distribution of educational achievements

Another factor that might have contributed to the recent fall in income inequality is the rise in enrolment rates recorded at all educational levels since the early-mid 1990s (Gasparini et al. 2009), and the subsequent reduction in enrolment inequality in primary and secondary education. For instance, the probability that a boy/girl from the bottom decile completes secondary school in relation to that of a child from the top decile rose from 36.7 to 50 percent between 1990 and 2005

(CEPAL 2007a)[5]. The surge in enrolments raised also the average number of years of education of the working population, while reducing the inequality of its distribution. Figure 3 provides evidence of these gains that were recorded under both LOC and conservative governments. All in all, the countries of Latin America made substantial inroads in the field of human capital formation and in reducing many dimensions of inequality in education. Yet, the effect of these trends on current and future inequality are not automatic, as an expansion of the stock of human capital leads to an increase in employment and drop in wage inequality only if additional jobs are created. In this regard, an IPEA study (cited in CEPAL 2006) decomposed the fall in inequality observed in Brazil between 2000 and 2006 and concluded that two thirds of the decline was due to a fall in labor incomes inequality caused by a drop in educational inequality among workers and in wage premium by education level.

Figure 3. Percentage changes in average years if education of the adult population and the Gini of educational achievements between the mid 1990s and the mid 200s in 18 Latin American countries



Source: Gasparini et al (2009)

3.4 The spread of LOC regimes and the adoption of a new policy model

Latin America has been for long a symbol of authoritarian political systems, unequal distribution of assets, and limited redistribution by the state. However, during the last twenty years, the political landscape has been dominated by a steady drive towards democratization and, starting from the mid-late 1990s, a steady shift in political orientation towards LOC regimes. As documented by the

[5] However, during the same period, the gap between rich and poor in accessing tertiary education widened.

results of different waves of the Latinobarometro[6], such shift was to a large extent explained by growing frustration with the poor results of Washington Consensus policies implemented in the 1980s and 1990s. Among other things, such policies caused a shrinkage of the industrial working class, a weakening of the unions, rising unemployment, and a substantial enlargement of informal sector and self-employed workers. The shift away from such approach began with the election in 1990 of Patricio Alwyn in Chile. It continued with the election of LOC figures in the late 1990s and early 2000s, as in the case of Chavez in Venezuela in 1998, Lula in Brazil in 2002, Kirchener in Argentina in 2003, Tabarè Vasquez in Uruguay in 2004, Morales in Bolivia and Correa in Ecuador in 2006, Lugo in Paraguay in 2008, and Funes in El Salvador in March 2009. At the moment, of the large Latin American countries, only Colombia and Mexico are run by centre-right governments.

As noted by Panizza (2005), such regimes differ substantially among each other. They include both the orthodox left and its reformist and national-populist versions. Some of the LOC regimes now dominating the region can be defined as social-democratic, as in is the case of Chile's Partido Socialista, Uruguay's Frente Amplio and Brazil's Partido dos Trabalhadores (*ibid*). These parties have their roots in organizations of the working class, but have evolved into broad coalitions comprising sectors of business and the middle classes, the urban and rural poor, the unemployed and those working in the informal sector. They have abandoned any notion of revolutionary break in favor of electoral politics and respect for the institutions of liberal democracy. In contrast, a second group of countries (such as Argentina and Ecuador) developed left-nationalist platforms, while Venezuela, Bolivia and Nicaragua are characterized by a radical left-populist approach entailing a redistribution of assets both nationally and internationally.

Matters of social justice and economic development are at the core of the new LOC parties' identity. However, in the pursuit of such objectives, the LOC parties avoided the ill-conceived approach to budget deficits and inflation typical of the heterodox-populist policies of the 1980s (Dornbusch and Edwards, 1991). In fact, the LOC economic model incorporates into its paradigm some liberal policies such as a sound fiscal policy and low inflation, an awareness of the inefficiencies associated with some forms of state intervention and protectionism, the primacy of the market in setting up prices, regional trade integration and openness to foreign investment. At the same time, its concern for poverty and inequality, recognition of market failures and the increasing importance assigned to strengthening state institutions are in sharp contrast with the neo-liberal emphasis on shrinking the state and the self-sustained role of the markets (Panizza 2005).

LOC governments have thus developed a new economic paradigm and social contract that binds together their traditional and emergent constituencies through a combination of macroeconomic stability, neo-corporatist and participatory institutions, redistribution via taxation and targeted social programs (Panizza 2005a). There are, however, in-built tensions within the new social contract, for instance between the fiscal and monetary constraints required to maintain macroeconomic stability and demands for higher public investment and social spending. In addition, in some cases (as in Brazil), macroeconomic stability was achieved by means of high interest rates and primary surpluses, which dampened economic growth and favored financial rents over public investment. The main components of the new LOC model are reviewed hereafter:

(i) Macroeconomic policies. Overall, the measures introduced in this areas are broadly aligned to what can be defined a 'pro-poor macroeconomics' paradigm (Cornia 2006). Its key elements are:

- A fiscal policy aiming at balancing the budget in the context of an expansionary expenditure

[6] Corporación Latinobarómetro is a non-profit NGO based in Santiago, Chile. Since 1995 it carries out public polls on economic and political topics by means of sample surveys of 19.000 households based in 18 countries of Latin America accounting for 400 million people (http://www.latinobarometro.org).

policy. Traditionally, Latin America adopted pro-cyclical macroeconomic policies that boost growth during periods of external buoyancy but build up vulnerabilities which explode when the favorable conditions disappear. This stance has been partially changed during the recent decade. A decline in the budget deficit was targeted in all countries, despite an increase in public expenditure, with LOC countries achieving better results than conservative ones (Figure 2). Overall fiscal deficits have typically been reduced below one percent of GDP (much lower than the EU and US) and in several cases were turned into surpluses. As a result, in 2006 and 2007 the average central government budget for the region as a whole was in equilibrium, suggesting a shift towards a countercyclical fiscal management (Ocampo 2007). A 'strong version' of such policy, which requires that the extra revenue collected during upturns is saved and is used to support public expenditure during bad years, was followed in Chile, Peru and Argentina. A 'weak version', consisting in balancing the budget or achieving a small surplus, spending then the extra revenue collected during the upturn was followed by many other countries. As noted by Ocampo (2008), the latter approach was often followed due to the difficulties faced by democratic regimes in convincing the population about the need for continuing a policy of austerity in a period of relatively abundant revenue.

- ***Rising tax/GDP ratios***. Tax policy has undergone gradual but deep changes, both during the 1990s and even more so since 2002. As a result, for the region as a whole, the tax and non-tax revenue of the central government including social security contributions rose from 15 percent of GDP in 1990 to 17 percent in 2000, and 20.2 percent in 2007 (CEPAL, 2007). Very large revenue increases were recorded over 2002-2007 in Argentina and Brazil (9 points of GDP), Colombia (8.5 points), Bolivia (10 points), and Venezuela (6 points), and only Mexico experienced a small decline (Cetrangolo and Gomez-Sabaini 2006). By mid 2000s, Brazil, Argentina, Uruguay and Costarica had reached levels of taxation similar to those of the US and Japan. In contrast, with tax/GDP ratios at around 10-12 percent, Group 3 countries (see Table 4) remained mired in a 'low revenue development trap' which makes them unable to fund pro-poor and pro-growth public goods, merit goods and goods with large externalities. The increase in public revenue recorded in most of the region constitutes an important achievement, as inability or unwillingness to raise taxation was an important cause of the large accumulation of public debt during the 1970s, the subsequent debt crisis of the 1980s, and the macro instability of the 1990s.

The revenue increase resulted from a widespread reduction in excises (due to administrative simplification) and tariffs (following trade liberalization), a rise in indirect taxes (VAT *in primis*), an increase in personal and corporate income tax, and stagnation at low level of wealth taxes and social security contributions following the informalization of employment (Table 5).

Table 5. Revenue/GDP ratio of the central government in 1990, 2000 and 2004, and changes in tax structure in components in three groups of (high, medium and low taxation) countries.

Revenue/GDP ratio			**Country Group**	**Changes over 1990-2004 in percentage of total tax revenue**				
1990	**2000**	**2004**		Trade taxes	Excises + other indir	VAT	Direct Taxes	Social Security
23.0	25.9	28.7	**Group 1**	+ 0.1	- 6.3	+ 3.6	+ 6.5	- 3.9
12.0	15.7	16.7	**Group 2**	- 9.2	- 6.3	+ 9.9	+ 3.3	+ 2.3
8.5	10.5	11.5	**Group 3**	- 8.3	- 13.0	+ 20.6	+ 2.5	- 1.9

Source: Elaboration on Cetrangolo and Gomez Sabaini (2006); Notes: Group 1 includes Brazil, Argentina and Uruguay. Group 2 includes Chile, Costarica, Honduras, Nicaragua, Panama, Dominican Republic, Peru, Bolivia and El Salvador. Group 3 includes Ecuador, Guatemala, Haiti, Mexico, Paraguay, and Venezuela.

Countries benefiting from large increases in the price of hydrocarbons, metals and agricultural exports recorded an important growth in public revenue, as they taxed part of the land and mining rent by imposing special taxes on the operating revenues of mining companies. In turn, Argentina appropriated part of the benefits accruing from the real exchange rate depreciation of

2002 by means of a selective *ad valorem* export tax, the incidence of which is progressive[7].

While the improvement in terms of trade certainly contributed in a major way to raise the tax revenue/GDP ratio, its increase preceded the commodity boom and depended also on broader efforts at broadening the direct and indirect tax base and reducing evasion. In addition, several countries introduced a "surrogate" tax on financial transactions which, while potentially distortive (Cetrangolo and Sabaini 2006), can be seen as a 'second best' tool to tax financial assets and rents which would otherwise remain untaxed. Considering that the distribution of financial assets is more concentrated than that of income, such tax is likely to have a progressive incidence.

It is still an open question whether the recent revenue increases are compatible with the distributional objectives of LOC governments, or whether the recent rise in taxation exacerbated the regressive features of tax systems in the region. Table 5 suggests that while tax reform has still a long way to go, in country groups 2 and 3, the recent increase in tax/GDP ratio was in good part achieved by an increase in direct taxes. In addition, the selective export tax used in Brazil and Argentina is likely progressive, as it captures part of the land rent and 'windfall profits' arising from rising world prices and accruing to a sector characterized by high asset and income concentration.

- ***Monetary policy and inflation targeting***. As suggested by the 'impossible trinity theorem', in economies with an open capital account, such as those of Latin America, the monetary authorities can count only on few instruments (the accumulation of reserves, and the sterilization of the increase in money supply these induce) to control the fall in interest rates and credit expansion during booms generated by export bonanzas and large financial inflows. The only other instrument available consist in introducing capital controls, as done in part over 2002-8 by Argentina and by Colombia in 2007 (Ocampo 2908). In most other countries, both LOC and conservative, monetary policy was therefore either accommodating or neutral, tolerating therefore (with the major exception of Brazil) lower or even negative real interest rates and higher inflation rates.

Monetary policy aimed also at reducing the extensive dollarization of the financial system. Argentina conducted a radical de-dollarization during the crisis of 2002, and Peru adopted a policy of gradual de-dollarization, together with Bolivia and Uruguay. In particular, there was a tendency for foreign currency-denominated public-sector bonds issued on local capital markets to dwindle. Finally, there was a general strengthening of Central Bank independence.

- ***Exchange rate regime***. With the exception of Brazil and Venezuela, most LOC and several other countries abandoned the free floats and fixed pegs regimes adopted during the prior decade, and opted instead for a competitive exchange rate regime, as in the case of Argentina (Frenkel and Rapetti, 2008), or for managed floats aiming at preventing the appreciation of the real exchange rate. As noted by Ocampo (2007), consistently with this approach, Central Banks reduced the supply of foreign exchange through frequent interventions in the currency market, particularly during the massive capital inflows of 2006 and 2007, adopted a coherent fiscal and policy, and in a few cases (Argentina and Colombia) introduced capital controls. The clearest example of this policy is given by Argentina, where the maintenance of a competitive exchange rate is one of

[7] Governments developed a variety of fiscal mechanisms for appropriating part of the increase in commodity prices (CEPAL 2007, p.31). Argentina financed much of its spending from resources generated by export duties. In turn, Venezuela, Bolivia and Chile created new taxes to increase the revenue generated from their non-renewable resources. As a result, the share of fiscal resources represented by such revenue in Bolivia, Chile, Colombia and Mexico rose from of 27.8, 7.6, 9.9 and 29.4 percent in the 1990s to 34.8, 20, 14.2 and 37.5 in 2006-2007. Yet the tax/GDP ratio had started rising in the late 1990s, well before the onset of the commodity boom.

the cornerstones of macroeconomic policy[8]. In this country, the adoption of a competitive exchange rate shifted labor towards the unskilled labor-intensive traded sectors (mainly manufacturing) with a strong equalizing effect (Damill 2004, cited in World Bank 2005).

In 2006 and 2007, this exchange rate policy came under pressure owing to large increases in export prices, capital inflows and remittances. The large current and capital account surpluses realized in most of South America in 2006 and 2007 lead in fact to a modest appreciation of 4.8 percent of the extra-regional real exchange rate for the region as a whole, with stronger effects felt in Colombia, Brazil and Venezuela (CEPAL 2007). Without the huge accumulation of reserves and parallel sterilization efforts, several countries would have shown stronger symptoms of Dutch Disease and accelerating inflation in the non-tradable sector which – if uncontrolled – would have generated adverse growth and distributive impact (Taylor 2000).

- ***Trade and external indebtedness***. The free trade policies adopted in the past have not been overturned, in part because the newly adopted exchange rate policies often offered some protection to the tradable sector. In contrast, the trend towards international trade integration points to some reorientation. The Free Trade Area of the Americas seems to have stalled while, in contrast, regional trade integration seems to have developed rapidly, especially in the field of manufacturing exports. The free trade agreements with industrialized countries have, in contrast, strengthened the exports of primary commodities, with the possible exception of Mexico which increased its exports of manufactured goods, which in most cases had however a high import contents and limited backward and forward linkages.

LOC governments attempted to reduce their dependence on foreign borrowing. Existing short-term stabilization agreements with the IMF were generally not renewed, while Brazil (2005) and Argentina (in 2006) prepaid their outstanding debt to the IMF. A few countries also restructured their foreign debt, as in the case of Argentina which – against the advice of the IMF – successfully renegotiated its private debt at a 70 percent discount. As a result, Latin America's gross foreign debt declined from 42 percent of the regional GDP in 2002 to 20 percent in 2007, while the debt net of foreign reserves fell from 33 to 8 percent of GDP. The burden of external indebtedness should therefore be less prominent during the current crisis (Ocampo 2008)

(ii) Income, redistributive, and social policies

Measures to reduce the glaring wealth concentration existing in the region have seldom made their way on the LOC governments' agenda, with the exception of Bolivia (which nationalized the mines and is planning a land reform) and Venezuela (which renegotiated oil royalties and nationalized key industries, including steel, electricity and telecommunications). The moderate stance adopted by most LOC countries is likely explained by the fact that – in the absence of overwhelming political support, and in view of the heterogeneity of LOC coalitions – radical reforms would have unavoidably generated tensions affecting business climate, capital flights, and electoral support. In addition, the advent to power of progressive regimes did not reduce the influence of dominant interest groups which – though numerically small – are still powerful and can sway the public opinion on controversial issues. As a result, the LOC policy model resembles more the 'Redistribution With Growth' (Chenery et al 1978) rather than the radical 'Redistribution Before Growth' which sees the redistribution of assets and opportunities as a way

[8] A policy of this type requires that the build-up of international reserves during upturns be matched by measures to sterilize their monetary impact. Sterilization of this type is easier when there is a fiscal surplus. Otherwise it will be necessary to sterilize via a mix of traditional open market operations, sales of central bank-issued bonds in the market, or higher reserve requirements. For this reason, in the Argentine model the fiscal surplus is an essential complement to the policy of maintaining a highly competitive exchange rate.

to overcome the under consumption trap and lack of human capital afflicting developing countries. In contrast, the measures introduced in the field of labor market social expenditure, and conditional transfers – discussed hereafter - have been more far reaching.

- ***Income policy.*** The LOC's policy model differs from the liberal one in terms of the extent to which labor policies explicitly addressed the problems inherited from the 1990s, i.e. rising unemployment, job informalization and instability, falling unskilled wages, diminishing coverage of social security, and weakening of institutions for wage negotiations and dispute settlements.

Argentina enacted income policies to strengthen the purchasing power of poor and middle income families, including a rise in minimum wages, a large scale public work program, a deliberate attempt to extend the coverage of formal employment, and the re-birth of trade-unions. In Uruguay the Frente Amplio administration reinstated the 'wage councils', i.e. tripartite collective bargaining bodies comprising representatives of the business sector, unions and government that negotiate wage settlements for the main industries. In Brazil the government set up an Economic and Social Development Council composed of representatives of business, labor and a wide variety of civil society organizations as an advisory body on economic and social issues. At the same time, most LOC governments decreed hikes in minimum wages which were sizeable but far from excessive. Such restraint may reflect the greater concern of policy makers for creating jobs than for improving earnings. It also reflects the recognition that, unless backed by increases in productivity, nominal wage raises may fuel inflation with scant effect on real wages. Despite their recent hikes, in 2005 average real earnings were below their 2000 level with the exception of Chile.

The empirical evidence suggests that the increase of minimum wages frequently adopted during the 2000s in the region likely produced an equalizing effect. Indeed, a study on 19 Latin American countries for the years 1997-2001 (Kristensen and Cunningham, 2006) shows that minimum wages[9] raised the pay at the bottom of the distribution and were generally associated with lower dispersion of earnings. Their coverage was found to be more far reaching than the neoclassical theory would predict, as minimum wages were found to lift wages in both the formal and informal sector. Indeed, though minimum wages are not binding in the informal sector, the study found that in 14 of the 19 countries analyzed they enhanced the wage distribution also in this sector. This suggests that the minimum wage represents a sort of 'fair reservation wage' below which the supply of unskilled labor falls. There is also evidence (Table 3) that in the 2000s wage employment rose faster than self- employment (by between 17 and 31 percent in Mexico, Brazil, Peru, and Chile, and by 50 percent in Nicaragua and Argentina), suggesting that the policy of 'formalizing employment' produced some results. A third factor, was a decline in the wage premium of skilled workers observed in Sothern Cone countries, due to a growing supply of educated workers (see section 3.3), and a shift of production towards the more unskilled labor-intensive tradable sector.

- *Rising public social expenditure and redistribution*. Public social expenditure started rising already in the early-mid 1990s but accelerated since the early 2000s in most of the region (Table 6). Most of the rise concerned social security, social assistance and education (*ibid*). The rise was nearly universal and of the 21 countries of the region, only Ecuador had in 2004-5 a social expenditure/GDP ratio lower than in 1990-1 (CEPAL 2005). There still is a huge intra-regional variation in social expenditure[10] but it appears that the recent rise was proportionately greater in

[9] Minimum wages varied between 20 and 143 percent of low-skilled wages, with the number of beneficiaries varying between 1 and 20 percent of the labor force.

[10] In 2004-5, Cuba, Uruguay, Brazil, Argentina, Bolivia, Costarica, and Panama had social expenditure/GDP ratios of 15-20 percent (i.e. close to the OECD level), most Carribean, Central American and Andean countries had ratios below 10 percent.

low-income countries. A first factor in the public expenditure rise was the increase in tax/GDP ratios. But changes in the structure of public expenditure plaid also a role. For instance, the debt cancellation enjoyed by HIPC countries permitted reallocating to social activities of monies used to service the foreign debt[11], while ODA-recipients increased rapidly their social expenditure, possibly due to growing 'social conditionality' for the achievement of MDGs.

Table 6. Average public expenditure per capita and % of GDP in Latin America (21 countries)

	1990-1	1996-7	2002-3	2004-5	Δ 1990-1 2004-5
Total public social expenditure/capita (USD 2000)	440	525	610	660	220
Total public social expenditure/GDP	12.9	13.9	15.1	15.9	3.0
- public expenditure on education/GDP	3.3	3.6	4.1	4.3	1.0
- public expenditure on health	3.1	2.9	2.9	3.4	0.3
- public expenditure on social sec./assistance	5.3	6.6	7.1	7.0	1.7
- public expenditure on housing and 'others'	1.2	0.9	0.9	1.2	0.0

Source: CEPAL (2005), CEPAL (2007a)

The rise in public social expenditure likely generated positive redistributive effects. Analysis of studies on public social expenditure by income quintile for 18 countries over 1997-2003 (CEPAL 2007, see also Gasparini et al 2007) suggest that: all components of public social expenditure (including social security) are less concentrated than private incomes; expenditures on primary education and social assistance are strongly progressive, those on secondary education and healthcare are mildly progressive or broadly proportional (in the case of health it depends on the approach to its financing), those on tertiary education are as concentrated as the distribution of income. In turn, expenditure on social security (pensions, unemployment insurance) is slightly less concentrated than that of private income, as it focuses on formal sector workers, only seldom providing non-contributory benefits to informal sector workers and their families. These are average regional data and things vary between the three main country groups in the region (Table 7). Furthermore, there are indications (CEPAL 2005) that the incidence of such public expenditure is becoming more progressive, though at different speeds across the region, as shown by the increase in enrolments in secondary education mentioned above, greater access to health services, social assistance (see below) and anti-poverty programs.

Table 7. Incidence of government expenditure by quintile (18 countries, years 1997-2004) and concentration coefficients of the public expenditure by three subgroups*

(Panel a) Shares of total public expenditure By sector and income quintile					**Expenditure Sector**	**(Panel b) Concentration coefficients of public expenditure**		
I quintile	II quintile	III quintile	IVquintile	V quintile		Group 1	Group 2	Group 3
7.4	6.5	6.3	5.9	5.6	**Education**	-0.067	0.116	-0.138
5.1	4.7	4.2	4.0	3.7	**Health**	0.074	-0.073	-0.192
2.0	2.8	4.3	**6.3**	**16.5**	**Soc Security**	0.504	0.568	0.349
3.3	2.1	1.6	1.3	1.1	**Soc Assist.**	-0.089	-0.154	-0.484
0.8	0.9	1.1	1.4	0.9	**Housing**	0.206	0.067	-0.026
19.6	17.0	17.5	18.9	27.8	**Total**	0.143	0.042	0.044

Source: Elaboration on CEPAL (2007a); Note: Group 1 includes Bolivia, El Salvador, Guatemala, Honduras, Ecuador, Nicaragua, Paraguay, Peru. Group 2 includes: Colombia, Dominican Republic, Mexico, Panama, Venezuela. Group 3 includes: Argentina, Brazil, Chile, Costarica, Uruguay.

As shown in Table 7, social security expenditure is not progressive, as it mainly covers formal sector workers with stable employment. This raises the question of how best can government expand social security coverage, whether by actively extending the formal sector or by setting

[11] Since 1996-7, Bolivia, Honduras and Nicaragua benefitted from debt cancellations of 5, 6 and 2 percent of their GDP.

up solidarity-based, non-contributory, universal funds providing basic benefits (such as minimum pensions) to informal sector workers and their families. Both approaches were adopted in recent years though the latter was more frequently observed. For instance, during the last years several new LOC countries (Argentina, Bolivia, Brazil, Chile and Costarica) introduced non-contributory social pension which started addressing this problem (Table 8).

Table 8. Coverage of non-contributory pensions in Latin America and Southern Africa

	Age of eligibility	Universal (U) Means tested (M)	Amount paid/month US $	% population over 60	% pop >60 receiving a pension	Cost of pension as % of GDP
Argentina	70+	M	88	14	6	0.23
Bolivia	65+	U	18	7	69	1.30
Brazil 1	67+	M	140	9	5	0.20
Brazil 2	60/55+	M	140	9	27	0.70
Chile	65+	M	75	12	51	0.38
Costa Rica	65+	M	26	8	20	0.18
Uruguay	70+	M	100	17	10	0.62
memo item						
Lesotho	70+	U	21	8	53	1.43
Mauritius	60+	U	60	10	100	2.00
Namibia	60+	M	28	5	87	0.80
South Africa	65/58+	M	109	7	60	1.40

Source: HelpAgeInternational (2006b) Notes: Brazil 1 and 2 = Beneficio de Prestacao Continuada; Previdencia Rural.

Despite the progressive nature of much of social expenditure, the overall redistributive effect of tax-and- transfer operations in Latin America remains much smaller than in the OECD (Table 9), with the exception of Argentina and Costa Rica. In most countries redistribution operates exclusively on the expenditure side. An analysis of tax incidence in 11 Latin American countries (Gomez-Sabaini 2006) concludes that the distribution of income after taxation (but before transfers) remained broadly unchanged and worsened in Mexico and Nicaragua, as the tax system mainly relied on regressive or proportional taxes such as excises and VAT. Yet, as noted above, the increase in income and wealth taxes recorded between the mid-late 1990s and 2006 in several countries points to a gradual evolution of the tax system towards greater progressivity.

Table 9. Redistributive impact of budget operations in OECD and Latin America, late 1990s – 2000s

	Tax/GDP ratio, incl. social security	Share of direct taxes in total	Public Social Expenditure* /GDP ()	Gini of the distribution of income before taxes and transfers	Gini of the distribution of income after taxes and transfers	% decline in Gini due to budget operations
Sweden				0.487	0.230	-52.8
Finland				0.392	0.231	-41.1
Japan				0.340	0.265	-22.1
Germany				0.436	0.282	-35.3
United States				0.455	0.344	-24.4
Italy				0.510	0.345	-32.4
Costa Rica ‘00		16.7	18.0	0.430	0.350	-18.6
Argentina ‘98		13.5	21.5	0.510	0.400	-21.6
Bolivia ‘02		11.2	20.5	0.440	0.412	-6.4
Mexico ‘02		41.3	12.1	0.490	0.450	-8.2
Brazil ‘97		16.8	29.8	0.561	0.490	-12.7
Colombia ’03		29.6	17.2	0.530	0.500	-5.7

Source: compilation on Cetrangolo and Gomez Sabaini (2006) for OECD, CEPAL (2005) for the L.American countries. Note: The Gini in the table refer to the distribution of private and public income in kind (health and education).

- Conditional transfer programs. During the last 10-15 years practically all governments of the region introduced targeted social assistance programs to complement the coverage of formal social security. Contrary to the small, donor dependent, and poorly sequenced and targeted Social Emergency and Investment Funds (SEF and SIF) introduced in the late 1980s to soften the resistance to structural adjustment (Cornia 2001), conditional transfers are better funded by the state (with programs absorbing up to 0.5 to 1 percent of GDP), and covered a greater share of the

Table 10. Summary of some main social programs introduced in recent times in the region

PROGRAMA (starting year)	OBJETIVES	COMPONENTS	% WAP or target pop	EXPEN/GDP	N. BENEF	MONTHLY SUBSIDY($)	BENEFIT/ MIN WAGE
PLAN JEFES Y JEFAS (Argentina, 2002)	Temporary employment for unemployed heads of household -Preservation of human capital	Ceation- maintenance econ/ social infrastr. Assistance to schools and basic health services in favour of children	10,7% WAP	0,8% GDP	1.85 millons in 2 years	45 (...) 150 (2007)	0,75 (2002) 0,43 (2004)
PLAN NAC. DE EMERGENCIA (Bolivia, 2002)	Temporary employment	Creation- maintenance of basic economic social infrastructure	1,6% WAP	0,86% GDP	..	63 Wage manual workers	…
PANES (Uruguay, 2005)	Temporary employment	Ceation- maintenance econ/ social infrastr.	7,2% WAP	0,5% GDP	..	55,2 (2005)	0,66
BOLSA Alimentação (Brasil, 1995)	Reduce poverty and inequality in the short/long term	- Education - Health - Nutrition	n.a.	US$150mm	2 million families	$ 6.3 – 18.7 per family (2002)	…
BOLSA ESCOLA (Brazil, 1995)	Increase the permanence of children in 1ary- 2ary education	Education	4.8 % of school population	US$762mm (2002) 0,13% GDP	5 million children	$ 6.3 - 18.7 per family (2002)	…
BOLSA FAMILIA (Brazil, 2003)	Reduce poverty and inequality in short/long term	- Education - Health - Nutrition (multidimensional)	16% of all families	0.28% GDP (2003)		..	…
PRO EMPLEO SOLIDARIO (Chile 2004/5)	Training of jobless and placement in formal sector	Subsidies to hiring and hiring of workers in firms .	1.8% of the employed				
OPORTUNI DADES (México, 1997)	Support families in extreme poverty through investments in human capital	Education Health Nutrition	25% of the population	US $960 million 0,32%GDP (2001)	4 million families	$ 55 per family (1997- 2000)	
BONO SOLIDARIO (Ecuador, 1998)	Ensure minimum consumption to poor (mother with children, 3rd age, handicapped)	Education Health Nutrition	....	US$ 146.4 million	1.3 million beneficiaries	Mothers: US$ 45 3rd age and handicapped: US$ 7	

Source: Compilation of the author on the basis of Bouillon and Tejerina (2007)

population at risk (Table 10). Such programs are directed to new political constituencies such as the urban and rural poor and include conditional cash transfers aiming at reducing poverty and child labor and at ensuring that children remain in school, have access to health services and proper

nutrition (such as Brazil's *Bolsa Familia*); temporary employment schemes for the construction of public infrastructure (as in Argentina's *Programma Jefas y Jefes de Hogares* and Uruguay's PANES); training of unemployed workers and youth with the aim of facilitating their access to formal sector jobs; subsidized formal sector employment for the youth; and the promotion of SME. Several studies document the favorable distributional impact of such transfers. For instance, an IPEA study (cited in CEPAL 2006) decomposed the inequality reduction observed in Brazil between 2000 and 2006 and found that government transfers (pensions and *Bolsa Família*) explained one third of such decline.

4. Regression analysis

4.1 Dataset and matrix of correlation coefficients

To test the hypotheses about the sources of the decline in inequality presented in Part 3, it was necessary to compile a dataset on Income Distribution in Latin America (IDLA). IDLA includes annual observations for the 18 main Latin American countries[12], the years 1990-2007 and the variables listed in Table 11. The database includes 324 (18x18) cells for each variable, though missing data reduce the number of data strings with non-zero cells to 176. The dependent variable is the Gini coefficient of the distribution of income (standardized for all countries in terms of Gini of gross income). The explanatory variables included in regression are described in Table 11. They belong to five sets of explanatory factors: (i) initial conditions (proxied by Gini 1990, which is expected to have a positive sign in regression, as current inequality changes only gradually in

Table 11. Definition, description and data sources of the variables used in regression analysis

variable name	*Variable label*	*Source*	*Unit of Measure*
Gini	Gini coefficient of the current distribution of gross household income per capita	WIID	Percentage points
GDP/c gr	Per capita average annual growth rates GDP at constant market prices	ECLAC	Percentage based on US dollar figures at constant 2000 prices
Gini education	Education Gini index for working population of 25-64 years old	SEDLAC	Percentage points
Tot- fob	terms of trade, fob	ECLAC	Index, 2000=100
Remittances	Workers' remittances / GDP	UNCTAD	Percentage of GDP
REER	Indices of Real Effective Exchange Rate	Econ Survey of L. America and the Caribbean	Index, 2000=100
Min-wage	Minimum wage	ECLAC	Index, 2000=100
Direct tax	Taxes on income, profits, capital gains, property/ GDP	ECLAC	as a percentage of GDP
Indirect tax	(General taxes on goods and services + taxes on specific goods and services) / GDP	ECLAC	as a percentage of GDP
Public exp. on social security	Public expenditure on social security and social assistance / GDP	ECLAC	as a percentage of GDP
Q5/Q1 Pensions	Ratio of pensions coverage by quintile	Rofman et al. (2008)	Ratio
No-Left	Countries with centre-right governments	Author's compilation	0 (LOC), 1 (center-right)

Source: author's compilation

relation to its past values; (ii) the impact of the current business cycle measured by the growth rate

[12] The countries included in the dataset represent the near totality of the population and GDP of the region. They are: Argentina, Bolivia, Brazil, Chile, Colombia, Costarica, Dominican Republic, El Salvador, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela.

of GDP per capita, and expected *ex ante* to have a negative sign (iii) the distribution of human capital (i.e. the Gini of the distribution of years of education among workers, expected *ex-ante* to reduce inequality) (iv) external conditions i.e. international terms of trade and migrant remittances (both of which have *ex-ante* an uncertain and possibly non significant direct impact on inequality, besides that mediated through other variables); and (v) public policies. These include the Real Effective Exchange Rate (REER) which proxies macro policy, and which is expected to reduce inequality for the reasons given in Part 3; the minimum wage (expected *ex-ante* to reduce income inequality) which proxies labor market policies. As for redistributive policies, the following variables were used in regression analysis: the ratio of direct to indirect taxes (expected *ex-ante* to reduce income inequality), the share of public expenditure on social security as a share of GDP (expected to reduce mildly inequality, especially where the share of social insurance in the total is dominant), and the ratio of pensions coverage in the top versus the bottom quintile (expected *ex-ante* to raise inequality); (vi) a political dummy variable 'No left', equal to 1 when a country is ruled by a centre-right or centrist regime, possibly expected *ex-ante* to raise inequality (beyond the impact manifested via the adoption of progressive policies). Table 12 presents the matrix of correlation coefficients between the variables to be included in the regression analysis.

Table 12. Bilateral correlation coefficients between variables used in regression analysis

	Gini	Gini $_{1990}$	*GDP/c g.r.*	*va manuf %GDP*	*reer*	Budg. deficit	*Informal*	*mw/ aw*	*Direct taxes*	*Indir. Taxes*	*Social Secur.*	Q5/Q1 *Pensions*	*Gini educ*	*Remittances*	*Tft_fob*
Gini	1.00														
gini $_{1990}$	0.82	1.00													
GDP/c Gr	-0.07	0.02	1.00												
Va manuf (%GDP)	-0.52	-0.46	0.21	1.00											
Reer	-0.33	-0.37	0.06	0.40	1.00										
Budget Deficit	-0.03	0.01	0.42	0.25	0.14	1.00									
Informal	0.42	0.17	-0.08	-0.19	-0.30	-0.21	1.00								
mw/aw	-0.16	-0.14	0.16	0.22	0.50	0.02	-0.12	1.00							
Dirtax	0.04	0.19	0.01	0.11	0.52	0.08	-0.30	0.35	1.00						
Intax	-0.04	-0.07	0.14	0.42	0.15	0.02	-0.05	0.23	0.25	1.00					
Social security	-0.35	-0.22	0.06	0.28	0.23	0.01	-0.50	0.23	0.22	0.70	1.00				
Q5/Q1 Pensions	0.38	0.26	-0.13	-0.20	-0.14	-0.45	0.52	-0.08	-0.14	0.09	-0.20	1.00			
Gini educ	0.50	0.50	-0.16	-0.27	-0.34	-0.32	0.58	-0.07	-0.04	-0.23	-0.54	0.44	1.00		
Remit.	0.40	0.27	-0.01	-0.37	-0.39	0.01	0.45	-0.09	-0.31	-0.22	-0.45	0.06	0.35	1.00	
Tft_fob	-0.06	0.00	0.42	0.05	-0.11	0.23	0.04	0.07	-0.05	0.25	0.26	-0.02	-0.09	0.01	1.00

With only one exception (see below), it appears that the explanatory variables are strongly independent among each other. This suggests there are few problems of multicollinearity among them, and that – contrary to what would be plausibly suggested by economic theory - there is no need to develop a structural multi-equation model. Indeed, one might have reasonably surmised that the growth rate of GDP/c, direct taxes/GDP, and indirect taxes/GDP are dependent on the international terms of trade, but the respective correlation coefficients between these pairs of variables are only 0.42, -0.05 and 0.25. Likewise, one may have supposed that the direct taxes/GDP and indirect taxes/GDP depend on the growth rate of GDP/c, but the relevant correlation coefficients are 0.01 and 0.14. The only case where r is reasonably high (0.7) is between public expenditure on social security/GDP and indirect taxes/GDP, but this does not cause a problem as the variable used in regression is "direct taxes/indirect taxes'.

4.2. Estimation procedure and regression results

The IDLA database is organized as a tri-dimensional matrix, with 18 countries on one axis, 18 countries on the second and the dependent and 12 variables used in the analysis on the third. Such kind of dataset demands that the procedure chosen for the estimation of the determinants of income inequality takes into account that each country is observed over several periods. Such model takes therefore the following form:

$$y_{it} = \alpha + x_{it} \cdot \beta + u_i + \varepsilon_{it}$$

where y is the dependent variable (the Gini coefficient of the distribution of gross income per capita), x is a vector of explanatory variables (see below), the subscripts i and t represent respectively the countries and the years of the panel, u_i the error term for each country, ε_{it} a joint error term for countries and time periods, and α and β the parameters to be estimated. Given the nature of this dataset, the OLS procedure tends to yield inefficient and distorted estimates of the values of α and β (Baltagi 2006). The estimation procedure best suited to situations in which u_i varies from country to country is the fixed effects (FE) model in which u_i is not treated as a random variable. This means that the estimation with the fixed effects model includes, for each of the 18 countries considered, an intercept which captures specific country effects due to geography, institutions and unobservables. One may argue, however, that given the large number of regressors used in the model, the country error term u_i may tend to become random, as many of the specific country effects are introduced explicitly as regressors. For this reason, 'random effects' (RE) estimates are also presented in Table 13. The FE and RE parameters are very similar, and only in one case the sign of one (non significant) parameter changes when moving from the FE to RE.

The results of the regression analysis (Table 13) show that that the sign of the estimated parameters coincides mostly with those expected *ex-ante* on the basis of the received theory. Only in three cases (migrant remittances, Q5/Q1 pensions, Gini-education) the parameters are non significant, a possibility foreseen also on theoretical ground for the first two. This does not exclude however the possibility of reverse causation[13]. As for the other parameters, the RE estimates suggest that the

[13] Reverse causation is tested by means of the Granger test. However, such test is not suitable for the ADLI dataset in which each variable has, at most, 18 and generally fewer observations due to missing data. It is therefore more appropriate to deal with this problem from a theoretical standpoint. In this regard, it must be noted that reverse causality makes no sense in the majority of the relations in Table 13. For instance, it is not plausible that changes in domestic inequality affect the real exchange rate, or can affect lagged, exogenous or policy variables (such as Gini income 1990, migrant remittances, terms of trade, ratio of direct/indirect taxes, ratio of pension coverage Q1/Q5, and minimum wage). Also, a fall/increase in Gini income may affect the Gini of years of education only after a considerable lag. It is also implausible that a decline in inequality will affect the expenditure on social insurance/GDP, which depends on the coverage of formal employment as far as pensions are concerned, and on tax revenue and public expenditure allocation for conditional cash transfers. The only relation in which reverse causation may be plausible is that between the Gini inequality and the growth rate of GDP/c. In this case, however, this relation would be characterized by time lags, thus excluding the possibility of reverse causation on synchronous data. Furthermore, the literature on the impact of higher

initial inequality has a strong inertial effect on the current level of inequality, as Gini 1990 explains on average 67 percent of the current value of income inequality (in the FE approach, such variable is absorbed in the country-specific constant term). Second, the growth of GDP/c has – as expected – a negative and moderately significant effect on income inequality, suggesting that the cumulative expansion of GDP/c over 2002-7 (i.e. 5 percent a year for five consecutive years) reduced the average Gini of the region by around 1.2 Gini points. Third, contrary to expectations, the Gini-education is non-significant, possibly meaning that an improvement in the distribution of human capital is a necessary but not sufficient condition for reducing skill premium and wage inequality (yet, this point requires further investigation). Fourth, the international terms of trade reduce income inequality in a statistically significant way but only to a limited extent (for instance, the 33 and 52 points terms of trade rise observed in Latin and South America between the 1990s and 2007, reduced the Gini-income by 0.63 and 1.02 points). The parameter of migrant remittances is, instead, non significantly different from zero, as contemplated by the literature. Fifth, the real exchange rate (tested here in a quadratic form) reduces inequality, though a very large devaluation would generate, plausibly enough, the opposite effect. Sixth, the social sector policy variables generate in regression analysis the expected results: the minimum wage reduces significantly (if very modestly) income inequality and so does an increase in direct taxation relative to indirect taxation, and an

Table 13. Regression results (dependent variable: Gini coefficient of distribution of gross income/c) 18 Latin American countries, 1990-2007

Variable (sign expected ex-ante on the basis of theory)		*Random Effects(RE)*	*Fixed Effects (FE)*
Gini income 1990	(+)	0.6711***	0
Growth rate of GDP/ per capita	(-)	-0.0642*	-0.0591 *^
Gini distribution of years of education (-1)	(+)	-0.0821	- 0.0682
International terms of trade, fob	(+,-)	-0.0193**	-0.0218**
Migrant remittances/GDP	(+, -)	-0.0424	0.0855
REER	(-)	-0.1200***	-0.1299***
$REER^2$	(+)	0.0005***	0.0005***
Minimum wage index	(-)	-0.0004***	-0.0004**
Direct Tax / Indirect Tax	(-)	-1.3497***	-1.2248***
Public expenditure in social security/GDP	(=,-)	-0.2774***	-0.3110*^^
Q5/Q1 Pensions	(+)	0.0020	-0.0013
No-left	(+)	1.2088	1.1554
Constant	(+)	35.0001***	68.9253***
Observations		175	175
R-squared		.....	0.21

Source: author's calculations, Notes: *** significant at 1%; ** significant at 5%; * significant at 10%; *^ significant at 10-15%; *^^ significant at 20-25%;

inequality on GDP/c growth is not unanimous. Neokeynesian and neoclassical models postulate a positive relation between these two variables, while 'political economy' and 'incentives' models assume a negative one. On the whole, reverse causality does not seem very plausible. However, the parameters in Table 13 may be distorted by the possible endogeneity of some explanatory variables. Solving formally this problem by means of a simultaneous equations system is however a difficult task in a panel with 18 countries.

increase in public expenditure on social security/GDP, though the FE estimate is weakly significant. Next – in contrast against to *ex-ante* expectations - the ratio of pension coverage of the top to the bottom quintile is non significant, most likely because this variable shows very little variation over time in many countries, with the exception of the last two years. Finally, the dummy variable 'No left' is weakly significant but suggest that countries run by centre-right and centrist governments tend to have, on average, Gini coefficients higher by 1.2 points than LOC governments, on top of the effects mediated by the policy variables that re more commonly adopted by LOC regimes.

On the whole, it appear that improvements in terms of trade and the related recovery of the business cycle, together with the introduction of pro-poor macroeconomic, labor and social policies contributed to reduce income inequality. This was not the case, however, for the improvement in Gini education. These results seem broadly to confirm the theoretical considerations presented in Part 3 about the possible sources of the inequality decline that has taken place in Latin America in the 2000s. These results contradict the conclusions reached by Perez Caldentey and Vernengo (2008) according to which the recent growth acceleration and fall in inequality have nothing to do with the policy changes introduced by LOC and some conservative governments in the economic and social sphere. For sure, favorable changes in the external environment plaid a major role in accelerating growth and, as shown by the result in Table 13, reducing inequality. It is also true, as argued by these authors, that the recent developments have not reduced the long term dependence of the region on the export of primary sector. But, as this paper has indicated, changes in public policy adopted during the 2000s explain part of the improvements.

5. Tentative conclusions: is 'prudent redistribution with growth' reducing income inequality in Latin America? Will the current crisis undo it?

The spread of democracy and dissatisfaction with Washington Consensus policies have lead to the elections of LOC governments which introduced – thanks also to favorable external conditions – economic reforms broadly inspired by a 'prudent redistribution with growth' committed to reducing the 'social debt' inherited from the past and exacerbated by the liberal policies of the 1980s and 1990s. With few exceptions, the new policy model did not introduce a radical redistribution. Rather, it has emphasized orthodox objectives such as macro-stability, fiscal prudence, and the preservation of free trade and capital flows. Yet, in a clear departure from the 1990s, LOC governments opted for managed exchange rates, a neutral or countercyclical fiscal policy, reduced dependence on foreign capital, rapid accumulation of reserves, and an active role of the state in the field of labor and social policies.

As in the European social democracies, LOC and moderate centre-right governments raised the tax/GDP ratio (a trend facilitated but not fully explained, neither in its timing nor in its extent, by the recent gains in terms of trade gains) as well as public spending on education, conditional cash transfers, and other forms of social assistance. There is micro evidence that higher public and private spending reduced inequality in education and improved the distribution of human capital among the workforce, though the impact of these measures is not evident at the aggregate level (Table 13). Redistribution was also pursued via macro policies favoring the labor-intensive traded sector and changes in labor market policies and institutions. Also in this case, the changes introduced were far from radical, and yet they helped raising increasing labor participation, increasing the proportion of workers covered by formal contracts, and reducing unemployment.

Beyond the problems posed by the current financial crisis (discussed below), Latin American governments still face formidable hurdles in deepening these reforms. First, the trend towards rising taxation and social expenditure needs to continue in part of the region with the objective of building a lean welfare state that avoids the high costs of the European model but offers universal coverage. Second, while the funding of the reforms has come mainly from gains in

terms of trade, the fiscal revenue needed to sustain future social expenditure will have to come from a diversification of the economy into new labor- and skilled-intensive sectors. Third, an intensification of the new policy model by LOC governments in the region faces considerable political economic opposition, as shown by the case of Bolivia and Argentina, where interest groups have nearly stalled even moderate attempts at redistribution. Meanwhile, the financial crisis may dig a gap between the responses expected from LOC governments and what they can actually do under the recessionary conditions expected in 2009 and part of 2010. In this regard, it is important to note that the region will undergo nine national elections in 2009 and 24 between 2009 and 2010 (UNDP 2009). An unchecked deterioration of living conditions might lead to a collective perception that the crisis is due to inadequate policy responses. Failure to stay – if in part - the recent policy course may cause a credibility gap, undermine support for LOC governments, and push the region towards its traditional path of unequal development or towards more radical solutions, possibly overturning in this way the inequality gains of the recent past.

In this regard, the parameters in Table 13 suggest that income inequality is likely to have stagnated in 2008 and to have risen in 2009 due to a deterioration in the model's explanatory variables such as the terms of trade, migrant remittances, and growth of GDP/c. Adverse changes in other variable not included in the model – such a drop in capital inflows, rising interest spreads on international loans, and rises in capital flights – may also affect negatively income inequality. These recessionary pressures are very likely to cause a decline in tax revenue, a phenomenon that may be aggravated by the tax cuts introduced as relief measures as part of the policy response to the crisis. The ability to redistribute via the budget would thus be eroded, unless a countercyclical fiscal policy is adopted.

On the positive side, it must be noted that the current crisis hits a region in better conditions than those prevailing on occasion of the crises of 1982-4 and 1998-2002. To start with, the crisis is mainly a real economy crisis, and less a domestic financial crisis, as observed in the US and parts of Europe, or as experienced in the region during the 1980s and 1990s. This means that fewer funds are needed than in the past to recapitalize ailing banks. Second, many countries of the region are in a position to adopt countercyclical fiscal policies that ought to permit substantial deficits for a couple of years, thanks to the decline of the public debt/GDP ratio, large accumulation of currency reserves, and decline in inflation achieved in the first part of the decade (see Part 3). Central Banks can also carry out a more flexible monetary policy without endangering their inflation targets, with few exceptions. In turn, the devaluation of the exchange rate is likely to raise the REER (correcting in this way its recent appreciation in some countries, as in the case of Brazil) with a possible favorable impact on inequality. Third, the impact of the recession via the international trade will not affect all countries equally hard. Mexico, Central America and other nations strongly integrated with North America and Europe are likely to suffer an important trade shock, but the Andean and Southern Cone nations which are mainly integrated trade-wise with East Asia are likely to be less affected due to the milder recession experienced by this region. Fourth, most countries have introduced in the recent years important public works and cash transfer programs (Table 10). At the moment 85 million Latin-Americans receive a subsidy under some kind of CCT schemes (UNDP 2009). This prior institutional development ought to facilitate the expansion of safety nets during the crisis and preserve in this way some of the recent inequality decline, though not all countries may have the capacity to do so in a timely manner. Finally, the inequality trend over 2009-2010 will depend on the ability of governments to sustain the measures introduced during the recent past in the field of direct taxation, social expenditure, labor market policies and a gradual drive towards an integrated, universal social protection system, and away from the traditional highly segmented and informalized systems. As noted, a feasible countercyclical fiscal policy should permit to sustain some of these efforts in the years ahead and to preserve part of the inequality gains achieved during the recent past.

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