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## A new fiscal pact, tax policy changes and income inequality: Latin America during the last decade

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Working Paper No. 2011/70

## **A New Fiscal Pact, Tax Policy Changes and Income Inequality**

Latin America during the last decade

Giovanni Andrea Cornia,<sup>1</sup> Juan Carlos  
Gómez-Sabaini<sup>2</sup> and Bruno Martorano<sup>3</sup>

November 2011

### **Abstract**

The paper analyses the changes in tax policy, tax/GDP ratios, tax incidence and income inequality which have taken place in Latin America during the last decade against the background of the changes observed in these variables during the liberal years of the 1980s and 1990s. The paper argues that the recent tax policy changes and a favourable external environment led to an increase of about three points in the regional tax/GDP ratio, that such increase in taxation took place in a slightly or substantially more progressive way than in the past, that the Gini coefficient of the distribution of household income improved on average by 0.4-0.8 points, and that, as a result, redistribution via taxation improved (especially in the Southern Cone) in relation to the 1990s thanks to greater reliance on direct taxes and a reduction in excises. However, in the mid-late 2000s taxation remains unequalizing in about a third of the countries of the region, especially in Central America. The paper concludes by offering recommendations on how the new fiscal pact evolving in the region can be strengthened to improve the redistributive effect of taxation in the years ahead.

**Keywords:** tax policy, tax incidence, income inequality, redistribution, fiscal exchange, Latin America

**JEL classification:** D31, D70, H20

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## **1 Introduction**

During the last decade the Latin America policy makers and society have become increasingly aware of the problems caused by high social stratification, a situation in which a small elite owning most national assets coexists side by side with large sections of the population living below or at subsistence level. Much of this inequality is due to a skewed distribution of assets and opportunities which has distant colonial origins, and the reform of which has been hampered by the staunch resistance of traditional elites and new interest groups. However, the return to and consolidation of democracy during the 1990s and 2000s has encouraged several governments to correct some of these distributive problems by promoting, for instance, moderate fiscal reforms which are less controversial than more radical measures such as land reform and asset redistribution. As in the Western democracies, fiscal policy has thus become a policy instrument of choice. While important tax reforms were introduced also in the 1990s, these flatly ignored the issue of tax progressivity and redistribution. In contrast, a key element of the reforms recently introduced in several countries of the region is precisely the new emphasis placed on progressivity in tax design. This is an often ignored aspect of the decline of income inequality observed in the region during the last decade. Indeed, most analyses of the impact of the recent fiscal policy changes have focused on the distributive impact of social expenditure and income transfers. This paper aims at complementing these analyses by examining the distributive impact of recent changes in taxation. It does so by describing the recent tax policy changes against the background of those implemented during the 1980s and 1990s, by discussing their likely impact on growth and inequality, and by suggesting additional reforms which could be introduced in the main groups of countries in the region.

## **2 Evolution of tax theory and policies, 1960-2000**

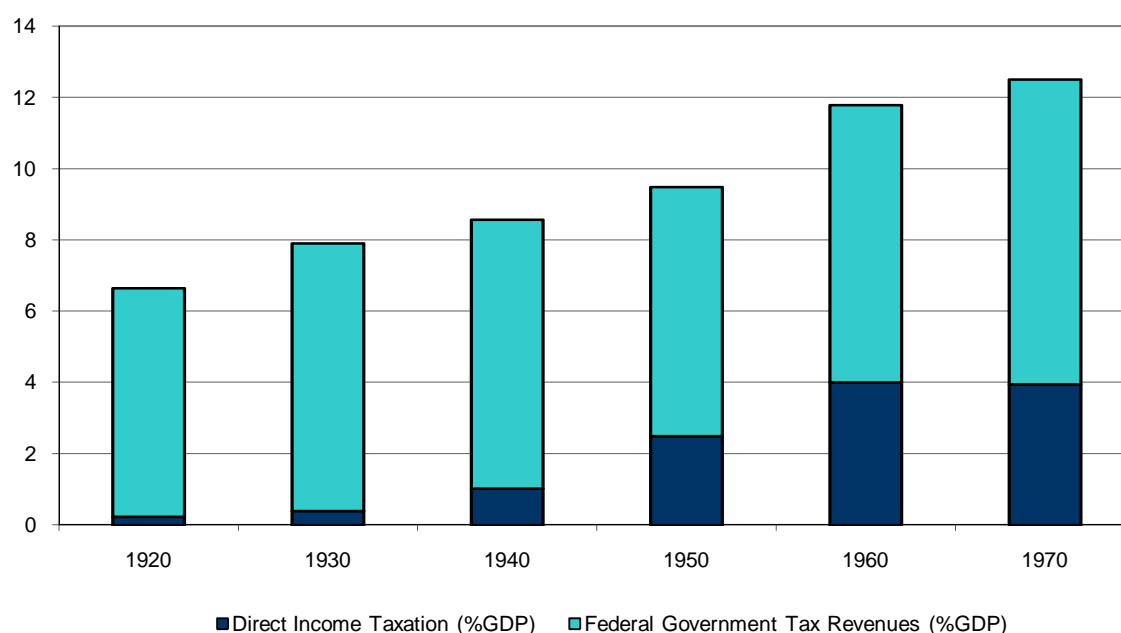
### **2.1 Approaches to taxation in the 1960s and 1970s**

In the early post-Second World War period, standard public economics (Atkinson 1991) assigned to taxation two main roles, i.e. financing public goods (infrastructure, human capital, law and order) and correcting a socially unacceptable distribution of market income via a progressive income tax and public transfers in cash and kind. In addition, as noted by Kaldor (1962: 2): 'taxation ... provides the most appropriate instruments for increasing savings for capital formation out of domestic sources'.

According to this developmentalist view, tax policy aimed at promoting simultaneously growth and equity through the introduction of high '... progressive personal income tax (sometimes with marginal rates ranging up to 60 or 70 per cent) buttressed by a substantial corporate income tax (often at 50 per cent or so)' (Bird 2003: 11). This approach presupposed that taxes had a minor impact on investment decisions. Kaldor (1963: 415), for instance, argued that 'The reason for this is that for a successful businessman or corporation (in developed or undeveloped countries alike) the requirements of business expansion take precedence over the desire for higher consumption; the money that the owners take out of a business is generally no more than what is left after the business's own needs are satisfied'.

This redistributive view of taxation and public expenditure applied also to the developing countries. However, the application of these principles therein faced considerable problems due to the predominantly rural and informal structure of their economies, their high level of income inequality (which required steep marginal tax rates to achieve a reasonable degree of equity), poor governance, weak tax administration, and resistance of the élites. Despite these problems, also in Latin America there was a gradual shift in the direction suggested by classical taxation theory. While at the beginning of the twentieth century, tax systems in the region were dominated by tariffs and commodity taxation, the drop in revenue caused by the fall in demand for primary commodities during the Great Depression, the high levels of wealth and income concentration, and the adoption of an import substitution industrialization strategy which entailed a broad involvement of the state in the economy led many policy makers in the region to introduce reforms to increase tax/GDP ratios, including through greater reliance on direct taxes (Figure 1).

Figure 1: Average regional\* Federal Government tax revenue and direct income taxation (% GDP), between 1920 and 1970



Note: \* unweighted average of data for Argentina, Brazil, Colombia, Mexico, Peru, Uruguay and Venezuela.

Source: Authors' elaboration on OxLAD data, Azar and Bertoni (2007); Sokoloff and Zolt (2006).

However, in only a few cases did this policy turn out to be effective (Kaldor 1963). While there were improvements in vertical equity, horizontal equity was undermined by the presence of many exemptions, incentives and special fiscal regimes granted to specific industries and firm types. As reported by Bird and Oldman (1968: 8) the 'larger part of the income tax is paid by companies, often largely foreign extractive enterprises, so that its importance reflects more the fortunes of world markets than successful domestic tax reform efforts'. In addition, hardly any progress was realized in the field of property taxation, as a high wealth concentration and strong ties to the political system allowed the elites to resist the levying of property and wealth taxes (Breceda et al. 2008; Sokoloff and Zolt 2006). The limited success of these reforms frequently pushed the policy makers to introduce 'second best' indirect and *ad hoc* taxes which contributed to the complexity of the tax system. As a result, for instance, in the 1960s Costa Rica and Bolivia had respectively more than 300 and 400 taxes (Tanzi 2000).

## **2.2 Taxation in Latin America during the neoliberal decades of the 1980s and 1990s**

Since the early 1980s, many developed and developing countries experienced a ‘fiscal policy revolution’ in which ‘redistribution became a secondary goal of tax design’ (Mahon 2009: 4). The new objectives of tax policy became economic efficiency (and by implication the reduction of the efficiency costs of direct taxes), horizontal equity and revenue adequacy. To reach these goals, countries had to widen their tax base, rationalize the tax structure and simplify tax administration. In this context, the World Bank, IMF, and Inter-American Development Bank played a central role in defining the guidelines of the new tax systems. ‘The World Bank started to incorporate tax policy and administration in its menu of fiscal adjustment advice. IMF technical assistance on taxation became more closely linked with its numerous adjustment and lending programmes, and it placed greater emphasis on tax administration and implementation. The Inter-American Development Bank also increased its financing of tax reform projects’ (Goode 1993, quoted in Lledo et al. 2004: 21). Overall, the design of tax policy was influenced by the belief that ‘It may be more appropriate to reduce the size of government, as indeed is the explicit objective of an increasing number of developing countries, than to increase the level of taxation significantly above historical levels’ (World Bank 1991: 18).

This approach was justified by four arguments. First of all, the growing emphasis placed on ‘government failures’, including in providing public services, on the fact that ‘the market knows best’ what services are demanded by citizens willing to pay for their provision, and on the residual role to which the state had been relegated following the creeping privatization of health, education, pensions and public infrastructure. This approach entailed a lesser need for revenue.

Second, the lower need for revenue was consistent with the objective of reducing ‘the efficiency costs of taxation’. The basic idea was that taxation distorts the agents’ allocative decisions. As noted by the World Bank (1991: 22) ‘When firms and households are influenced by the goal of reducing their tax payments, they make decisions based more on their tax implications than on their inherent economic virtues’. Hence, the tax system ‘should not interfere with incentives to channel resources into their most productive economic uses, and not create incentives for investments designed merely to avoid taxes’ (Walsh 1986: 1).

Third, ‘most analysts and policy makers had come to believe that high tax rates not only discouraged economic activity but were ineffective in redistributing income and wealth’ (Bird and Zolt 2005: 8). More emphasis was thus placed on horizontal rather than vertical equity. As noted by Thirsk (1991: iii), ‘[the governments] recognize that accepting a state of crude justice in taxation and avoiding fine-tuning is better than seeking some unattainable goal of perfect justice’. While high tax rates on income became less popular, it was emphasized that moderate redistribution was to be achieved through targeted income transfers. Finally, tax reform had to be administratively and politically feasible. Developing countries presented a limited tax administration capacity because of poor information systems, corruption, and political pressure (World Bank 1991). Thus, while tax administration had to be strengthened, tax structure had to be related to a country’s administrative capacity. Simplifying the tax system and strengthening tax administration thus became important goals in the tax design (World Bank 1991).

### *Specific measures of the neoliberal tax reform and their impact on tax collection*

**Trade and indirect taxation.** Trade taxes (as well as any other type of trade protection) were seen as a cause of inefficiency in domestic production and the international allocation of resources, and thus had to be replaced by VAT and other consumption taxes.<sup>1</sup> As a result of the new approach, ‘The average tariff on imports in South American countries dropped from 55 per cent in 1985 to approximately 10 per cent in 2000, and in the group of Central American countries and Mexico the fall was even steeper, from 66 to 6 six per cent’ (Lora 2007: 3).

To offset the loss of revenue from trade taxes, countries increasingly relied on domestic consumption taxes. Assuring relatively small efficiency losses, a VAT with tax rates ranging between 10 to 20 per cent (and a zero rate for exports) was considered a reliable source of revenue with short collection lags. Nonetheless, considering the regressive nature of the VAT, it was accepted to exempt from VAT products that accounted for a large part of the poor’s spending. In addition, selective excises were also to be reformed, and had to be preferably levied on goods which generate negative externalities (e.g. tobacco and alcohol) or luxury goods. The majority of countries introduced a uniform VAT rate, while Brazil, Colombia, Honduras, Mexico, Nicaragua and Uruguay introduced multiple rates (Carciofi and Cetrangolo 1994). ‘Typically, food and essentials are taxed at low rates or at a zero rate; normal goods are taxed at an intermediate ‘general’ rate; and luxuries are taxed at a higher rate’ (Shome 1992: 13). From an initial level of 11.3 per cent, the average VAT rate for the region rose to 14.4 per cent in 2000 (Table 1).

Table 1: Latin American countries: VAT rates in the 1980s, 1992, 2000 and 2010

	Year of introduction	Initial rate	1992	2000	2010
Argentina	1975	16.0	18.0	21.0	21.0
Bolivia	1973	10.0	14.9	14.9	13.0
Brazil	1967	15.0	20.5	20.5	20.0
Chile	1975	20.0	18.0	18.0	19.0
Colombia	1975	10.0	12.0	15.0	16.0
Costa Rica	1975	10.0	8.0	13.0	13.0
Dominican Republic	1983	6.0	6.0	8.0	16.0
Ecuador	1970	10.0	10.0	12.0	12.0
El Salvador	1992	...	10.0	13.0	13.0
Guatemala	1983	7.0	7.0	10.0	12.0
Honduras	1976	3.0	7.0	12.0	12.0
Mexico	1980	10.0	10.0	15.0	15.0
Nicaragua	1975	6.0	10.0	15.0	15.0
Panama	1977	5.0	5.0	5.0	5.0
Paraguay	1993	...	10.0	10.0	10.0
Peru	1976	20.0	18.0	18.0	19.0
Uruguay	1987	21.0	22.0	23.0	22.0
Venezuela	1993	...	10.0	15.5	12.0
Average		11.3	12.0	14.4	14.7

Source: CEPALSTAT and Shome (1992).

**Direct taxation.** The reforms of the 1980s and 1990s introduced also a major simplification of the personal income tax (PIT). The supply-side economists claimed that tax rates were beyond the optimal level, and affected microeconomic incentives, labour

<sup>1</sup> Some temporary exceptions were made for import taxes so as to provide revenue in difficult times or protect domestic infant/restructuring industries (Stotsky 1995).

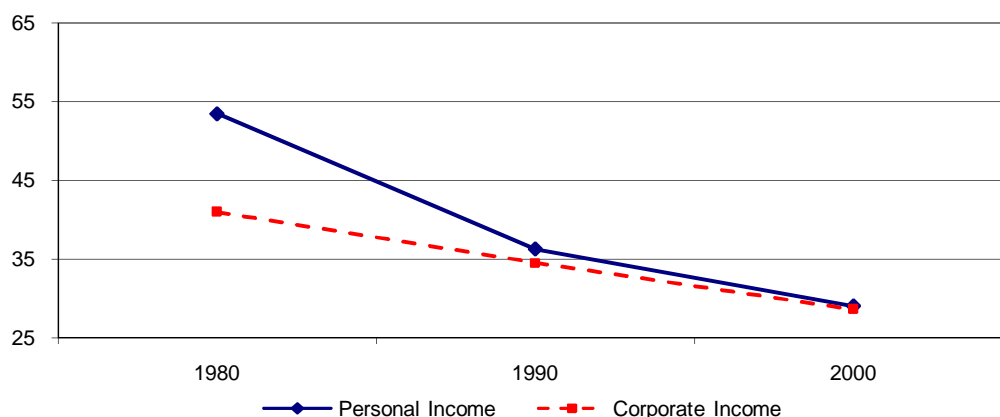
supply and investments. In addition, in an increasingly open economy, high corporate tax rates were seen as a possible cause of capital flights and discouragement of FDI, while lowering direct tax rates could have simplified revenue collection and reduced incentives to evade taxes. The marginal rates of the personal and corporate income tax had thus to be reduced substantially. While the World Bank recommended to reduce the number of rates and the top marginal rate between 30 and 50 per cent, the IMF suggested three or fewer brackets and a top marginal rate lower than 40 (World Bank 1991; Stotsky 1995). In addition, ‘the increasing integration of the world’s capital markets and the dismantling of capital controls in most countries exerted considerable pressure to reduce or eliminate their taxes on interest income’ (Thirsk 1991: 40). The revenue losses entailed by these measures were to be compensated by limiting deductions, exemptions and tax allowances (Stotsky 1995). As suggested by Tanzi (1990: 18): ‘A broad “guideline” has been that personal exemptions should normally not exceed the per capita income of the country and top rates should begin to apply at, say, about ten times the per capita income’. Broadening the tax base was possible by subjecting more types of income to taxation, using more presumptive taxation, withholding at the source and other measures. ‘As a result, whatever loss of vertical equity may have occurred as a result of these developments, there may be offsetting gains in administrative simplicity and the attainment of greater horizontal equity’ (Thirsk 1991: 22). As the exemptions generally concerned corporations and middle and high income households, their reduction was expected to have a favourable distributive effect. Finally, the international organizations suggested ‘to make the tax system neutral to inflation by indexing tax brackets, credits, standard deductions, and other nominal amounts to inflation’ (Stotsky 1995: 281).

As a result, PIT rates were lowered and their number reduced. Between 1980 and 2000 the average top marginal rate dropped from 50 to 29 per cent (Figure 2). In extreme cases—as in the 1974 tax reforms of Uruguay (1974) and Paraguay (1992)—the PIT was eliminated, while Bolivia and Colombia adopted a flat rate of 10 and 35 per cent respectively. To promote horizontal equity, several countries abolished personal exemptions, deductions and income splitting for married couples (Bird 1992). Taxation of the net income of corporations was also simplified, favouring at the same time the convergence of the corporate tax rate with the top personal rate (Figure 2). The reduction in top rates was significant but less dramatic than that of PIT as it fell from 41 to 29 per cent.

All in all, the tax reforms of the 1980s and 1990s focused mainly on shifting from vertical equity to horizontal equity, widening the tax base, tax simplification and reduction of personal income tax rates. As a consequence, the tax structure started changing in the early 1980s—while the share of revenue generated by excises remained stable, that of general consumption taxes increased sharply, that on international trade and individual income taxes decreased, while that from corporate income tax remained constant (Table 2).



Figure 2: Latin America: average top marginal tax rates on personal and corporate income, between 1980 and 2000



Source: CEPALSTAT; Economic Freedom of the World 2009 Annual Report and Shome (1992).

Table 2: Evolution of the average tax structure for Latin America (% of total tax revenue), 1975- 2002)

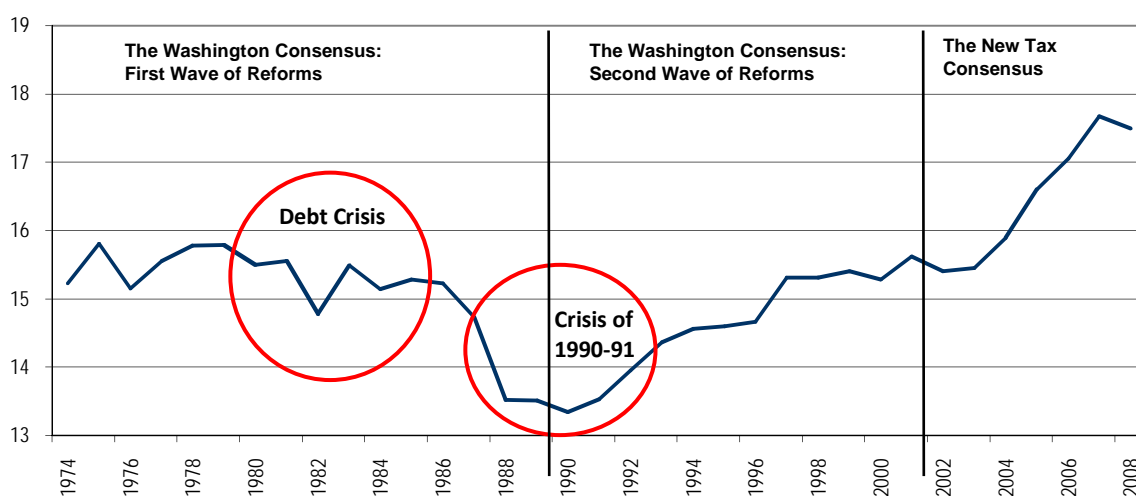
	Income tax		Domestic goods and services		International trade
	Individual	Corporate	General consumption	Excises	
1975-80	10	18	16	14	23
1986-92	10	18	17	13	21
1996-2002	7	19	36	14	14

Source: Bird and Zolt (2005).

### *Trends in tax/GDP ratios, redistribution, and macro stability*

During the late 1980s, tax revenues declined because of the impact of the reforms, slow growth and the erosion of the tax base by inflation (Figure 3). Such a trend continued in the 1990s, and only by 2000 the tax/GDP ratio recovered the level of the early 1980s. Obviously, there were different trends in the region, and Bird (2003) shows that countries with a tax/GDP ratio above the regional mean in the early 1980s were those which exhibited the highest level of taxation also at the end of 1990s.

Figure 3: Trend in tax/GDP ratio in Latin America, 1973 to 2009



Source: IMF data and CEPALSTAT.

The decline in tax/GDP ratio of the 1980s and 1990s conditioned the overall development of the region. With rising debt servicing obligations and a fall in tax/GDP ratios, the deficit reduction in several countries was achieved by means of cuts in public expenditure on investments and human capital. However, despite the immediate improvements in fiscal balance, the decline in public investment in infrastructure had an adverse impact on growth and the long-term budget deficits. As argued by Perry et al. (2008), this approach led to a vicious circle in which low growth, low revenues and fiscal cuts generated an illusory fiscal adjustment.

The tax reforms of the 1980s and 1990s had also important implications for income distribution. Regression analysis of changes in income inequality in Latin America shows that a fall in the ratio of direct to indirect taxes raised in a significant way the Gini coefficient of the distribution of disposable income (Cornia 2010). Morley (2000) comes to similar conclusions noting that the tax changes of the 1990s shifted the burden of taxation away from the wealthy to the middle and lower classes. Similar findings were obtained by Chu et al. (2004) on a panel of developing countries for the years 1980s and 1990s. In particular, these authors show that the decline in tax/GDP and reduced contribution of direct taxes led to a fall in tax progressiveness, which correlated with the inequality rise observed over the 1980s and 1990s.

Finally, the reduction in overall revenue/GDP ratios due to the above tax changes, the priority given to debt servicing, the partial privatization of pensions and health, and the decentralization of their provision undermined the financing of public welfare (ECLAC 2010). As a result, during the 1980s, 'public spending on health, education, social security, and housing fell in absolute terms in 10 of 14 Latin American countries and in 8 of 14 as a share of GDP' (McGuire 2010: 5), while social spending became regressive in 10 of 12 countries (ECLAC 2007).

### **3 The tax changes of the last decade**

Important changes occurred in this area during the last 15 years, in particular since the early 2000s, and as a result the regional tax/GDP ratio rose by three GDP points between 2000 and 2009 (Figure 3).

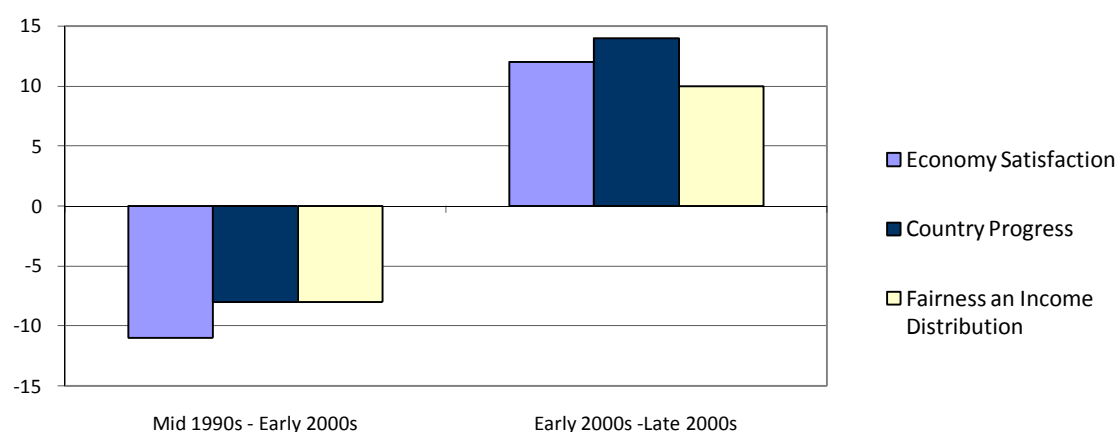
#### **3.1 Contextual factors**

Several policy and non-policy factors explain the shift in tax regimes and increase in tax/GDP ratios observed in the region since the early 2000s. The first and probably foremost factor is the failure of the overall neoliberal reform package to deliver an adequate growth of GDP and a modicum of improvement in income inequality. In particular, the reduction of PIT and CIT tax rates of the 1980s and 1990s failed to improve microeconomic incentives and stimulate growth. Likewise, the reduction in tariffs generated a loss of revenue but did not lead to reallocation of production factors to new sectors. While jobs in the formerly protected sectors were lost, only few workplaces were created in the emerging tradable sector, as the comparative advantage of the region in labour intensive manufacturing was quickly eroded by the entry into the world market of low-cost Asian producers of manufactures (Koujianou-Goldberg and Pavcnik 2007). In addition, the revenue decline experienced during the neoliberal era entailed large cuts in public investments and led, as noted, to a vicious circle of low growth, low revenues and new fiscal deficit which implied a weakening of public sector solvency.

A second factor contributing to the shift in tax policy is the evidence of the latest wave of endogenous growth models (Rebelo 1991; Mendoza et al. 1997) and the related empirical evidence which emphasize the importance for GDP growth of human capital expenditure and investment in infrastructure. Contrary to the traditional view, the latter were found to ‘crowd in’ private investments and raise the growth rate of GDP. An empirical study (Calderón and Sérvén 2004a, quoted in Fay and Morrison 2005) found for instance that in Argentina, a country which suffered during the 1990s huge cuts in public investments, improving infrastructure to the level of the regional leader (Costa Rica) would result, *ceteris paribus*, in an increase of the GDP growth rate of 1.7 points a year, while improving it to the level of the median East Asian country would raise it by three percentage points.

A third factor was the growing call for equity in the aftermath of the steep increase in inequality which took place during the 1980s and 1990s, including because of the failure to promote redistribution via taxation and social transfers. Despite a return to democracy during the 1990s, the elites were able to maintain the status quo ‘... at all levels of government thanks to their traditional practices of clientelism, personalism and patronage’ (Panizza 2000: 747). Thus, contrary to the predictions of the median voter theorem, the mere return to democracy failed to generate sufficient pressure in favour of progressive taxation. However, as indicated by successive waves of the Latinobarómetro, the majority of the population had grown deeply disappointed with the slow growth, rising inequality and social cuts recorded during the 1980s and 1990s by elite-dominated regimes (Figure 4). Such disappointment concerned also much of the middle and lower-middle class which had traditionally supported moderately conservative parties (Panizza 2005).

Figure 4: Latin America: variations in people’s perception of country economic performance, country progress and fairness in income distribution, during the late 1990s, early 2000s and late 2000s



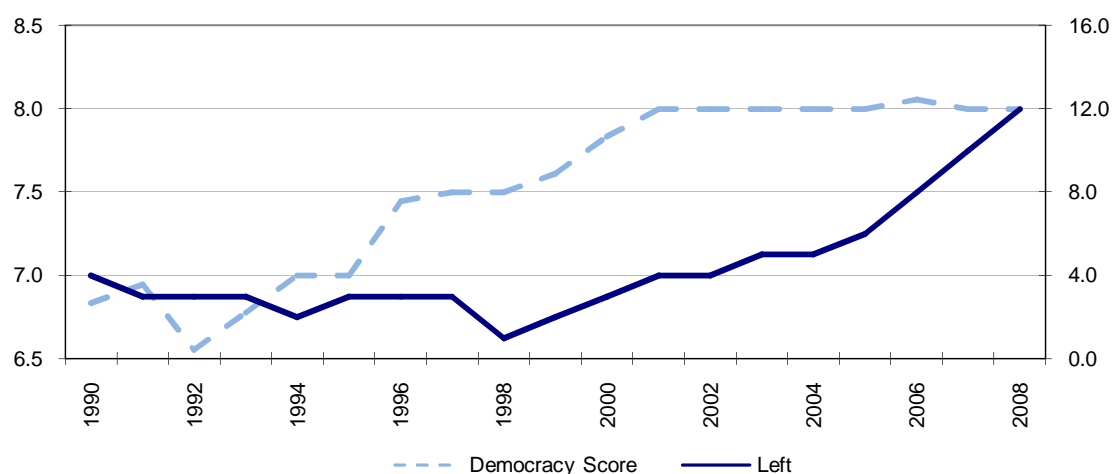
Note: Questions refer to the variation in the percentage of positive answers.

Source: Authors’ elaboration on Latinobarómetro (2010).

This call for equity acquired strength with the gradual consolidation of democracy (measured by the ‘democracy score’ of Polity2) and the parallel shift of political preferences toward left of centre parties (Figure 5) more sensitive to distributional issues, the beginning of which coincides according to some with the constitutional changes

introduced in Brazil in 1998. Given the prudent fiscal stance adopted by most of the new regimes, redistribution via the state budget required an increase in taxation, and in particular in income tax. The left-of-centre countries performed somewhat better in terms of raising additional revenue and tax progressivity but also some conservative ones recorded—with the exception of Mexico—a surge in tax/GDP ratios (Cornia and Martorano 2009).

Figure 5: Regional average 'democracy score' as measured by Polity2 (left scale) and trend in the number of left of centre governments in 18 Latin American countries (right scale), 1990-2008



Source: IDLA dataset.

A fourth factor which made higher taxation acceptable to many was the greater emphasis placed on 'fiscal exchange', by which governments can raise taxes if at the same time increase the quantity and quality of the social services provided (Fjeldstad et al. 2009). As noted by Bird (2003: 24–25): 'in a (Wicksellian) democratic framework in which expenditure and tax decisions are taken conjointly ... the existing tax structure, whatever it may be, must be assumed to be imposed in full knowledge of its consequences, reflecting the social judgment that the benefits of the actions financed more than compensate for all costs of taxation'. Thus, in the long term the legitimacy and ability to raise taxes is affected by the efficiency of government expenditure. In this respect, the reforms of the neoliberal era reduced the role of the state in the provision of public services, as the middle-class often opted for private alternatives causing in this way a reduction in the quality of public service and the satisfaction of their users (Huber 2009). In contrast, since the early 2000s, there has been an increase in social transfers and a broadening of the access to primary health care and secondary education (Huber 2009).

Finally, in a few countries, the rise in tax/GDP ratios was also explained by a number of contingent factors, such as higher commodity prices (see later), faster growth of GDP since 2003 (which modestly raised tax buoyancy),<sup>2</sup> (Table 3), and labour policies favouring the re-formalization of the economy and so contributing to an expansion of the tax base.

<sup>2</sup> Tax buoyancy measures the percentage change in tax revenue due to a percentage change in GDP.

Table 3: Tax buoyancy in Latin America during the 1990s and 2000s

	1990-2001	2002-08
Argentina	1.18	1.32
Bolivia	1.56	1.30
Brazil	1.02	1.13
Chile	1.10	1.18
Colombia	1.20	1.33
Costa Rica	1.06	1.15
Dominican Rep.	1.30	1.19
Ecuador	1.02	1.18
El Salvador	1.14	1.34
Guatemala	1.20	0.97
Honduras	1.06	1.13
Mexico	0.97	0.60
Nicaragua	1.21	1.36
Panama	1.10	1.24
Paraguay	1.19	1.16
Peru	1.07	1.37
Uruguay	1.01	1.12
Venezuela	0.93	1.20
LAC	1.13	1.18

Source: Authors' elaboration on official data.

### 3.2 Administrative reforms

These reforms aimed at decreasing the cost of collection and tax evasion. Almost all countries implemented a functional rationalization of tax administration, while half of them adopted a Semi Autonomous Revenue Authority (SARA) (Table 4). On the one hand, these changes increased the simplification, uniformity and specialization in the administration of taxes. On the other hand, they assured a major accountability and independence from political pressures.

Moreover, several Latin American countries created large taxpayer units and presumptive system of taxation for small taxpayers which allowed to reduce transaction costs and increase tax compliance, and made wider use of standardized withholding (*ibid.*). Administrative improvements came also from the application of new technologies. By influencing the work and capacity of the public administration, they contributed to modernize operations, and reduce costs, corruption and evasion. For example, in Chile 'the simplification of the system was indeed accompanied by a noteworthy development in the computerization of the taxation process, which reached ... a higher degree than in OECD countries' (Cominetta 2007: 18). In this regard, to assure an optimal application of new technologies, countries introduced merit criteria for the official selections. For example, 'in Brazil, the strengthening of the meritocracy in the federal government raised the proportion of officials with university degrees from 39 to 63 per cent between 1995 and 2001. In Costa Rica about half the jobs in central government are covered by merit-based selection thanks to the relative independence enjoyed by the agency that controls these processes' (Lora 2007: 17).

Table 4: Administrative structure of Latin American countries in 2008–09

Reform	Countries
Functional organization of tax administration	Argentina, Bolivia, Chile, Colombia, Costa Rica, Dom. Rep., Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Peru, Uruguay
Semi-autonomous revenue authority	Argentina, Bolivia, Colombia, Dom. Rep., Ecuador, Guatemala, Mexico, Peru
Large taxpayers unit	Argentina, Bolivia, Chile, Colombia, Costa Rica, Dom. Rep., Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Peru, Uruguay
Simplified or presumptive taxation for small taxpayers	Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dom. Rep., Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Peru, Uruguay
Customs*	Argentina, Brazil, Colombia, Guatemala, Peru, Venezuela

Notes: \* 'custom indicates that tax and customs administration operate as an integrated institution'. <http://www.fiscalreform.net>

Source: Authors' elaboration on 'The Collecting Taxes Data System, 2009/2010'. [http://www.fiscalreform.net/index.php?option=com\\_content&task=view&id=759&Itemid=134](http://www.fiscalreform.net/index.php?option=com_content&task=view&id=759&Itemid=134)

### 3.3 Changes in tax policy

As noted by Dominguez (1997), several Latin American policy makers thought that economic orthodoxy would not yield optimal solutions to national economic problems and opted for 'a competent state, in contrast to the vanishing state of some neoliberal prescriptions' (ibid.: 13). Within this broad framework, redistribution returned to be a primary goal of tax design.

The taxation of income and wealth underwent a number of changes. For instance, the 2007 Uruguayan tax reform introduced *ex-novo* a progressive PIT and a flat CIT. In Ecuador, the 2008 tax reform introduced a progressive income taxation, though its real effect remains in doubt. In turn, in 2008, the Mexican government introduced the IETU (*Impuesto Empresarial de Tasa Única*), a minimum tax which aims at strengthening the collection of CIT. Peru, in turn, modified in 2009 the income tax on physical persons, by shifting from a global and progressive tax schedule for all incomes to a dual system inspired by the Scandinavian model.

Furthermore, with the exception of Chile and Ecuador, in all countries the income per capita at which the highest direct marginal tax rate is applied was lowered substantially (Table 5, right panel). Most governments also eliminated or reduced a long list of exemptions, deductions and tax holidays which had been introduced in the 1980s and 1990s to attract foreign investments. Evaluations of the impact of these tax incentives showed that in most cases the benefits generated were minimal. These exemptions were thus reduced so that the revenue loss they entailed declined to 1.53 of GDP in 2009 (Table 5, left panel).

Table 5: Personal exemption level and upper income bracket as shares of GDP per capita in selected Latin American countries, 1985, 2001 and 2009

	Revenue loss due to income tax exemptions accorded to individuals and firms			Upper income tax rate (as a share of average GDP per capita)		
	1985	2001	2009	1985	2001	2009
Argentina	0.8	1.4	0.3	21.4	16.5	4.5
Brazil	0.3	1.5	1.1	10.1	3.1	2.2
Chile	0.2	0.1	1.3	2.8	1.2	14.1
Colombia	0.0	4.1	2.5	20.5	16.6	9.4
Costa Rica	1.2	0.8	0.5	1.4	3.7	2.3
Dominican Rep.	1.1	2.3	2.0	413.5	5.8	4.2
Ecuador	0.4	2.4	2.3	29.2	8.3	24.0
El Salvador	2.3	1.2	1.2	171.7	11.0	7.3
Guatemala	0.9	5.0	1.8	356	22.5	16.9
Honduras	0.0	3.6	2.2	600.4	36.0	16.0
Mexico	0.7	0.1	0.1	21.3	44.0	4.1
Nicaragua	1.7	7.7	2.9	56.9	61.2	28.8
Panama	0.3	0.9	1.5	89	57.8	5.1
LAC	0.76	2.39	1.53	138.01	22.13	10.70

Source: Authors' elaboration on Stotsky and WoldeMariam (2002) and on 'The Collecting Taxes Data System, 2009/2010'.

[http://www.fiscalreform.net/index.php?option=com\\_content&task=view&id=759&Itemid=134](http://www.fiscalreform.net/index.php?option=com_content&task=view&id=759&Itemid=134)

These measures concerned the formal economy, and much less so the informal and small scale sector which constitute an important part of the economy of Latin America. This prompted policy makers to introduce new forms of pragmatic taxation, marking in this way an important difference respect to the past (Gonzales 2009). The most evident example of this approach was the adoption of simplified and presumptive taxation (Table 6).

Table 6: Tax collection in simplified tax regimes (STR), selected Latin American countries

Country	STR	Tax collection (% of total tax income)	Taxpayer (% of total taxpayers)	Year
Brazil	Sistema Integrado de Pago de Impuestos y Contribuciones (SIMPLES)	6.3	67.6	2004
Uruguay	Impuesto a la Pequeña Empresa (IPE)	0.6	*	2007
Argentina	Régimen Simplificado para Pequeños Contribuyentes (Monotributo)	0.5	*	2010
Nicaragua	Régimen Especial de Estimación Administrativa	0.5	*	2008
Peru	Régimen Unico Simplificado (RUS) Régimen Especial del Impuesto a la Renta (RER)	0.2	15.2	2008
Paraguay	Tributo Unico	0.1	62.9	2007
Chile	Régimen Simplificado (RS) Régimen Tributario Simplificado (RTS)	0.1	9.0	2007
Bolivia	Régimen Agropecuario Unificado (RAU) Sistema Tributario Integrado (STI)	0.1	18.2	2007

Source: Arias (2009) and Administración Federal de Ingresos Públicos for Monotributo (Argentina).

Presumptive taxation is used in response to the inability of the tax administration to ascertain the assets and income of many potential taxpayers, it replaces several taxes, and is not levied on the income declared by the taxpayer but on an estimate of it made by tax authorities on the basis of indicators of gross turnover, gross assets, number of employees, electricity consumption and other parameters. The strengthening of presumptive taxation was accompanied by a simplification of the taxation of self-employed taxpayers (IDB 2006). For instance, since 1997 Brazil has adopted a presumptive system (*Simples*) which substituted the corporate income tax, the social contribution on net profits, the tax on industrial goods and social security payments (ibid.). Since 1998, the ‘*Monotributo*’ in Argentina integrated the social security payments, income tax, minimum tax on assets, and VAT (ibid.).

Several countries also introduced a ‘surrogate’ tax on financial transactions. For example, Brazil introduced in 1996 the *Contribución Provisoria sobre el Movimiento o Transmisión de Valores y Créditos de Naturaleza Financiera* (CPMF) with the aim of financing the public health system. Venezuela in 2002 introduced the *Impuesto al Débito Bancario* (IDB) to compensate the negative trend on oil revenue (Gonzales 2009). In turn, Mexico introduced the IDE (*Impuesto a los Depósitos en Efectivo*) which, by being deductible from the federal taxes, aims at reducing the informality of the economy, broaden the tax base and diminish the tax rates. Standard economic theory suggests that these taxes generate distortions and lead to financial disintermediation. Yet, they can be seen as an emergency tool introduced during difficult times due to raise revenue collection or as a ‘second best’ tool to tax financial assets and rents which would otherwise remain untaxed. In 2008, the revenue generated by financial taxes ranged between 1.20 and 7.15 per cent of total tax revenue, or between 0.28 and 1.89 per cent of GDP (Table 7).

Table 7: Financial transaction taxes revenue in selected Latin American countries around 2008

	In per cent of	
	GDP	Tax revenue
Argentina	1.89	7.15
Bolivia	0.28	1.2
Brazil	1.40	5.75
Colombia	0.67	5.01
Peru	0.31	1.95
Venezuela	0.91	6.74

Source: Coelho (2009).

No major changes were introduced instead in the VAT which had witnessed a major expansion during the 1980s and 1990s (Table 1 and Figure 9). However, several governments made a greater use of other indirect taxes so as to increase both revenue and the equity of their tax systems, as in the case of Ecuador’s ‘*Impuesto a los Consumos Especiales*’, a tax on luxury items introduced in 2008. No major changes were recorded also for trade taxes.



### 3.4 Rising commodity prices and their revenue impact

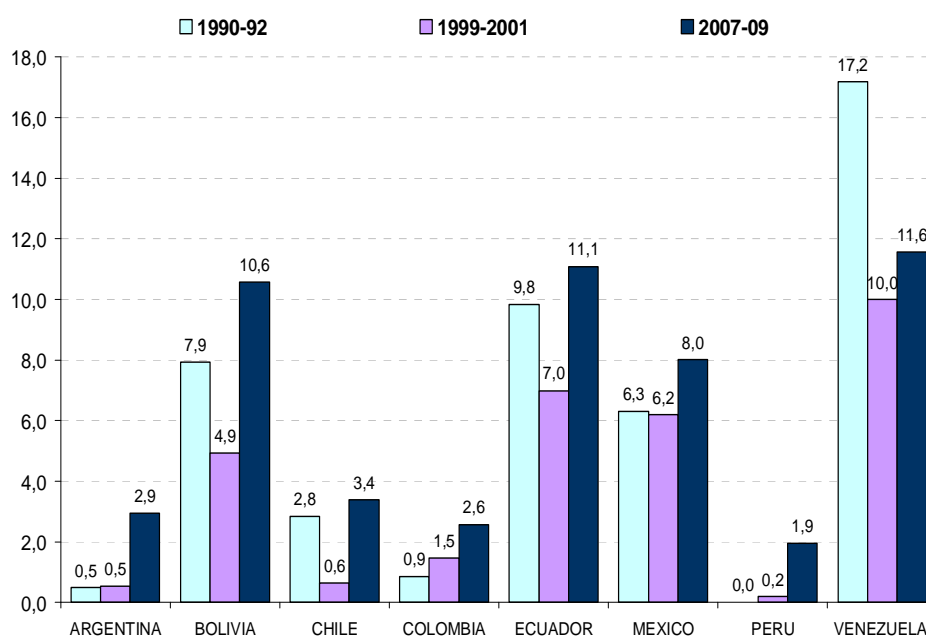
In eight of the 18 countries analysed in this paper public revenue rose also due to an increase in the fiscal resources (taxes and non-taxes) generated by a rise in international commodity prices and demand<sup>3</sup> (Figure 6). Moreover, the governments of Bolivia, Chile and Venezuela created new taxes to raise the revenue from non-renewable resources by taxing their commercialization. The largest revenue rise in relation to 1999-2001 (a period of very low commodity prices) was recorded in oil- and gas-rich Bolivia and Ecuador where these additional resources accounted respectively for a hefty 5.7 and 4.1 per cent of GDP, while in the remaining six the rise in relation to 1999-2001 ranged by between 1.1 (Colombia) and 2.8 (Chile) per cent of GDP. In turn, Argentina (an exporter of agricultural commodities) financed part of its increase in public spending with funds (2.5 per cent of GDP) generated by export duties on agricultural commodities.

The increase in fiscal revenue/GDP ratio due to the recent 'commodities bonanza' accounted respectively for 33 per cent of the total increase between 1999-2001 and 2007-9 in Argentina, 38 per cent in Colombia, 51 per cent in Peru, and the quasi totality of the increase in Bolivia and Ecuador (see also Jiménez and Gómez-Sabaini 2009). The tax and non-tax revenue originating from this sector were higher in relation to GDP in 2007-9 than in 1990-92 in all eight countries considered with the exception of Venezuela which, despite the recent decline (Figure 6), remains the country with the highest revenue originating from the commodity sector.

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<sup>3</sup> Several Latin American countries are endowed with sizeable natural resources, the exploitation of which produces additional tax and non-tax revenue which permits to expand public expenditure, or create stabilization funds (as in Chile). In many cases (as Mexico and Venezuela), a sustained flow of non-tax revenue from the natural resources sector has given rise to a sort of 'fiscal laziness' which delayed much needed structural tax reforms. The usual way governments transform the wealth of natural resources into fiscal revenue is through their exploitation by state companies or via the control of part of the stock of private companies operating in this sector, as in the case of Corporación Nacional del Cobre (CODELCO) in Chile, and Pemex in Mexico which transfer part of their profits to the public budget. In addition, the governments of these countries benefit from royalties (usually linked to the volume of production of these resources), the tax revenue generated from the income tax levied (often at differential rates) on firms operating in this sector, and from the application of export taxes.

Figure 6: Fiscal revenues originating from primary commodities (% of GDP)



Notes: Fiscal revenue generated by the primary commodity sector include: taxes on the export of agricultural commodities in Argentina; taxes on hydrocarbon extraction and sale (ICE e IDH) and royalties in Bolivia; the net income generated by CODELCO on copper sales in Chile; the dividends of Ecopetrol, corporate income tax and royalties paid by oil companies in Colombia; the revenue derived from oil exports and sales in Ecuador; the profits of PEMEX and tax revenue, concessions and other privileges of the federal government in Mexico; the taxation of the mining and oil rent in Peru; and taxes on incomes and dividends as well as royalties of PDVSA in Venezuela.

Source: Authors' elaboration on the basis of CEPAL data.

### 3.5 Trends in tax/GDP ratio and changes in the structure of tax revenue

While the liberal approaches of the 1980s and early 1990s led in most Latin American countries to a drop in the tax/GDP ratio and a decline in the redistributive capacity of fiscal policy (Lledo et al. 2003), the new 'fiscal pact' of the last decade brought about a substantial increase in revenue and some changes in its composition. Indeed, between 2001 and 2008 the tax/GDP ratio reached its highest historical level (Table 8 and Figure 3). This average increase masks however a very heterogeneous situation. Very large revenue increases were recorded in Argentina, Brazil, Bolivia and Nicaragua, which by the mid-late 2000s reached levels of taxation similar to those of the USA and Japan. Important increases were recorded also in Colombia and the Dominican Republic. On the other hand, in Guatemala, Paraguay, Venezuela, El Salvador and Panama the tax/GDP ratio rose well below the regional average, while in Mexico it dropped by 1.58 points of GDP. It is important to stress that such revenue increase is mostly structural. Indeed, as argued by (Vladkova-Hollar and Zettelmeyer 2008:5) 'The business cycle cannot have played a significant direct role in raising revenue ratios. Improved fiscal positions seem to mostly reflect persistently higher commodity prices, as well as changes in taxation and tax administration'. This conclusion is strengthened by the observation that the regional tax/GDP ratio declined minimally during the recession and fall in commodity prices recorded in 2009 (Table 8, last column, Figure 7).

Table 8: Tax revenue/GDP<sup>a</sup> (including social security contributions) 18 Latin American countries, 1980-2009

	1980 <sup>b</sup>	1990	2000	2008	2009	$\Delta$ (2000–08)	$\Delta$ (2008–09)
Brazil	20.60	26.36	30.39	35.50	34.28	5.11	-1.22
Argentina	19.20	16.02	21.48	30.60	31.62	9.12	1.02
Uruguay	20.00	21.24	22.53	23.30	25.07	0.77	1.77
Bolivia	...	9.35	17.95	21.70	22.59	3.75	0.89
Nicaragua	...	10.67	17.5	21.70	22.21	4.20	0.51
Costa Rica	12.90	16.88	18.85	23.10	21.64	4.25	-1.46
Ecuador	10.60	10.07	11.62	16.50	17.86	4.82	1.36
Chile	25.61	15.54	18.92	20.90	17.20	1.98	-3.7
Panama	18.57	14.73	16.01	16.50	16.96	0.49	0.46
Honduras	14.70	12.87	14.3	15.90	15.67	1.60	-0.23
Peru	17.50	11.73	14.06	17.40	15.25	3.34	-2.15
Colombia	10.32	11.50	14.93	18.00	14.97	3.07	-3.03
Venezuela	22.19	18.66	13.62	14.20	14.47	0.58	0.27
Paraguay	8.80	9.88	12.04	13.70	14.46	1.64	0.76
El Salvador	...	10.53	12.38	14.60	14.05	2.22	-0.55
Dominican Rep.	11.06	10.84	11.33	15.00	13.13	3.67	-1.87
Mexico	11.90	11.44	10.98	9.40	11.25	-1.58	1.85
Guatemala	9.20	7.62	10.88	11.60	10.75	0.72	-0.85
LAC	15.54	13.66	16.10	18.87	18.52	2.77	-0.35

Notes: a/Tax revenue refers to central governments and thus it excludes taxes imposed by sub-national governments. However, the data for Argentina, Bolivia, Brazil, Chile, Colombia and Costa Rica refer to the general government. b/The data for 1980 are not fully comparable with those for the subsequent years.

Source: CEPALSTAT.

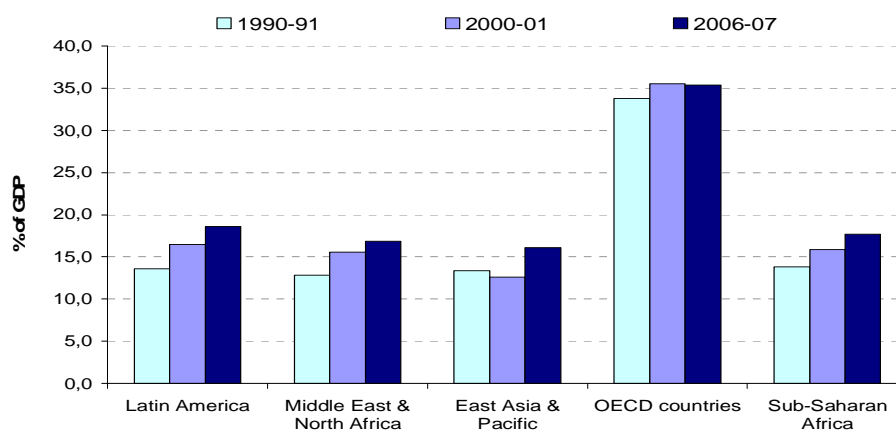
Figure 7: Tax/GDP ratios in Latin America (net of social security contributions)<sup>4</sup>



Source: Authors' elaboration on the basis of CEPAL data.

It is important to note that the rise in tax/GDP ratios observed during the last two decades in Latin America occurred also in all developing regions, all of which had by the late 2000s tax/GDP ratios ranging between 15 and 20 per cent. However, the increase recorded in Latin America stands out as the fastest, and by 2006-07 the region had the highest tax/GDP ratio (including social security contributions) of all developing regions (Figure 8). Such ratio remains, however, well below that of the OECD countries where revenue accounts on average for some 35 per cent of GDP.

Figure 8: Average tax/GDP ratio in the main regions of the world (% of GDP)

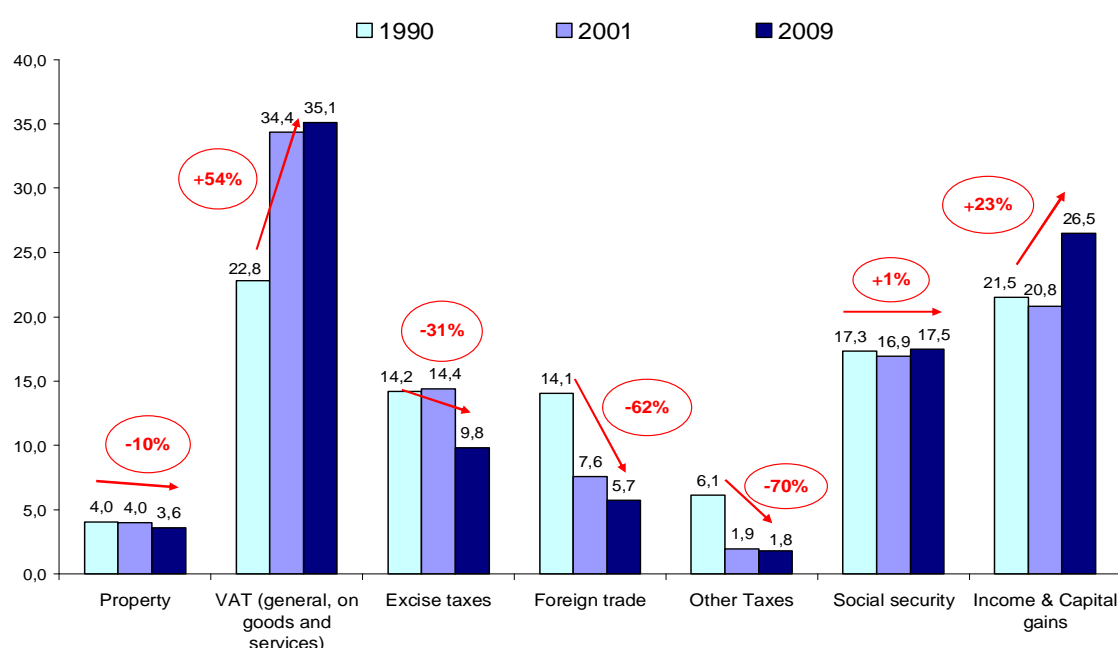


Source: Authors' elaboration on the basis of CEPAL, Government Finance Statistics (IMF); International Financial Statistics (IMF) and World Economic Outlook (IMF). Includes social security contributions.

<sup>4</sup> At the moment the 18 countries of the region can be divided into three groups of persistently high, medium and low tax burden. As the average tax/GDP ratio of the region (including social security contributions) equal to 17.8 per cent over the period 2002-09, the intermediate group includes those countries with tax burdens of +/-20 per cent of the average, i.e. 14.2 and 21.4 per cent of GDP (Figure 7). Group 1 includes countries (Argentina, Brazil and Uruguay) with an average tax/GDP ratio greater than 21.4 per cent over that period, i.e. tax/GDP ratios nearly twice as large of those of Group 3 countries (Dominican Republic, El Salvador, Guatemala, Mexico and Paraguay).

The policy changes described in Section 3.2 led to visible changes in revenue structure between 1990 and 2001 (Figure 9), including a perceptible decline in revenue generated by taxes on international trade and ‘other taxes’, a sizeable increase in VAT revenue, and substantial stability of excises, social security contributions, and income and wealth taxes. In contrast, the changes which took place over 2001-09 raised the share of taxes on incomes and capital gains, reduced the share of regressive selective taxes,<sup>5</sup> shifted part of the burden of such taxes on luxury items in Argentina, Ecuador and Uruguay, cut further the share of revenue of taxes on international trade, while leaving broadly unchanged the share of wealth taxes, other taxes and social security contributions.

Figure 9: Evolution of revenue structure (% of total revenue) in Latin America, 1990, 2001 and 2009



Source: Authors' elaboration on the basis of CEPAL data.

More detailed information on the changes in taxation structure and level is provided in Table 9 which shows that the countries of Groups 1 and 2 were the main source of the surge in the regional tax/GDP ratio and shift in tax structure discussed above, i.e. a sustained growth of general consumption taxes (VAT and similar), a significant reduction in taxes on international trade (led by Groups 2 and 3), a reduction on excises and other selective taxes on goods and services (due mainly to changes in countries of Group 1), a recent increase of income tax (which concerned all three country groups), stagnation at low level of wealth taxes, except for some improvements in the countries of Group 1.

<sup>5</sup> Most countries now follow the ‘inverse Ramsey rule’ and apply excises on the consumption of goods and services with a low price elasticity of demand such as tobacco, alcoholic, carbonated drinks, fuel and telecommunications.

Table 9: Tax pressure and structure (both as a share of GDP) in three groups of countries, 1990, 2001 and 2009

	Total AL			Group 1			Group 2			Group 3		
	1990	2001	2009	1990	2001	2009	1990	2001	2009	1990	2001	2009
Income	2.9	3.4	4.9	2.2	4.1	5.8	3.4	3.4	5.3	2.3	3.2	3.8
Property	0.5	0.7	0.7	1.6	2.2	2.1	0.3	0.5	0.4	0.3	0.1	0.2
VAT (general, on goods and services)	3.0	5.7	6.5	6.6	9.1	10.7	2.5	5.3	6.0	2.0	4.4	5.0
Excise taxes on goods and services	1.9	2.4	1.8	3.0	2.4	1.6	1.9	2.6	2.0	1.2	1.8	1.6
International trade	1.9	1.2	1.1	1.5	0.8	1.7	2.1	1.3	1.0	1.6	1.5	0.9
Other taxes	0.8	0.3	0.3	0.4	0.5	0.8	0.7	0.3	0.2	1.3	0.2	0.2
Total tax revenues	11.0	13.7	15.4	15.3	19.0	22.7	10.9	13.3	15.0	8.7	11.2	11.7
Social security	2.3	2.8	3.3	6.1	6.0	7.6	1.9	2.7	3.1	0.8	1.1	1.0
Total tax revenues (with social security)	13.3	16.5	18.7	21.3	25.0	30.3	12.8	16.0	18.1	9.5	12.2	12.7

Source: Authors' elaboration on the basis of CEPAL data.

## 4 Impact of recent changes in taxation on growth and income distribution

### 4.1 Effects of taxation on growth

In the standard neoclassical theory fiscal policy has no impact on long-term growth. While fiscal policy can speed up growth in the short run, the long-run growth rate is unaffected. However, the lack of convergence of growth rates among countries predicted by the neoclassical growth model weakens these conclusions and stimulated a reassessment of the impact of fiscal policies on the divergence in growth rates across countries. As part of this effort, Barro (1990) analysed how taxation and public expenditure affect growth under the assumption of no deficit financing. His model suggests a positive government role in promoting economic growth via the provision of public goods and services which raise the marginal productivity of capital and encourage higher investment. However, this positive effect depends on the initial level of taxation, as an excessive tax burden reduces the rate of growth. While insightful, this model suffers from a few limitations when applied to the developing countries, where structural factors condition the way taxation affects growth. For this reason, Loayza (1996) extended Barro's model by introducing in it the hard-to-tax informal sector. In particular, he focused on how government policies influence the size of the latter, and how this affects long-run growth.<sup>6</sup> Loayza too found that an initial rise in tax rates improves growth thanks to an improvement in the quality of public infrastructure and government institutions.<sup>7</sup> Beyond a certain threshold, however, a further increase in taxes depresses growth. The main difference between the two models is that the optimal tax rate is lower in the presence of the informal sector.

These two models provide a theoretical underpinning to the claim that a key historic cause of the region's poor growth performance was a weak fiscal policy (Singh 2006). Through which channels therefore does taxation affect growth? The first, highlighted by both Barro and Loayza, is the provision of public goods such as roads, water and

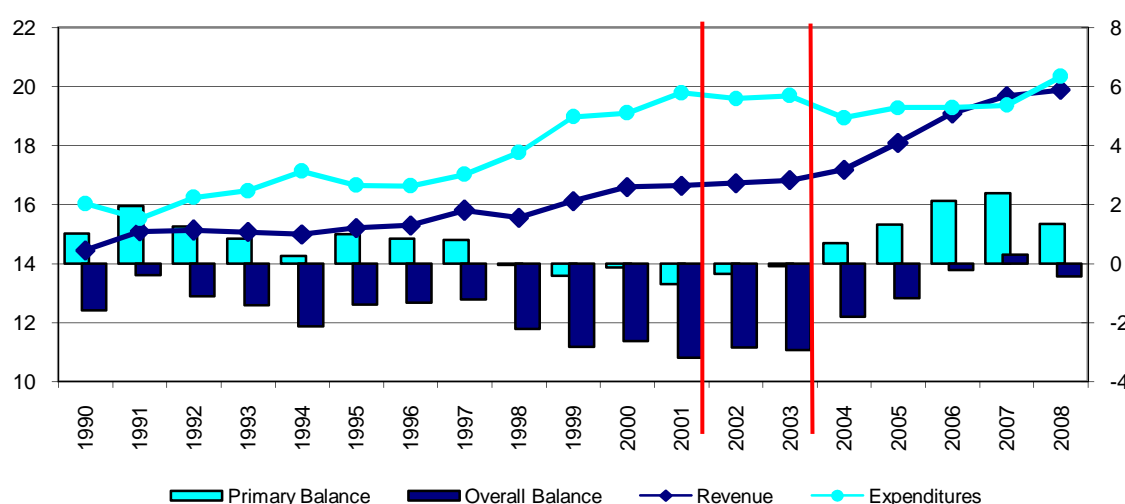
<sup>6</sup> In his model, the informal sector grows in line with the tax rate and share of public services available only in part to informal agents, and falls due to a rise in the government's enforcement strength and productivity of public services.

<sup>7</sup> Growth rises due to a greater supply of public services and an efficient enforcement system able to limit the expansion of the informal sector.

sanitation, health and education which raise the rate of return on private investments. In this regard, it must be noted that—while still low as compared to other developing regions—public investments in Latin America grew from 3.4 to 4.1 per cent of GDP between 1997 and 2008. Investment in infrastructure rose as well (reaching 1.25 per cent of GDP over 2001-06), though it is still below its 1980s level, the recommended 3 per cent needed for sustained growth, and that of other developing regions (Calderón and Servén 2010). Likewise, between 2000 and 2008 public expenditure on education and health rose respectively from 3.9 and 2.6 to 4.4 and 2.9 of GDP, contributing in this way to major gains in life expectancy at birth (which rose from 71.7 to 73.5 years), secondary enrolment rates (from 54.8 to 64.7 per cent) and number of years of education of the workforce (from 7.4 to 8.2) (Cornia and Martorano 2009).

A second pathway through which taxation affects growth is macroeconomic stability. Indeed, governments which collect adequate amounts of revenue are less likely to monetize the budget deficit or borrow abroad, thus reducing the probability of macroeconomic crises. Greater macroeconomic stability and a stronger fiscal stance also make it possible to adopt countercyclical policies during crises, thus reducing the loss of output during difficult periods. In this regard, the increase in tax/GDP ratios observed during the 2000s allowed several countries to follow a countercyclical, ‘weakly countercyclical’ or ‘acyclical’<sup>8</sup> fiscal policy (Suescún 2008).<sup>9</sup> Indeed, most countries in the region recorded positive primary surpluses since 2003 (Vladkova-Hollar and Zettelmeyer 2008; Cornia 2010, Figure 10). If in the early 2000s an improvement in the fiscal balance was achieved thanks to stagnation of public expenditure (Figure 10), since 2004 such improvement was due to an increase in revenue that more than compensated the rise in public spending (Jiménez and Gómez-Sabaini 2009).

Figure 10: Fiscal indicators (% of GDP), between 1990 and 2009



Source: CEPALSTAT.

<sup>8</sup> Martorano (2011) shows that the output gap has no significant impact on the primary balance, that a positive coefficient of public debt explains why governments comply with the budget constraint, that terms-of-trade fluctuations do not significantly affect the fiscal balance and that fiscal rules reduce the deficit. These findings differ from those of Gavin and Perotti (1997) and Ocampo (2010) but are similar to those of Clements et al. (2007) and Dos Reis et al. (2007), thus corroborating the fact that fiscal policy in Latin America was acyclical.

<sup>9</sup> Chile successfully managed its fiscal policy through a fiscal rule that targets a structural surplus of 1 per cent of GDP.

A third channel through which an increase in taxation can raise growth is a *lowering of income inequality*. As suggested by most of the theoretical and empirical literature, high inequality depresses growth, as it causes political economy effects (Alesina and Rodrik 1994); exacerbates capital-market imperfections (Aghion et al. 1999); raises political instability and crime rates which cause uncertainty among investors, raises transaction and reduce growth (Venieris and Gupta 1986, Bourguignon 1998); and erodes microeconomic incentives and increases labour-shirking, free-riding and supervision costs (Cornia 2005).

Hereafter follows an econometric test of the impact of taxation on the growth rate of GDP per capita over the years 1990-2008 for 18 Latin American countries. The test takes the following form:

$$GDP/c\_gr_{it} = \alpha + \beta \cdot Fiscal\_Policies_{it} + \gamma \cdot X_{it} + \eta_i + e_{it}; i = 1, \dots, N; t = 1, \dots, T, \quad (1)$$

Where  $I$  and  $t$  denote respectively the country and time period;  $X$  is a vector of determinants and control variables,  $\eta_i$  is the time-invariant country's fixed effect; and  $e_{it}$  is the idiosyncratic error term. Fiscal policies are defined by the ratio of tax revenue/GDP and budget deficit/GDP. The effect of taxation on gross fixed capital formation (both private and public) is measured by means of the variable investment/GDP, while that on human capital is measured by the ratio of workers with secondary and tertiary education to that of those with primary education. The two control variables added are the international terms of trade (which may affect GDP/c growth) and the Gini coefficient of household income per capita (a proxy of social cohesion). The macro-panel nature of the dataset suggests using the Fixed Effects (FE) estimator (Model 1, Table 10). Yet, Model 2 which uses the Random Effect (RE) estimator generates broadly similar results. In turn, Model 3 presents the results of a FE regression in which the lagged dependent variable was included as a regressor to capture its persistence over time. Such inclusion generates however problems of endogeneity, which may be present also for other regressors. To deal with this problem, Model 4 presents the results of the same causal model computed using the System GMM estimator. Table 10 presents the results of the regression analysis. The Wald test indicates that the variables are jointly significant. The AR (1) test reject the null hypothesis of no autocorrelation, while the AR (2) fails to reject it. Finally, the Sargan Test rejects the null hypothesis, and thus the instruments pass the test.



Table 10: Regression results (dependent variable: GDP/c growth rate) 18 Latin American countries, 1990-2008

Variable (sign expected <i>ex ante</i> on the basis of theory)		Model 1 (FE)	Model 2 (RE)	Model 3 (FE)	Model 4 (System GMM)
GDP/c growth rate (t-1)	(+)			0.1356	0.2601***
Investment/GDP	(+)	0.2413**	0.1786***	0.2253**	0.0807**
Ratio of workers with 2ary and 3ary education on those with 1ary education	(+)	-0.1985	0.2217*	-0.1552	0.1818**
Tax/GDP ratio	(+)	0.3841**	0.1505***	0.2516**	0.0821**
Budget deficit/GDP	(+)	0.4775***	0.4876***	0.4606***	0.4053***
International terms of trade	(+)	0.0161	0.0188	0.015	0.013
Gini coefficient of disposable income/c	(-)	-0.1592	0.0970*	-0.1219	-0.0813**
Constant		-1.3015	-0.3706	-1.0218	2.025
Observations		311	311	298	298
R-squared		0.247		0.266	
Wald chi2 ( <i>p</i> – value)			0.000		0.000
Sargan Test ( <i>p</i> – value)					0.110
AR (1) ( <i>p</i> – value)					0.001
AR (2) ( <i>p</i> – value)					0.122

Notes: \*, \*\*, \*\*\* significant at 10%, 5% and 1%. Sargan test for over identifying restrictions. AR(1) and AR(2) test are the Arellano-Bond test for the first and second-order autocorrelation of the first differenced residuals. Beyond the lagged dependent variable, Tax/GDP ratio, Budget deficit/GDP, Investment/GDP and the Gini Coefficient of disposable income/c are considered endogenous.

Source: Authors' calculations.

The results confirm the hypotheses formulated about the impact of the recent tax changes on growth during the 2000s, as the regression coefficients have the sign identified *ex ante* on the basis of the received theory. The only exception is represented by the ratio of workers with secondary and tertiary education to those with primary education, as the sign of the parameter changes across specifications. All other coefficients exhibit stable signs. The results (especially those of Model 4) suggest that during the last decade economic growth was positively related to past performance, and that the 3-4 per cent average increase in tax/GDP ratio observed between 2002 and 2009 raised the GDP/c growth rate by between 0.3 and 1 per cent, contradicting in this way the claims of neoclassical theory about the efficiency costs of 'distortionary taxes' such as direct taxes (Kneller et al. 1999). The results confirm also that every point of improvement in fiscal balance raised the growth of GDP/c by 0.40 points. Similar effects are observed in the case of the investment/GDP ratio (which rose, if modestly, thanks also to a rise in public investment made possible by higher taxation) and human capital investment. Model 4 shows also that income inequality is detrimental to growth and that the 4-5 Gini points average decline observed in the 2000s may account for 0.32-0.40 points of the GDP growth during the decade. Finally, in none of the specifications the recent gains in international terms of trade appear to have affected growth.

## 4.2 Effects of the recent tax reform on income inequality

Tax policy can affect the distribution of income by generating the revenue used to increase public expenditure on human capital, raising in this way the wages of the newly

schooled workers and, through that, improving the primary distribution of income. In addition, it can influence directly the distribution of post-tax, pre-transfer income by means of progressive taxation. This study focuses only on this second effect. In this regard—as shown by Gómez-Sabaini (2006) and Chu et al. (2004)—while in the advanced economies the Gini coefficient of the distribution of post-tax pre-transfer income declines by 3-5 Gini points because of taxation, in many developing countries such decline is generally minimal or negative. Yet, even in the advanced countries the strongest distributive effect of fiscal policy is related to the level and targeting of public expenditure (Appendix Table 1).

In Latin America the high Gini coefficients of the distribution of gross income have until recently been hardly affected by taxation which either played a modest or even unequalizing role. Things appear to have changed somewhat during the last decade, though it is not easy to document precisely this change given the limited number of tax incidence studies, the differences in the years and unit of analysis, wellbeing criteria chosen, hypotheses made about incidence, and other assumptions which limit the comparability of different studies. Be as it may, the available evidence for the 1990s suggests that taxation was in most cases regressive. During that decade only in Venezuela did taxation generate a modest redistributive effect, while in Argentina, Honduras, Mexico and Nicaragua it worsened it by between two and five Gini points (Table 11). The inability to collect revenue and its regressive incidence was particularly evident in Central America and Mexico (Agosin et al. 2005, and Table 11).

Table 11: Reynolds–Smolensky index for Latin American countries, 1990s and 2000s (Gini points)

	1990s	2000s	2000s-1990s
Argentina	-1.95	1.90	3.85
Bolivia	-1.10	....	....
Brazil	-0.70	0.42	1.12
Chile	-0.80	0.27	1.07
Colombia	....	-0.10	...
Costa Rica	-0.98	1.24	2.22
Dominican Rep.	....	-0.20	...
Ecuador	-0.70	0.70	1.40
El Salvador	-1.40	-0.75	0.65
Guatemala	-0.77	1.20	1.97
Honduras	-2.87	-0.10	2.77
Nicaragua	-5.20	0.17	5.37
Panama	-0.69	0.91	1.60
Uruguay	-0.20	1.10	1.30
Venezuela	0.76	....	....

Source: See sources cited in Appendix Table 1.

As a result of the changes in tax policies described in Section 3.3, the Reynolds Smolensky index<sup>10</sup> became positive or less negative in all countries in Table 11,

<sup>10</sup> The Reynold–Smolensky index is the difference between the Gini coefficients of the distribution of personal income before and after taxes. In most cases, the surveys do not provide the amount of taxes

enhancing in this way the equalizing effect of taxation. The largest improvements (ranging between some two and five Gini points) were recorded in Argentina, Honduras and Nicaragua. However, despite these gains, the tax systems remained regressive in most of Central America (Table 11).

An interesting case is that of Nicaragua which introduced a tax reform in the early 2000s<sup>11</sup> and witnessed an improvement in the Reynolds–Smolensky index by 5.37 points between the 1990s and mid 2000s (Gómez-Sabaini 2005). Its former tax system depended for 80 per cent on indirect taxes while offering special allowances and exemptions which caused a major loss of revenue and that treated taxpayers in an unequal way (Gasparini and Artana 2003). To correct this situation, the reform of 2003 aimed at improving the equity of taxation while simplifying the tax structure. Despite the recent reforms, in all Andean countries except Ecuador the tax system continues to have a minimal or no redistributive effect (Table 11) and, at times, reinforces an income concentration favouring the richest decile (Barreix et al. 2006) as observed for Bolivia and Peru (*ibid.*). In Ecuador, the incidence studies focusing on direct taxes show that the personal income tax is highly progressive, though its redistributive impact is modest. Indeed, the reform of January 2008 turned out to be purely theoretical, as its greater progressivity was accompanied by a decline in tax collection (Roca 2009).

More encouraging is the situation of the Southern Cone countries (Table 11). The latest analysis of the redistributive impact of taxation in Brazil (Cetrangolo and Gómez-Sabaini 2006) shows that in 2003 the tax system generated a more progressive distribution with respect to the past. Argentina recorded an improvement in overall tax progressivity (*ibid.*). The study by Gómez-Sabaini et al. (2002) on 1997 data shows that the differential tax burden<sup>12</sup> exceeded 115 per cent for the lowest decile while it was below 100 per cent for the top decile. However, in recent times, the tax system has become more progressive (Table 11). With respect to Chile, Engel et al. (1998) showed that during the 1990s the tax structure was slightly regressive, but a recent analysis by Jorratt (2010) shows that it became slightly progressive. Also in this case, the result may be explained by the changing composition of direct and indirect taxes. Finally, in Uruguay the tax reform of 2007 made an explicit effort at improving the equity of taxation. Before the reform, the tax system relied on a large number of taxes and exemptions. Its incidence was basically neutral. However, according to Amarante et al. (2007) the tax reform of 2006 reduced the after-tax Gini coefficient by 1.1 points.

To sum up, the recent changes in tax rates and composition have almost always equalized at the margin the distribution of market income. The growing contribution of personal and corporate income taxes to total tax revenue offset the regressive effect generated by the growth of VAT contributions in the 1990s. Moreover, post-tax income equalization was strengthened by the reduction of taxes on international trade and excises on oil, alcoholic beverages and tobacco (*ibid.*). Finally, the export taxes imposed in Argentina in 2002 to tax windfall profits due to rising world prices and accruing to a hard-to-tax sector characterized by high asset and income concentration likely improved tax incidence.

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paid, and the value of the RS index is obtained by imputation techniques which simulate the amount of taxes paid on the basis of tax rates and the distribution of gross income.

11 In 2006 an administrative reform in Guatemala was introduced, while in 2009 a reform to promote equity in Nicaragua. The data in Table 11 refer to previous years (Cubero and Vladkova-Hollar 2010).

12 The differential tax pressure is the ratio between the tax burden borne by each decile and the average tax pressure.

The above discussion has assessed the distributional impact of the recent tax reforms by means of a partial equilibrium analysis based on the simulation of survey microdata on the distributions of income before and after levying all or some taxes (see for details Appendix Table 2), isolating in this way the pure impact of taxation on income distribution. However, taxation affects other aspects of economic life such as public transfers, expenditure on human capital, growth, employment, and so on which affect the distribution of net disposable income by taking into account second-round effects. To account for the broader impact of the recent tax reforms, a reduced form regression model was tested on aggregate data for the 18 Latin American countries covered in this study using as a dependent variable the Gini coefficient of the distribution of disposable income per capita for the years 1990-2009 drawn from the IDLA database (Martorano and Cornia 2011). The econometric specification of the relation between income inequality and tax and social expenditure policies takes the form:

$$GINI_{it} = \alpha + \beta \cdot Fiscal\_Policies_{it} + \gamma \cdot X_{it} + \eta_i + e_{it} \quad i = 1, 2, \dots, N; t = 1, 2, \dots, T \quad (2)$$

where  $X$  is a vector of relevant control variables,  $I$  and  $t$  denote country and time period;  $\eta_i$  is the time-invariant country's fixed effect; and  $e_{it}$  is the idiosyncratic error term. The dependent variable is standardized in terms of Gini of household disposable income per capita.<sup>13</sup> Fiscal policies are proxied by the ratio of direct taxes to indirect taxes (expected *ex ante* to have a negative sign) as well as the ratio of expenditure on social protection on GDP, where social protection includes both social security and social assistance (lack of disaggregated data did not allowed to treat them as separate regressors). As in most countries the share of (progressive) social assistance on total social protection is only around one fourth, the sign of this variable expected *ex ante* is uncertain. The control variables included in the regression are the Gini coefficient of the distribution of years of education among the workers of 25-64 years of age, the growth rate of GDP per capita, and the ratio of the minimum wage to GDP. The first is expected to have a positive sign and the latter two a negative sign. Given the panel nature of the data used in regression and the object of the analysis, the most suitable estimator is the fixed effects (FE) model which is preferable to the random effects (RE), a conclusion confirmed by the Hausman test. However, given the persistence over time of the Gini index of income inequality, Model 2 includes among the regressors the lagged dependent variable to capture the path-dependent and slow moving nature of inequality. Finally, as the introduction of the rate of growth of GDP/c may cause a problem of endogeneity, Model 3 uses the system GMM estimator which allows to overcome this problem (Table 12).

The parameters in Table 12 have the sign expected *ex ante*, though those of the minimum wage/GDP per capita and public expenditure on social protection are not significant. The other parameters are significant and stable across specifications, a sign that they are correctly estimated. In particular the parameter of the ratio of direct to indirect taxes is sizeable, negative and strongly significant. A one point increase in this ratio reduces the Gini coefficient of the distribution of disposable income by between 0.42 and 0.87 points, thus confirming that the recent changes in the structure of revenue collection generated a favourable, if moderate, redistributive effect. Also the control variables have reasonable values: the current level of inequality is strongly and significantly correlated to its past level. In turn, the growth rate of GDP/c has a negative but moderate effect on inequality,

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<sup>13</sup> The data used in regression analysis are included in the IDLA database (Martorano and Cornia 2011).

as a one point growth of GDP/c decreases the Gini coefficient by 0.10 points. In turn, the coefficient of Gini index of distribution of years of education among the workforce is statistically significant. The Wald test indicates that the variables are jointly significant. The AR (1) test rejects the null hypothesis of no autocorrelation at the five per cent level, while the AR (2) fails to reject it. Finally, the Sargan Test suggests that the instruments are valid. Overall, it appears that, after controlling for other interfering variables, the recent changes in tax policy affected on average income inequality, confirming the theoretical hypotheses presented above and the conclusions presented in the empirical literature (Gasparini et al. 2009; Cornia 2010).

Table 12: Regression results (dependent variable: Gini coefficient of disposable income) 18 Latin American countries, 1990-2008

Variable (sign expected <i>ex ante</i> on the basis of theory)	Model 1 FE	Model 2 FE	Model 3 system GMM
Gini coefficient of disposable income (t-1) (+)		0.6772***	0.4786***
GDP/c_growth rate (-)	-0.0778*	-0.0593**	-0.1030***
Direct/Indirect Taxes (-)	-0.8778***	-0.4246***	-0.6276***
Gini coefficient of the distribution of human capital among the labour force (+)	0.0931	0.0962**	0.1049**
Expenditure on social protection/GDP (+/-)	-0.2664	-0.0819	0.048
Minimum wage index (2000=100) (-)	-0.0002	-0.0017	-0.0001
Constant	50.850***	14.221***	23.709***
<i>Number of observations</i>	269	258	258
<i>R-squared</i>		0.525	
Wald chi2 ( <i>p - value</i> )	0.000		0.000
Sargan Test ( <i>p - value</i> )			0.234
AR (1) ( <i>p - value</i> )			0.016
AR (2) ( <i>p - value</i> )			0.164

Notes: \*, \*\*, \*\*\* significant at 10%; 5%; and 1%. Sargan test for overidentifying restrictions. AR(1) and AR(2) are the Arellano-Bond test for the first and the second-order autocorrelation in the first differenced residuals. Beyond the lagged dependent variable, GDP/c\_growth rate is considered endogenous.

Source: Authors' compilation.

## 5 Limitations of the recent tax reforms and recommendations for further action

While important, the recent changes in tax policy have to be intensified in the years ahead, especially in Central America and the Andean countries, to increase the redistributive and efficiency impact of the tax system. Hereafter follow some realistic suggestions on (a) raising the effective tax/GDP ratio to the potential corresponding to the level and pattern of development of the countries of the region, (b) raising the revenue generated by income and wealth taxes by 3-4 per cent of GDP and reduce that generated by trade taxes and selective taxes on goods and service by 1-2 per cent of GDP, so as to increase the contribution of direct taxes to around 40 per cent of total revenue, (c) cutting revenue losses to 50 per cent of its present level by reducing tax evasion and increasing tax compliance, (d) placing greater accent on the 'fiscal exchange' or 'revenue bargaining', i.e. the relation between increases in taxation and the improved provision of public goods to all social classes. These recommendations are obviously of general character and each of them needs to be adapted to the specific conditions of each country.

## 5.1 Raise the tax/GDP ratio to its potential level

In most of the region effective tax collection is considerably lower than the potential one and than that of countries with similar GDP per capita in other regions. An estimate of the additional revenue that could be generated in the region can be obtained by comparing the effective tax/GDP ratio of each country (net of social security contributions, as these represent premia paid for an insurance contract whose public or private arrangements vary from country to country) with its potential value estimated by regression on the basis of the logarithm of its GDP per capita and variables (such as the share in total value added of hard-to-tax agriculture and easy-to-tax manufacturing) which affect the ease of tax collection (Table 13).

Table 13: Effective tax/GDP, revenue effort index, and additional revenue that could be raised to reach the potential tax/GDP ratio in Latin American countries, averages for 1999-2007

Country	Effective tax/GDP (net of soc. security contribution)	Revenue effort index	Potential tax/GDP (net of social security contribution)	Additional revenue that could be raised
	(a)	(b)	(c)	(c)-(a)
Brazil	24.51	1.33	18.48	-6.02
Argentina	20.70	1.15	17.98	-2.73
Nicaragua	15.42	1.04	14.83	-0.58
Bolivia	16.68	0.98	17.09	0.41
Uruguay	16.37	0.94	17.42	1.05
Honduras	14.90	0.93	16.08	1.18
Chile	17.80	0.86	20.83	3.02
Paraguay	11.07	0.78	14.25	3.18
Costa Rica	13.81	0.81	17.10	3.29
Colombia	14.42	0.78	18.52	4.10
Guatemala	11.35	0.72	16.11	4.75
Dominican Rep.	13.23	0.73	18.02	4.79
El Salvador	11.59	0.69	16.74	5.15
Peru	13.35	0.70	19.04	5.69
Panama	9.22	0.52	17.79	8.57
Venezuela	13.21	0.55	22.66	9.45
Mexico	9.61	0.50	19.25	9.64
Ecuador	10.11	0.48	21.05	10.95
LAC	14.30	0.80	17.96	3.66

Notes: the 'revenue effort index' is the ratio of effective to potential tax/GDP ratio (both net of social security contributions). The potential tax/GDP ratio was calculated by regression on a panel of 92 developing and developed countries and including as independent variables GDP/c, the share of (relatively easy-to-tax) manufacturing on GDP, and the share of (hard-to-tax) agriculture on GDP.

Source: Authors' elaboration based on data from WDI, CEPALSTAT and ERS.

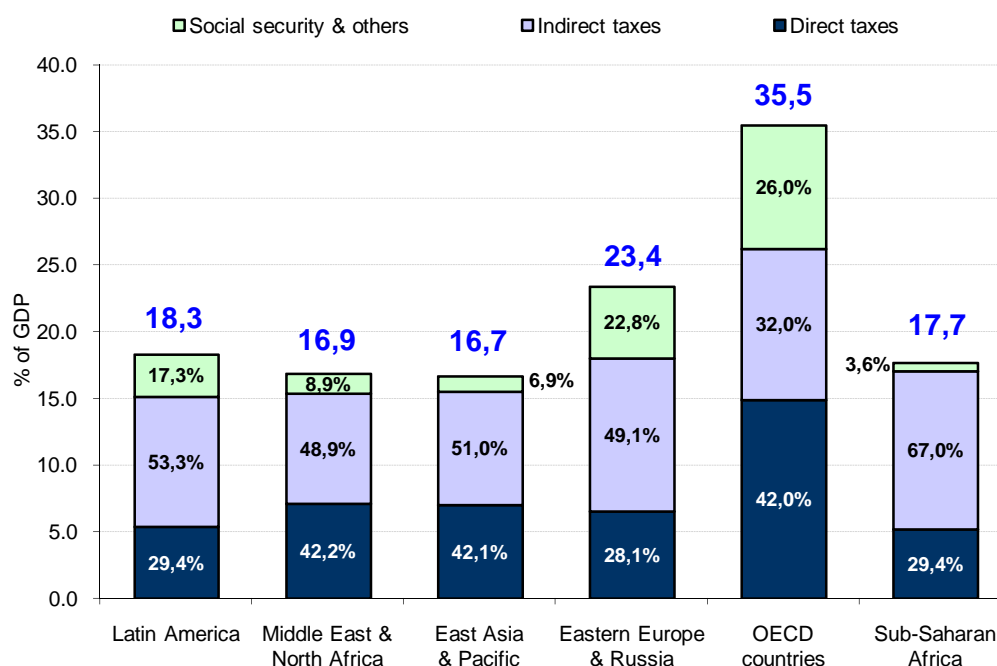
The results in Table 13 suggest that out of the 18 Latin American countries analysed in this paper only Argentina and Brazil show effective tax/GDP ratios higher than the potential ones while in Bolivia, Honduras, Nicaragua and Uruguay the effective tax/GDP ratios are similar to the potential one. In the remaining 12 countries, the effective levels of taxation are way below those expected on the basis of their level and pattern of development. This simple exercise confirms there is considerable space for increasing tax pressure in much of the region. For the region as a whole, the tax GDP/ratio could be raised by 3.66 points, or by more than four points if Argentina and Brazil are excluded from the calculations. The case for increasing tax pressure is particularly acute in

Ecuador, Mexico, Panama, Peru and Venezuela (where public revenue includes considerable amounts of non-tax revenue linked to the exploitation of natural resources or strategic resources, which compensate to an extent their low level of tax collection but which are generally highly volatile). Catching up to the international standard would generate smaller but not negligible amounts of revenue in the remaining countries.

## 5.2 Greater balance between direct and indirect taxes

Making taxation more equitable requires strengthening direct taxation, while reducing the weight of regressive selective indirect taxes which still dominate revenue collection in the region (Figure 11). As suggested *inter alia* by Jorratt (2010) in a study on Chile, any attempt at enhancing the redistributive impact of taxation requires redesigning income and wealth taxes so as to raise their share to around 40 per cent of total revenue and, at the same time, making them more progressive. While tax structures in the region have already evolved in this direction during the 2000s, a comparison with other regions suggests there is further room for moving in this direction (*ibid.*).

Figure 11: Tax structure in Latin America and other regions, 2006 (% of GDP and total revenue)



Note: direct taxes include income and wealth taxes, indirect taxes include general and selective taxes on goods and services and taxes on international trade. The rest comprises social security contributions and other taxes.

Source: Authors' elaboration on the basis of CEPAL data, IMF-GFS International Financial Statistics and World Economic Outlook (IMF).

A key concern about the proposed increase in direct taxation relates to its efficiency effects. Yet, the 2007 Uruguayan tax reform and the results in Table 10 show there are no universally valid theoretical reasons to believe that greater equity is achieved at the expense of growth. For instance, Martorano (2011) found that, contrary to the predictions of optimal taxation theory, the income tax introduced in Uruguay in 2007 did not lead to a contraction in labour supply. This may have been due to an inelastic labour supply, a

level of taxation well below any efficiency-reducing threshold (the rates varied between 10 and 25 per cent), or the perception that the income tax rise was accompanied by an increased supply of public goods which raised wellbeing and the efficiency or private investments.

Also in the case of the taxation of capital income (rents, dividends, profits and so on) the evidence about its effect on capital flights is far from clear. While most Latin American countries tax wealth at low rates on the assumption of high capital mobility, Tanzi (2007: 10) notes that ‘It is not clear how much truth there is in the assertion that an increase in the taxation of dividends, interest incomes, rents, capital gains and profits would lead to a (greater) emigration of capital’. Such risk can be further reduced by greater international or regional co-ordination in the taxation of capital income, and the introduction of non-distorting dual tax reform (like that adopted in Uruguay) by which a relatively low flat tax rate is levied on the capital income of households and a higher flat tax rate on corporate profits.

Property taxation is another way of raising revenue in a progressive way.<sup>14</sup> However, at the moment, its yield is eroded by exemptions, asset undervaluation, low tax rates, administrative weakness and the opposition of asset holders. Beyond the need of determining the optimal tax rate and tax base and of considering the differential treatment of different classes of property, the crucial question consists in the measurement of property value (Bird and Slack 2002). A value-based assessment is suitable in countries with developed asset markets and able to count on a regular update of the property cadastre. As noted by Stewart et al. (2009: 16) ‘The start-up costs of meeting data requirements in the form of a cadastre may be onerous but have long-lasting benefits, including improvements in the security of property rights’.

In conclusion, a further improvement of tax progressiveness and efficiency in the region requires that an important part of future revenue increase will be achieved by taxing income and assets while reducing regressive import and selective indirect taxes without, at the same time, reducing the contribution of VAT. The results in Table 14 (left panel) suggests that an increase in the share of revenue from income and wealth taxes of three per cent of GDP would improve the RS index by between 2.7 and 3.3 points while a two per cent decline in the revenue generated by selective indirect taxes would improve it by 1.7 points, with an overall gain in the RS index of 4.4 to 5 points, which would bring the average Latin American country close to the redistribution via taxation similar to that achieved in Europe (see Appendix Table 1). Smaller improvements in the RS index would instead be achieved by raising the social security contributions. Finally, it must be noted that—contrary to a common opinion about the greater effectiveness of redistributing income via targeted social transfers—the empirical evidence (see Appendix Figure 1) shows that the two approaches to redistribution (via taxation and income transfers) tend to correlate closely.

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<sup>14</sup> As Kaldor (1963: 413) suggested, ‘the taxation of land can be a very potent engine of economic development’.



Table 14: Regression analysis of the determinants of the Reynolds-Smolensky (RS) index

	Variables expressed as a share of GDP			Variables expressed as % of total revenue		
	1	2	3			
Tax/GDP ratio	--	--	--	-0.0006	0.0002	0.0008
Direct tax	0.0122***	0.0094**	0.0095**	0.0025**	0.0023**	0.0055***
Indirect taxes	-0.0062			-0.0007		
Trade taxes	-0.0149***	-0.0110**	-0.0100*	-0.0019*	-0.0012	0.0031
General indirect taxes		-0.0009	-0.0008		0.0002	0.0034*
Selective indirect taxes		-0.0087*	-0.0090*		-0.0008	0.0013
Social security contributions			0.0027			0.0047**
Constant	-0.0492*	-0.0482*	-0.0516*	-0.0777	-0.0466	-0.4271**
Observations	36	36	36	36	36	36
R-squared	0.42	0.44	0.41	0.43	0.44	0.61

Notes: \*, \*\*, \*\*\* significant at 10%, 5% and 1%.

Source: Authors' calculations.

The increase in direct taxation in the region needs to be carried out by emphasizing in particular the PIT. Indeed, an important limit of direct taxation in Latin America is that it is mainly levied on corporate dividends and only to a much lesser extent on the earnings of physical persons (Table 15). In most cases, the latter group reaches barely ten per cent of the active population due to the small size of the formal sector. As a result, the corporate sector generates an average income tax revenue of 3.6 per cent of GDP<sup>15</sup> as opposed to the 1.4 per cent paid by physical persons. In extreme cases, as in Paraguay, the physical persons do not pay income tax at all.

Reducing this imbalance depends of course on the expansion of the formal sector but requires also measures to reduce current tax exemptions on interests on public and private bonds, dividends, capital gains and incomes received by nationals residing abroad. At the same time, it is necessary to protect the corporate income tax base through legal changes with respect to transfer prices, interest deductibility, limits to the credits originating from firms incorporated in fiscal paradises, a broadening of direct taxation at the source, and other norms in the field of international taxation.

<sup>15</sup> In the OECD countries the income tax paid by the corporate sector is on average 3.9 per cent of GDP while that paid by physical persons is on average 9 per cent of GDP.

Table 15: Structure of income tax payments in selected Latin American countries

Country (year)	Corporate (in % of GDP)	Individual (in % of GDP)	Total (in % of GDP)	Corporate/individual ratio
Argentina (2007)	3.6	1.6	5.4	2.3
Bolivia (2007)	3.0	0.2	3.3	15.0
Brazil (2007)	5.1	2.6	7.7	2.0
Chile (2007)	7.3	1.2	8.4	6.1
Dominican Rep. (2007)	2.9	1.1	4.0	2.6
Ecuador (2006)	2.3	0.8	3.1	2.9
El Salvador (2007)	2.7	1.9	4.6	1.4
Guatemala (2007)	2.9	0.3	3.4	9.7
Honduras (2004)	3.7	1.6	5.3	2.3
Mexico (2005)	2.4	2.2	4.6	1.1
Panama (2006)	2.9	2.0	5.0	1.5
Peru (2007)	5.9	1.4	7.2	4.2
Uruguay (2007)	2.6	1.0	3.5	2.6
Latin America	3.6	1.4	5.0	2.6

Notes: The regional average is computed on 13 countries as no data was available for the other countries.

Source: Authors' elaboration on the basis of data from CEPAL and official sources of each country.

### 5.3 Increasing tax compliance and reducing tax evasion

A higher level of tax compliance and a sizeable reduction in tax evasion constitute obvious elements of any approach aiming at improving tax equity in the future. A first step in this regard consists in reducing the tax exemptions and privileges granted during the 1980s and 1990s with the aim of attracting domestic and foreign investments. In many cases such tax incentives did not lead to an increase in gross fixed capital formation but offered an opportunity for reducing tax payments and modifying the regional and/or sectoral allocation of private investments. Despite the difficulties encountered in estimating it, the empirical evidence suggests that the revenue loss due to tax incentives varied in 2007 between two and eight points of GDP (Table 16).

Table 16: Revenue losses entailed by the concession of tax expenditures, Latin America, 2007

Country	in % of GDP	in % of tax revenues
Argentina	2.21	8.9
Brazil	2.29	9.1
Chile	4.97	24.6
Colombia	3.52	22.0
Ecuador	4.60	35.3
Guatemala	7.91	63.5
Mexico	5.92	50.7
Peru	2.05	11.9

Notes: Methodological differences do not allow to fully compare the above results. For instance, in Guatemala the revenue losses are computed as the sum of the minimum income not subjected to income tax, while in Chile they are computed as the difference between the marginal income tax rate on corporations and the maximum tax rate on the dividends received by physical persons.

Source: Authors' elaboration on the basis of Jiménez and Podestá (2009).

A second major step in improving compliance consists in reducing tax evasion. To deal with this problem, it is important to estimate its level by major taxes, as done below in Table 17. Though still sizeable, the percentage evasion of VAT has been declining as a result of the emphasis placed on its control during the last two decades by the tax administrations, especially in Argentina, Chile, Ecuador and Mexico. In contrast, tax evasion declined less in the case of income tax.

Table 17: Estimated tax evasion rates for the VAT and income tax

	Value added tax		Income tax			
	Estimated tax evasion (%)	Year	Estimated tax evasion			Year
			Total (%)	Personal (%)	Corporate (%)	
Argentina	21.2	2006	49.7	--	--	2005
Bolivia	29.0	2004	--	--	--	--
Chile	11.0	2005	47.4	46.0	48.4	2003
Costa Rica	28.7	2002	--	--	--	--
Colombia	23.5	2006	--	--	--	--
Dominican Rep.	31.2	2006	--	--	--	--
Ecuador	21.2	2001	63.8	58.1	65.3	2005
El Salvador	27.8	2006	45.3	36.3	51.0	2005
Guatemala	37.5	2006	63.7	69.9	62.8	2006
Mexico	20.0	2006	41.6	38.0	46.2	2004
Nicaragua	38.1	2006	--	--	--	--
Panama	33.8	2006	--	--	--	--
Peru	37.7	2006	48.5	32.6	51.3	2006
Uruguay	26.3	2006	--	--	--	--

Source: Authors' elaboration on the basis of official sources and (for the income tax) Jiménez et al. (2010).

As far as VAT is concerned, there is first of all a need to intensify the measures discussed in Sections 3.2 and 3.3 such as promoting the registration of informal firms, introduce substitute regimes for hard-to-tax activities, and of special regimes for the collection of VAT from large firms or the state itself which buy inputs from a large number of suppliers, or sell their products through many independent outlets can also be contemplated. Second, there is a need to introduce new measures, including a tighter control on firms which issue fiscal credits (false invoices) in favour of other firms in return of a fee. As for the corporate income tax, a main problem is how to overcome the subtle legal distinction between tax evasion and legal tax elusion.

In addition, an intensification of the administrative reforms undertaken during the last two decades will also be necessary, especially in Central America and the Andean region. A key component of these reforms is the shift from a 'tax-by-tax' approach to one which emphasizes the functional character of the various tax activities (policy direction, technical and normative aspects, rate setting, tax collection, data management), so as to fully cover the various linkages each of them has with the tax administration through a 'fiscal current accounts' and the subdivision of taxpayers according to their size (with big and small taxpayers subjected to different tax regimes). A second measure for the modernization of tax administration consist in the integration of all entities with

responsibility for tax collection (domestic taxes, custom services, and social security) in a centralized ‘semi autonomous revenue authority’ which may be granted greater autonomy and incentives by allocating it a budget proportional to the amount of the taxes collected.

A third step for a further strengthening of tax administration consists on placing greater emphasis on its internal efficiency (OECD 2010). In this regard, Table 18 illustrates a series of key indicators of efficiency of the tax administrations, starting from the ‘collection costs’ i.e. the ratio between all costs incurred by the central tax administration and the total revenue collected over a given time span. In 2009 such costs in the region were equal on average to 1.66 per cent, a value sensibly higher than that of various OECD countries (though similar to that of the Asian countries), thus suggesting there is room to reduce the collection costs in parts of Latin America. Similar considerations can be made when looking at administrative costs/GDP and staffing indicators, though this may be due to lower investments in human capital, ITC technology and the introduction of new taxes which, at the beginning, are more costly to collect. Overall, past experience with reforms suggests that an improvement of the efficiency and effectiveness of tax administration can be achieved only if there is a political commitment to the reforms, an adequate stock of human resources led by a competent leader, the willingness to drop old administrative procedures, and the development of a reform calendar setting specific objectives, costs and implementation schedule.

Table 18: Indexes of efficiency of tax administrations in Latin America, 2009

Country	Efficiency ratios		Staffing indicators		
	Cost of collection	Administrative expenditure to GDP	Citizens/ tax staff	Labour force/ tax staff	Taxpayers/ tax staff
Argentina	2.35	0.63	1741	863	100
Bolivia	--	0.12	7610	3606	--
Brazil	1.00	0.21	6109	3054	--
Chile	1.52	0.13	4248	1717	--
Colombia	0.99	0.13	4830	2607	--
Costa Rica	2.02	0.23	3749	1817	--
Dominican Rep.	1.86	0.17	3839	1670	--
Ecuador	1.26	0.14	4483	2333	--
El Salvador	1.37	0.07	5622	2757	184
Guatemala	2.37	0.25	3451	1131	--
Honduras	--	0.84	2778	1362	--
Mexico	0.96	0.08	3056	1308	740
Nicaragua	--	0.22	3194	1288	--
Panama	--	--	6567	3078	--
Paraguay	2.44	--	6111	3163	--
Peru	2.05	0.28	3987	2041	531
Uruguay	1.45	0.19	2680	1479	--

Source: Authors' elaboration on data from CIAT and USAID (last column).

#### **5.4 Place greater emphasis on ‘fiscal exchange’ and the strengthening of the social contract**

As noted in Section 3.1, with the exception of the Southern Cone, in much of the region a fragile social contract between state and citizens has historically been based on regressive and coercive taxes. Delegitimation of political institutions and power of lobbies represented a major obstacle to the adoption of equitable tax reforms, most citizens had low confidence about the state’s ability to solve their problems and so resisted the payment of taxes (Gómez-Sabaini and O’Farrell 2009).

The election of truly democratic governments and steady progress in education since the mid 1990s in many countries has weakened this vicious cycle, and raised the sense of social responsibility, willingness to pay taxes and demand for redistribution (see the analysis of Daude and Melguizo 2010 on the basis of the 2007 and 2008 waves of the Latinobarómetro). A new social contract is thus slowly evolving in parts of the region by linking more closely than before the quality and quantity of services provided in the fields of health, education (including also tertiary education), social assistance (whether universal or targeted) and the idea that citizens should pay taxes, a sentiment which seems to be growing among an expanding middle class. The ability to raise equitable taxes in the years ahead will thus depend on a strengthening of such embryonic new social contract which is based on relations of ‘fiscal exchange’, trust and co-operation rather than coercion and mistrust. Such sentiments seems rooted in particular among people who benefitted from redistribution in the past and who now argue for greater redistribution in favour of less fortunate groups (ibid.). The governments in the region should thus recognize that the issue of the ‘political costs of taxation’ needs to be addressed in parallel to that of growing ‘political benefits of expanding social expenditure’.<sup>16</sup>

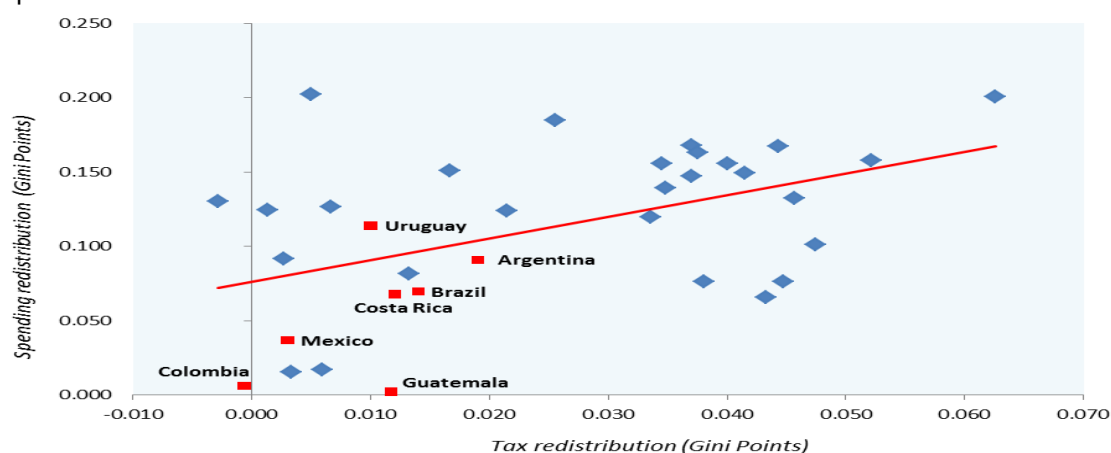
Obviously the extent, sectors and modalities of growing social and infrastructural expenditure will vary from country to country and so do the modalities of social consultation required to ensure co-ordination, but the principle applies to the entire region. The scope for emphasizing ‘fiscal bargaining’ in the future is particularly important in Central America and the Andes region which may still be further away from a stable political and social equilibrium. An encouraging lesson in this regard comes from the Chilean tax reform introduced after the return to democracy in the early 1990s (Breceda et al. 2008). Its fundamental features were the capacity of the new government to reduce the elite’s opposition to an increase in tax/GDP ratio of about two points, enlarge the political decision-making process, and deliver an expansion of social expenditure which benefitted both the poor and middle class.

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<sup>16</sup> A paper by Lustig (2011) analysing the redistributive effects of fiscal operations concludes that, while still modest, such effect is greater than found in earlier studies. It suggests also that closing the current ‘poverty and human capital gap’ would require an additional social expenditure equal to 2.4 per cent of current government spending in Brazil, 4.9 in Argentina, 5.9 in Mexico, 14.1 in Peru and 17.4 in Bolivia.

## APPENDIX

Appendix Figure 1: Relation between redistribution (in Gini points) via taxation and public expenditure



Appendix Table 1: Redistributive effects of taxes and transfers in selected countries

Country	Year	Gini coefficient of disposable per capita household income		Changes in Gini coefficients due to fiscal operations		
		Before	After taxes and transfers	Total	Due to taxation	Due to transfers
Australia	2003	0.461	0.312	0.149	0.047	0.101
Austria	2004	0.459	0.269	0.190	0.034	0.156
Belgium	2000	0.542	0.279	0.263	0.063	0.201
Canada	2004	0.433	0.318	0.114	0.038	0.076
Denmark	2004	0.419	0.228	0.191	0.042	0.149
Finland	2004	0.464	0.252	0.212	0.044	0.168
France	2005	0.449	0.281	0.168	0.017	0.151
Germany	2004	0.489	0.278	0.210	0.052	0.158
Greece	2004	0.462	0.329	0.133	0.007	0.127
Ireland	2004	0.490	0.312	0.178	0.046	0.132
Luxembourg	2004	0.452	0.268	0.184	0.037	0.147
Netherlands	2004	0.459	0.263	0.196	0.040	0.156
Norway	2004	0.430	0.256	0.174	0.035	0.139
Spain	2004	0.441	0.315	0.126	0.001	0.124
Sweden	2005	0.442	0.237	0.205	0.037	0.168
Switzerland	2004	0.395	0.268	0.128	-0.003	0.130
UK	2004	0.490	0.345	0.145	0.021	0.124
United States	2004	0.482	0.372	0.109	0.043	0.066
Czech Republic	2004	0.468	0.267	0.201	0.038	0.163
Estonia	2004	0.493	0.340	0.153	0.034	0.120
Israel	2005	0.491	0.370	0.121	0.045	0.076
Korea	2006	0.334	0.311	0.023	0.006	0.017
Poland	2004	0.527	0.320	0.207	0.005	0.202
Romania	1997	0.372	0.277	0.095	0.013	0.082
Taiwan	2005	0.324	0.305	0.019	0.003	0.016
Turkey	1997		0.490		-0.014	
Argentina	2006	0.589	0.479	0.110	0.019	0.091
Brazil	2006	0.570	0.486	0.084	0.014	0.070
Colombia	2004	0.568	0.562	0.006	-0.001	0.006
Costa Rica	2004	0.559	0.479	0.080	0.012	0.068
Guatemala	2006	0.521	0.507	0.014	0.012	0.002
Mexico	2006	0.537	0.497	0.040	0.003	0.037
Uruguay	2004-06	0.542	0.428	0.124	0.010	0.114

Source: Authors' compilation on Leiden LIS Budget Incidence Fiscal Redistribution Dataset, Centrangolo and Gómez-Sabaini (2006), OECD, IMF, IDLA database and a literature search.

Appendix Table 2: Reynolds–Smolensky index for Latin American countries, 1990s and 2000s

		GINI		Reynold-Smolensky							Source	
		Before all taxes	After all taxes	Total difference	Income tax	VAT	Excise	Fuel	Tobacco	Alcoholic beverages		Trade
Argentina	2006	0.5133	0.4941	0.0192								Gómez-Sabaini and Rossignolo (2008)
Argentina	2004	0.438	0.447	<b>-0.0090</b>								Cont et al. (2009)
Argentina	1997	0.5481	0.5676	<b>-0.0195</b>	<b>0.0040</b>	<b>-0.0059</b>		<b>-0.0002</b>				Gómez-Sabaini et al. (2002)
Bolivia	2000	0.556	0.567	<b>-0.0110</b>		<b>-0.0010</b>		<b>-0.0090</b>	<b>0.0000</b>	<b>0.0000</b>		Barreix et al. (2006)
Brazil	2006	0.57	0.556	<b>0.0140</b>								Leiden LIS Budget Incidence Fiscal Redistribution Dataset
Brazil	2003	0.603	0.5988	<b>0.0042</b>								Salvadori Dedecca (2010)
Brazil	1999	0.642	0.649	<b>-0.0070</b>	<b>0.0080</b>	<b>-0.0120</b>						Immervoll et al. (2006)
Chile	2003	0.5791	0.5764	<b>0.0027</b>	<b>0.0207</b>	<b>-0.0177</b>		<b>-0.0008</b>	<b>-0.0014</b>	<b>-0.0005</b>		Jorratt (2010)
Chile	1996	0.4883	0.4961	<b>-0.0078</b>								Engel et al. (1998)
Colombia	2004	0.51352	0.51452	<b>-0.0010</b>								Leiden LIS Budget Incidence Fiscal Redistribution Dataset
Colombia	2003	0.537	0.537	<b>0.0000</b>	<b>0.0080</b>	<b>-0.0040</b>			<b>-0.0010</b>	<b>-0.0010</b>		Barreix et al. (2006)
Costa Rica	2004	0.6017	0.5893	<b>0.0124</b>	<b>0.0079</b>	<b>-0.0032</b>	<b>-0.0003</b>					IIICE (2011)
Costa Rica	2000	0.482	0.4827	<b>-0.0007</b>	<b>0.0030</b>	<b>-0.002</b>	<b>0.001</b>				<b>-0.002</b>	Cubero and Vladkova-Hollar (2010)
Costa Rica	1988	0.4473	0.4571	<b>-0.0098</b>	<b>0.0053</b>							Bolaños (2002)
Dominican Rep.	2004	0.5106	0.5126	<b>-0.0020</b>	<b>0.0347</b>	<b>-0.0050</b>		<b>-0.0014</b>	<b>-0.0005</b>	<b>-0.0007</b>		Barreix et al. (2009)
Ecuador	2003	0.407	0.4	<b>0.0070</b>	<b>0.0050</b>	<b>0.0020</b>			<b>-0.0010</b>	<b>0.0000</b>		Barreix et al. (2006); Barreix and Roca (2007)
Ecuador	1998	0.663	0.67	<b>-0.0070</b>								Gómez-Sabaini (2006)
El Salvador	2006	0.5034	0.5109	<b>-0.0075</b>	<b>0.0087</b>	<b>-0.0133</b>		<b>0.0002</b>	<b>-0.0005</b>	<b>-0.0013</b>		Barreix et al. (2009)
El Salvador	2000	0.474	0.488	<b>-0.0140</b>	<b>0.0010</b>	<b>-0.0130</b>	<b>0.0000</b>				<b>-0.002</b>	Cubero and Vladkova-Hollar (2010)
Guatemala	2006	0.521	0.5090	<b>0.0120</b>								Leiden LIS Budget Incidence Fiscal Redistribution Dataset
Guatemala	2004	0.463	0.463	<b>0.0000</b>	<b>0.0020</b>	<b>-0.0060</b>	<b>0.0000</b>				<b>0.0040</b>	Cubero and Vladkova-Hollar (2010)
Guatemala	2000	0.5957	0.6034	<b>-0.0077</b>	<b>0.0011</b>	<b>-0.0077</b>		<b>-0.0001</b>	<b>-0.0002</b>	<b>-0.0001</b>		Barreix et al. (2009)
Honduras	2005	0.5697	0.5707	<b>-0.0010</b>	<b>0.0050</b>	<b>-0.0050</b>		<b>0.0010</b>	<b>-0.0010</b>	<b>0.0000</b>	<b>-0.0040</b>	Barreix et al. (2009); Cubero and Vladkova-Hollar (2010)
Honduras	2000	0.543	0.571	<b>-0.0280</b>								Gómez-Sabaini (2006)
Mexico	2006	0.449	0.446	<b>0.0030</b>								Estrada (2009)
Mexico	2002	0.49	0.49	<b>0.0000</b>								Gómez-Sabaini (2010)
Mexico	1989	0.506	0.55	<b>-0.0440</b>								Gómez-Sabaini (2006)
Nicaragua	2001	0.5963	0.5946	<b>0.0017</b>	<b>0.0058</b>	<b>-0.0035</b>		<b>-0.0001</b>	<b>-0.0003</b>	<b>0.0000</b>		Barreix et al. (2009)
Nicaragua	1998	0.51	0.562	<b>-0.0520</b>	<b>0.0040</b>	<b>-0.0290</b>	<b>-0.0190</b>				<b>-0.0030</b>	Cubero and Vladkova-Hollar (2010)
Panama	2003	0.6364	0.6274	<b>0.0090</b>	<b>0.0052</b>	<b>-0.0011</b>		<b>-0.0005</b>	<b>-0.0001</b>	<b>-0.0003</b>	<b>-0.0010</b>	Barreix et al. (2009)
Panama	2000			<b>0.0000</b>								Gómez-Sabaini (2006)
Peru	2000	0.535	0.543	<b>-0.0080</b>	<b>0.0013</b>	<b>-0.0120</b>		<b>0.0030</b>	<b>0.0000</b>	<b>-0.0010</b>		Haughton (2005)
Venezuela	1997	0.4006	0.393	<b>0.0076</b>								Seijas et al. (2003)
Uruguay	2008	0.454	0.442	<b>0.0120</b>	<b>0.0140</b>	<b>-0.0020</b>						Amarante et al. (2007)
Uruguay	2006	0.454	0.453	<b>0.0010</b>	<b>0.0060</b>	<b>-0.0030</b>						Amarante et al. (2007)
Uruguay	1996			<b>-0.0020</b>								Grau and Lagomarsino (2002)

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