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**NÚMERO 236**

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**HIGH INEQUALITY. LOW REVENUE: REDISTRIBUTIVE  
EFFICIENCY OF SOCIAL SPENDING IN LATIN AMERICA IN  
COMPARATIVE PERSPECTIVE**

## ***Resumen***

El estudio compara medidas de esfuerzo, impacto y eficiencia redistributiva para los principales instrumentos redistributivos disponibles a los gobiernos--gasto social "en especie" en los principales países de América Latina y en otros países en desarrollo con bajos niveles de desigualdad, e impuestos y transferencias monetarias en los estados de bienestar maduros de ingresos altos. En el primer caso, aplicamos nuevas medidas de progresividad, relativas a la igualdad de oportunidades en salud y educación. Encontramos que en AL el impacto redistributivo *potencial* del gasto social (suponiendo que estos recursos se transfirieran, sin costos y respetando la distribución observada, en forma de vouchers educativos y de salud) es, en promedio, más del doble del estimado para los otros países en desarrollo (6%), pero la mitad del logrado por los estados de bienestar maduros por medio de transferencias monetarias (25%). Estimamos un impacto en la reducción de la desigualdad en el gasto educativo y de salud en la región (por encima de 50%) suficiente para cancelar, en estos rubros específicos, la ventaja en la equidad de los recursos autónomos de los otros países en desarrollo considerados.

## ***Abstract***

The study compares measures of redistributive effort, impact, and efficiency for the principal redistributive instruments available to governments--social spending "in kind" in Latin America and in other developing countries, and tax and monetary transfers in the mature, high-income welfare states. In the former case, we apply new measures of progressivity, relative to equality of opportunities in health and education. We find that the *potential* redistributive impact of social spending (were these resources transferred, costlessly and with the observed distribution, in the form of education and health vouchers) in the region is, on average, more than twice that measured in the other developing countries (6%), but half of that achieved by monetary transfers in the mature welfare states (25%). We estimate an impact in the reduction of inequalities in education and health spending sufficient to cancel, in these specific items, the equity advantage in autonomous resources of the other developing countries considered here.

## ***1. Introduction<sup>1</sup>***

There are three principal redistributive instruments available to governments in modern mixed economies:

- a) progressive taxes on income or assets,
- b) direct monetary transfers, and
- c) transfers "in kind", through the subsidized provision of goods and services.

These instruments, constituting the modern welfare state, are largely a product of the 20<sup>th</sup> century, though the establishment of public pension and education systems in some European countries dates back to the second half of the 19<sup>th</sup> century. The rapid expansion of public social expenditure (b + c), by far the most important redistributive instrument, however, is only a phenomenon of the last few decades.

In broad terms, the distribution of post-fiscal income depends on four factors:

- a) the original distribution of autonomous (market, factor) income,
- b) the proportion of autonomous income absorbed by the redistributive instruments (average tax/transfer rates), and
- c) the redistributive efficiency of these instruments, which we will in turn define in terms of two factors:
  - i) their targeting efficiency, or progressivity, and
  - ii) their transferring efficiency, measured by the proportion of resources raised/spent which is actually transferred, taking into account non-transfer (public good) impacts and implementation costs (administrative costs, incentive effects, participation costs, government failures in the provision of services, etc.).

<sup>1</sup> This paper originated as a study on *Fiscal Aspects of Social Programs, Studies On Poverty and Social Protection, Regional Policy Dialogue, Poverty Reduction and Social Protection Network, Inter American Development Bank (IADB)*.

This study compares measures of redistributive effort, impact, and efficiency for the principal redistributive instruments available to governments in contemporary mixed economies. We will draw comparisons between as well as within three groups of countries, and two sets of instruments. We will contrast the middle-income, high-inequality and low-revenue countries of Latin America, with two opposite extremes: low-inequality, low-inequality developing countries with modest social spending, and high-income welfare states. We focus on social spending "in kind" in the two groups of developing countries, and tax and monetary transfers in the mature welfare states. This comparison is of interest for several reasons. First, the two polar cases offer sharp contrasts with LA in terms of the conditions we have just identified. Some of the most notable examples of "support-led" protection (Drèze and Sen 1989) may be found in these groups. On the one hand there are well-known examples of equitable human development in low-income countries or regions, especially in East and South Asia. In many of these cases (Sri-Lanka, China, etc.), however, these exceptional achievements of public action under low-income conditions have been facilitated by exceptionally equitable autonomous distributions in assets and income, and may thus be better described as "equity-led".

At the opposite extreme, the mature OECD welfare states have been estimated to achieve reductions in inequality and poverty in the order of 20-50% and 40-80%, respectively (Ervik 1998, Smeeding and Ross 1999). This exceptional redistributive impact is largely explained by the scale of resources absorbed by these states.<sup>2</sup> The achievement of this group may thus again more accurately be described as "revenue-led".

Finally, governments in LA operate under comparative disadvantages in *both* of these parameters: they face exceptional redistributive demands under exceptional revenue constraints. In these circumstances, the redistributive efficiency of these instruments is of particular relevance. Can we describe the redistributive effort of the LA states as "efficiency-led"? This would be implied by a commonly postulated (though less commonly tested) hypothesis on the political economy of fiscal policy, derived from the "medium voter" theorem in spatial voting theory. We will find that the redistributive preferences of governments in the LA region--measured by both, the share of public resources in education and health spending, and the degree of progressivity in the allocation of these resources--is indeed consistent with this hypothesis. We shall see, however, that the interpretation of this result is more complex. It may rather reveal the low quality of the social services provided, defeating the other condition of redistributive impact and efficiency identified above ("transferring efficiency"). We will conclude that the equity and quality of "universal" social services in the region are not independent from each other, but in direct conflict.

<sup>2</sup> Kim (2000) has estimated size to be 4.4 times more important than targeting efficiency in explaining the poverty-reduction performance of the mature welfare states.

The study is structured as follows. Section 2 reviews the information available for the comparative analysis of the redistributive impact of social spending. Section 3 presents the measures of progressivity and redistributive efficiency to be used in this study. In addition to standard measures of absolute (quasi-Gini or concentration coefficient) and relative progressivity (Kakwani's index), in the case of health and education spending we will calculate measures which take into account the distance of the transfer concentration (lorenz) curves with respect to needs concentration curves representative of prevailing inequalities in autonomous health and educational resources and requirements. We will also consider the impact of each instrument on the Gini coefficient and their relative redistributive efficiency, defined as the elasticity of the latter with respect to the instrument's participation in autonomous income. Section 4 presents the stylized facts of the LA welfare state in comparative perspective. Section 5 applies the noted measures in a comparative analysis of the redistributive impact of fiscal policy covering 38 countries: eight mature welfare states, thirteen LA countries, and 17 other low- and medium-income countries. Section 6 summarizes the principal findings of this comparative analysis and derives policy implications and a future research agenda. Section 7 presents bibliographical references, and an Annex presents the principal results tabulated by country.

## ***2. Limitations in Data Availability and Comparability***

A mayor deficiency in official budgetary and social sector reports in most countries, as well as in the reports by the mayor international organizations with economic and social agendas, is the lack of comparable, comprehensive measures of the redistributive impact of the fiscal system. The most simple and commonly reported measure, public social expenditure as a share of total public expenditure or GDP, is limited in several respects. First, the functional classification of what falls into social expenditure varies widely across countries and times, and even across international organizations aiming at cross-country standardization. The OECD's *Social Expenditure Database*, for example, defines "social expenditure" narrowly as benefits provided to households and individuals "during circumstances which adversely affect their welfare", including:

*old-age cash benefits; disability cash benefits; occupational injury and disease; sickness benefits; services for the elderly and disabled; survivors; family cash benefits; family services; active labour market policies; unemployment compensation; housing benefits; public health expenditure; and other contingencies e.g., cash benefits to those on low income.*

If we subtract public health expenditure (the preventive part of which is of course by definition not contingent on adverse circumstances), this would correspond approximately to the definition of "social protection" adopted in the IMF's *Government Financial Statistics*. Both of these definitions leave out public education expenditure, the principal public social expenditure item in low- and

medium-income countries (see graph 4.9). The World Bank's *World Development Indicators*, on the other hand, define government "social service expenditure" more broadly, to include not only social protection, health and education expenditure, but also spending on environmental protection with significant health implications, like pollution abatement, water supply, sanitation, and refuse collection (WB 2001, p.325).

Secondly, despite its popularity, much of government spending classified under the "social" banner may have limited or even perverse (unequalizing) redistributive impacts. For one thing, these interventions aim to correct market-failures in social insurance, health care, and education, as well as, if not before than (Barr 1992), pursuing distributive justice. It is notable that none of the classificatory efforts considered in the last paragraph address the difference between redistributive and non-redistributive functions of social spending, not to mention different *kinds* of redistributive function (sect. 3).

But even those programs which are clearly redistributive in purpose may turn out to have limited redistributive impacts. This may happen for at least three reasons:

- a) they may induce offsetting behavioral responses (crowding out work effort, household spending on private social services, and private inter-household or institutional transfers),
- b) they may be inefficient, and
- c) they may be regressively allocated.

Consistently with the first two possibilities, verifying the impact of public health and education spending on (respectively) health and educational outcomes has proved to be a remarkably elusive task, both in cross-country studies focusing on aggregate spending within these sectors (for a brief review, see Gupta et al 1999, sec. 1), and in impact evaluations for specific programs (Hanushek 1995, van de Walle 1995, Filmer et al. 2000).

The principal evidence for the third possibility comes from benefit incidence analysis, applied over the last decade to a growing number of countries. As we will see below (5.2), these estimates have typically found that overall public health and education spending is neutral or mildly regressive in absolute terms.

On the basis of the latter observation, public expenditure on *basic* social services (basic education and primary health care) has been widely recommended as a more relevant measure of public effort in promoting aggregate human development and income growth, as well as a more equitable distribution of both (World Bank 1990, UNDP 1991; 1995 World Conference on Social Development at Copenhagen). But even this narrower concept is not free of limitations. First, there are evident problems of comparability. Though standardized information on basic

education inputs and outputs is widely available (Barro and Lee 1996, 2000, UNESCO), this is not the case for primary health care. This may explain why the in the UNDP's 1991 Human Development Report proposal of reporting the "human priority ratio"—public spending on basic social services as a share of GDP—has not taken off generally, or even in the organization's subsequent Reports.

Secondly, in most LA countries, and in middle-income countries generally, the coverage of primary education and basic health services is close to complete, in contrast to middle and higher education levels and social security.

Thirdly, as these countries advance through demographic and epidemiological transition curves (with stable or diminishing basic education-aged populations and growing older populations), they are facing growing demands for social services at post-primary levels of attention.

Forthly, as the misallocation of public spending in favor of tertiary services has been corrected in many LA countries over the last decade (at least in education), the more relevant differentiating factor of fiscal equity appears to be not the balance between basic vs. non-basic services, but the degree of progressivity achieved *within* each of these services (sect. 6).

Finally, the evidence on the impact of spending on basic health and education services is also ambiguous, as these services are no less prone to crowding out effects and inefficiencies due to lack of accountability (Filmer et al. 2000). Indeed, in the context of the highly unequal societies of LA, it is to a large extent precisely the *low quality* of these services which explains their comparative targeting efficiency through self-selection.

Beyond aggregate measures of social spending, we can measure the distribution of these resources among households or individuals. More generally, we can estimate the redistributive impact of the fiscal system as a whole, and the relative contribution of each instrument within this system. We will describe relevant measures of progressivity and redistributive impact and efficiency in the next section. The principal challenge here, however, is the scarcity of relevant data for comparative cross-country analysis. Ideally, such information would be based on direct household reports on the taxes payed, monetary transfers received, and the household's estimated monetary valuation of benefits received in kind. In practice, the information available for most countries is incomplete and imputed from other household variables.

Two mayor international efforts to standarize income and expenditure survey information for comparative distributive analysis, the *Luxembourg Income Study* (LIS) and the *Canberra Group*, have both emphasized the importance of comparable information on taxes and government transfers. The *Final Report* (2001) of the latter group sets up standarized guidelines for the information required, and reports on the actual state of affairs in the relevant surveys for 21 participating countries. There is fairly complete non-imputed information on the monetary transfers (social security and social assistance) in practically all of the mature welfare states. Information availability

on the other two mayor redistributive instruments, however, is limited. Only five countries report non-imputed income tax as a separate item (two others report it jointly with other taxes, and five more impute it in the official surveys). Only three countries report the value to households of public health services, and only one (Australia) includes the value of public education services.

The information on taxes and monetary transfers available for the OECD countries with highly developed welfare states has been compiled and standardized in the LIS data set, covering 22 countries in its third (1989-1992) and fourth waves (1993-1997). Data on market, gross (after monetary transfers), and net (after tax and monetary transfers) or disposable income is available for eleven Western welfare states, allowing direct measurement of their redistributive impact (see table A1 in the Annex). In the case of non-cash transfers, however, the methodological problems involved in estimating the monetary value to households of the benefits received are more complex, and data availability for most countries is limited. According to the Canberra Report, only three countries (Australia, Denmark, and U.K.) publish annual official estimates of the redistributive impact of taxes and transfers, including transfers in kind in education, health and housing.

These limitations are especially grave in the case of middle-income countries with less developed welfare states, where the principal redistributive instrument is in-kind social expenditure (sect. 4). Fortunately, however, benefit incidence studies have been undertaken for the principal social programs (education and health) in a limited but growing number of these countries during the last decade. Most of these studies impute the monetary value of public social services by combining information on the use (or *right* to use) of households of specific services from income and expenditure surveys, with estimates on the costs of services obtained from official budgetary data. In the LA region, following a pioneering study on Colombia by Selowsky (1979), comprehensive benefit incidence estimates of social services have become available for at least nine countries over the last decade (Argentina, Brazil, Bolivia, Chile, Colombia, Costa Rica, Ecuador, Mexico, Uruguay).

The results of most of these studies have been tabulated for comparative purposes in recent reports by the principal international organizations concerned with economic and social development in the region (CEPAL 1994, ch. III; 2001, ch. IV; IADB 1998, ch. 8; World Bank 2001, ch. 5). While these comparisons could potentially represent a useful input for comparative analysis, the noted reports have themselves only made limited progress in this direction. First, these compilations have not involved any serious effort to ensure the comparability of the estimates available for different countries (or indeed for the same country). Secondly, beyond observing general cross-country patterns, these reports have not used these data for a systematic comparative study. In particular, there is no attempt to *contrast*, through a detailed battery of comparable measures, the relative redistributive impact and efficiency achieved in different countries through the fiscal system.



We present three examples to illustrate the problem of comparability. Consider first table 2.1, which contrasts two estimates of the distribution of public health spending in Brazil reported, respectively, in two of the noted reports: the World Bank's *World Development Report 2000/2001* and ECLAS's *Panorama Social de America Latina 2000/2001*.

Table 2.1  
Distribution of Public Health Expenditure in Brazil:  
Two Estimates (% shares)

Income Quintile	Health	Health and Nutrition
	1990	1994
	World Bank (2001)	ECLAC (2001)
I (poor)	8	32
II	18	27
III	30	20
IV	25	14
V (rich)	20	8

Sources: World Bank (2001), Table 5.2 "Public spending on health by income quintile...", p. 81; ECLAC (2001), Cuadro IV.5, "Distribución del gasto social por estratos de ingreso..", p. 141.

The two estimates have completely different policy implications.<sup>3</sup> Brazil appears as the most anti-poor public health spender among the 12 countries reported by the WB, but as the second most pro-poor among the 9 countries reported by ECLAC. Which estimate should the Brazilian government heed? Neither, as it turns out. The WB estimate originates in its 1995 *Poverty Assessment Report* for Brazil (World Bank 1995), where it does not in fact refer to income-ordered population quintiles, but to population groups of different sizes classified by increasing fractions and multiples of the minimum wage. If we correct this through a linear approximation to the distribution by population quintiles, it is less unequal but still fairly regressive.<sup>4</sup> The highly progressive ECLAC estimate, on the other hand, in fact corresponds only to Sao Paulo, thus failing to take into account urban-rural and regional inequalities.<sup>5</sup>

Partial geographic coverage and the use of different-sized groups are crude comparability errors which can be easily corrected in a careful compilation of

<sup>3</sup> ECLAC aggregates health and nutrition, but this could not account for the difference between the two estimates as nutrition only represents 8.5% of health spending in Brazil (World Bank 1995).

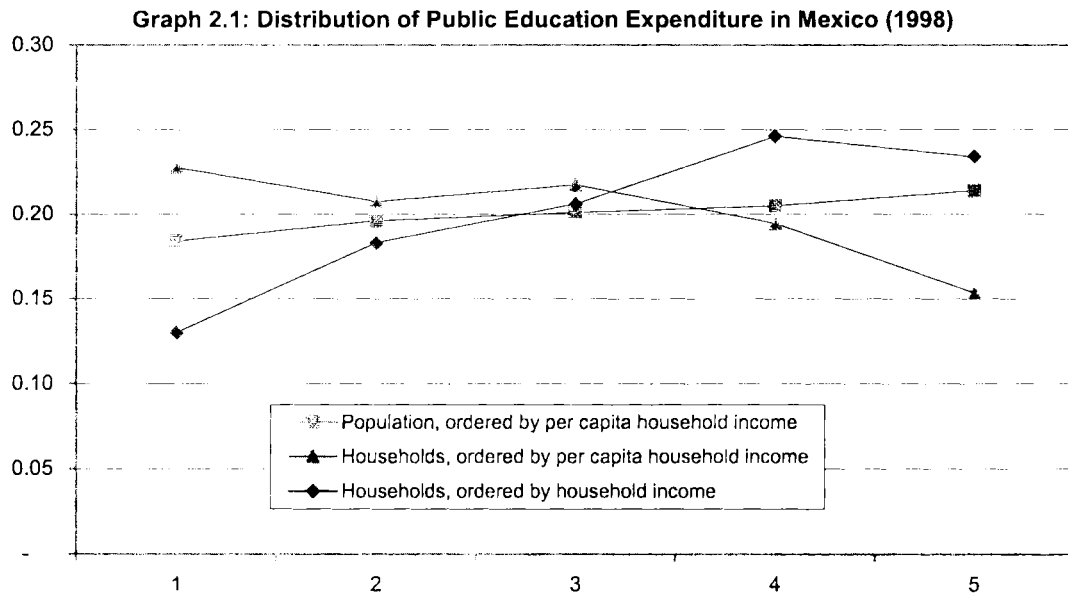
<sup>4</sup> See table A3, where the distribution for Brazil includes this correction.

<sup>5</sup> The restriction in coverage is noted in a footnote to the corresponding table in the case of the ECLAC report, but there is no similar warning for the deviation from population quintiles in the WDR table (though this incomparability is noted in the cited secondary source: Filmer and Pritchett 1997). Neither of the reports refers to the original country studies (and in the case of ECLAC not even to a secondary source). The ECLAC estimates are described as *household quintiles* ordered by *per capita income*. The WDR table does not specify the unit and ordering concept used.

incidence studies. But there are more subtle methodological differences to which incidence estimates are no less sensitive. These include:

- a) the ordering welfare concept used (income, consumption, non-monetary),
- b) the unit of beneficiaries grouped into quantiles (persons, adult equivalents, households), and
- c) the unit/welfare concept used to *order* these units (per capita, per adult equivalent, or total household income/consumption).

To illustrate, graph 2.1 presents three estimates for the distribution of public education in Mexico using the same income and expenditure survey and welfare concept, but varying the unit used to form quintiles (b) and the ordering concept (c) (Scott 2001).



Finally, the most complete education and health expenditure data for household can be obtained from income and expenditure surveys, but these often suffer from significant problems of underreporting when compared to National Accounts. This is not the case of public expenditure, which is obtained from official budgetary reports. Without adjustment, the ratio of public to autonomous health and education spending may therefore be significantly overestimated. While this does not affect the measures of progressivity as such, measures of redistributive impact are highly sensitive to the decision whether or not to adjust household expenditure for consistency with the NAs (and the adjustment method to be used). To illustrate this, table 2.2 compares the impact of public education spending in Mexico, on the distribution of *total education spending*, using three alternative public/autonomous education expenditure ratios: a) all household education spending, including schooling supplies as well as tuition, in public as well as private institutions, from the national income and expenditure survey

(ENIGH 1998) adjusting total household expenditure for consistency with the National Accounts, b) the same unadjusted, and c) the OECD estimate, which appears to count on the autonomous side only tuition spending in private institutions, unadjusted.

Table 2.2  
Reduction of inequality in education  
expenditure in Mexico (1998)

Public/Total expenditure	Reduction in Gini for total education spending
(a) 52%	56%
(b) 62%	70%
(c) 86%	97%

Scott (2001). a) with and b) without adjustment to NAs; c) OECD Education Indicators.

Despite the emphasis placed by both the LIS and Canberra initiatives on generating comparable data on non-monetary transfers, no international standardization effort exists comparable to the former effort for the case of monetary transfers in OECD countries. This would be especially urgent not only because of the dominant role of in kind transfers in middle-income countries, but because the methodological choices are especially wide and data especially uncertain in the case of non-monetary benefits.

Beyond these uncertainties, benefit incidence analysis has of course some well-known analytical limitations (van de Walle 1998). First, it fails to take into account behavioral and general equilibrium effects. Secondly, costs may not reflect benefits for multiple reasons: principally, a) the market value of these services may be above or below their budgetary costs depending on the relative importance of market and government failures, and b) services provided will generally be of less value to the households than a monetary transfer equivalent to the market value of these services due to the implied restriction in the households choice-set. Thirdly, by itself this kind of analysis provides no information on the causes of spending inequality nor on *marginal effects*, thus providing limited guidance for policy reform.

These restrictions may limit the practical policy relevance of benefit incidence studies for individual countries, and may even generate misleading advice if interpreted out of context. As illustrated in the next sections, however, the comparative analysis of standardized benefit incidence estimates could represent a valuable input for policy reform.

### 3. Measures of Redistributive Effort, Impact, and Efficiency

The most common measures of absolute and relative progressivity used in the benefit incidence literature are, respectively, the *concentration coefficient*, or *quasi-Gini* ( $C$ ), and *Kakwani's index* ( $P$ ), corresponding to the difference between the former and the Gini coefficient for autonomous the income distribution ( $G$ ).<sup>6</sup>

$$P = C - G \quad (1)$$

$C$  is derived from the Lorenz curve of the distribution of social spending corresponding to the population ordered by autonomous income (*concentration curve*). Both measures are thus defined analogously to the Gini coefficient. In geometric terms, they represent twice the area between the concentration curve and, respectively, the diagonal ( $C$ ), and the the Lorenz curve for the distribution of autonomous income ( $P$ ).  $C$  is thus defined in the interval  $(-1, 1)$ , where in the case of *transfers*, negative and positive values represent, respectively, progressive and regressive allocations, while  $P$  is defined in  $(-2, 1)$ , with negative and positive values similarly corresponding to progressive (equalizing) and positive values to regressive (concentrating) transfers, relative to the original distribution of income.

$C$  may be interpreted as the *absolute redistributive effort* of the transfer, while  $P$  indicates the redistributive effort *relative to the income distribution*. The redistributive *impact* of the transfer, measured by the difference between the Gini before and after the transfer, can be shown to be directly proportional to  $P$  and the average transfer rate (transferred resources as a proportion of autonomous household income),  $\gamma$ :

$$\Delta G = P \frac{\gamma}{(1 + \gamma)}, \quad (2)$$

Finally, we can measure the redistributive *efficiency* ( $RE$ ) of a transfer as the elasticity of this impact with respect to the proportion of autonomous income absorbed by the transfer:

$$RE = \frac{\Delta G / G}{\gamma}, \quad (3)$$

Despite its widespread use, the Kakwani measure has some limitations, especially in the context of benefit incidence analysis of non-monetary social transfers (Scott 2002). These are related to the measurement of (relative) progressivity as the deviation from proportionality to income, explicitly postulated by Kakwani as his

<sup>6</sup> See Kakwani (1977).

principal normative axiom.<sup>7</sup> The axiom originates in the concept of progressive income taxation, and the corresponding measure, which was developed originally for purposes of tax (and monetary transfer) incidence analysis, are fairly directly derived from the theory of income inequality measurement. Measuring the degree of progressivity/regressivity as a function of the deviation from perfect proportionality, however, has no clear interpretation in the case of transfers, and lacks a relevant standard of optimal progressivity. One implication of using the Lorenz curve for the distribution of autonomous income as the normative reference point in Kakwani's measure is that the more unequal the original distribution, the *higher* the measured degree of progressivity achieved by the same redistributive effort (absolutely measured). In the case of non-cash transfers this reference point is especially dubious, because these are not generally aimed at direct income redistribution, but the redistribution of health and education resources or opportunities as "merit" goods in their own right. To avoid both of these problems, we can construct measures of progressivity defined in reference to ideal norms defined in the relevant dimensions. In particular, we will use two such measures, defined relative to norms of equality of resources, and equality of opportunities, in the dimensions of education and health.

In the first case the redistributive achievement of public spending in health and education is evaluated in reference to the distribution of this spending which, *given the distribution of autonomous spending on these goods*, would generate an equal distribution of total—public and private—spending in these domains. This ideal distribution can be derived from an equation analogous to (2), to obtain the impact of the transfer on the distribution of total spending in the respective social domain S (education, health, etc.):

$$\Delta G_S = P_S \frac{\gamma_S}{(1 + \gamma_S)}, \quad (4)$$

where  $P_S = C_S - G_S$ , the difference between the concentration coefficient of public spending in S and the Gini of household spending in S, and  $\gamma_S$  is the ratio of public to autonomous household spending in S.

The concentration coefficient of the transfer required to equalize total resources in S is directly proportional to the inequality of autonomous spending in S, and indirectly proportional to the sectoral transfer rate:<sup>8</sup>

$$C_{ER} = -\frac{G_S}{\gamma_S}. \quad (5)$$

<sup>7</sup> Axiom 12.2, Kakwani (1977).

<sup>8</sup> Setting  $G_S^{Post} = 0$ , and thus  $\Delta G_S = -G$  in (4) (where  $\Delta G_S = G_S^{Post} - G$ ).

Note that if public spending in S has a minority share ( $\gamma_S < 1$ ), even perfect targetting could not equalize spending in a highly unequal society ( $G_S = 0.5$ ). On the other hand, in the same conditions, if public spending in S absorbs between 75% and 85% of total spending in this sector, a mild to moderate degree of progressivity ( $C = (-.09, -.17)$ ) would be enough to ensure equality of disposable resources in S. The former range corresponds approximately to the average shares of public expenditure in total health and education expenditure, respectively, in high-income countries (graph 4.9, table A1, Unesco 2000).

Using the actual distribution of pre-transfer spending in these sectors in the latter formula may not lead to an accurate estimation of  $C_{ER}$  for several reasons. First, if public social spending crowds out private social spending, generating an equal distribution of post-transfer spending would require a smaller fiscal effort than the actual level of private social spending suggests. Secondly, a *distributive* crowding out effect must also be considered: increasing the progressivity of public spending leads to more regressive private spending if the poor decrease while the rich increases private social spending to keep their respective budgetary shares on these goods constant. Finally, some spending in the education and health sectors by upper income groups may be “luxury” spending, superfluous in relation to health and educational outcomes. For these reasons, a more relevant measure of the distribution of the private access to these outcomes would be the distribution of pre-transfer spending *capacity* on health and education services, which here we will assume equal to the distribution of autonomous income (G).

The second measure assumes a more ambitious ideal, recognizing that even equality of total resources in health and education may fall short of equality of opportunities when needs differ. Needs may differ between income groups, despite equality in health and educational resources, because of inequalities in other resources *complementary* to these in the production of health and education, such as the capacity to buy food, the accumulated stock of health and educational capital, demographic structure, environmental factors, etc. In this case, a more relevant norm would be equality of resources *per need*. To obtain a measure of this kind we can construct concentration curves of needs in S (education, health, etc.), summarized by corresponding concentration coefficients,  $C_N$ .<sup>9</sup> When these curves coincide with total social spending concentration curves, we would have proportionality of spending with needs in these dimensions, or equality of resources per need. The required distribution of public social spending would have a concentration coefficient corresponding to:<sup>10</sup>

<sup>9</sup> For the case of health, Wegstaff et al. (1989) have proposed “illness” concentration curves, plotting the cumulative distribution of the population ordered by income against the cumulative distribution of illness.

<sup>10</sup> Setting  $G_S^{Post} = C_N$  in (4) (where  $\Delta G_S = G_S^{Post} - G$ ).

$$C_{ERN} = C_{ER} + C_N \left(1 + \frac{1}{\gamma_S}\right). \quad (5)$$

Finally, we can define corresponding progressivity measures as the distance between the concentration coefficient of public spending in S and the optimal coefficients in reference to the above norms of equality:

$$P_{ER} = C_S - C_{ER}, \text{ and} \quad (6)$$

$$P_{ERN} = C_S - C_{ERN}. \quad (7)$$

#### 4. Latin American Welfare States: Comparative Profile

Before applying the above measures, we consider some general features about the redistributive demands faced by the LA welfare states and their capacity to respond to these through fiscal instruments, in comparative perspective with the two polar sets of countries mentioned above: low-inequality (low- to middle-income) and high-revenue (high-income) countries.

##### 4.1 Redistributive Demand: Inequality and Human Development

The LA region as a whole has recorded Gini coefficients above 0.55 over the last three decades (Londoño and Székely 1997), close to 20 points above the averages for both low- and high-income countries (table 4.1). The redistributive effort implied by this condition represents an exceptional challenge for fiscal policy in the region, but also an exceptional opportunity. Given these levels of autonomous income inequality, it follows from the formulas presented above (1 and 2) that in no other region in the world has fiscal policy reform—whether increasing the share of GDP channeled to redistributive fiscal instruments, or improving the progressivity of these instruments—a larger redistributive potential.

Table 4.2 contrasts indicators of public expenditure and human development for middle-income countries, partitioned into high- and low-inequality groups at a Gini of 0.45.<sup>11</sup> A majority of the former group are LA countries (13 out of 19). This simple comparison reveals some interesting observations. With the exception of illiteracy, the low-inequality group performs comparably or notably better in all reported human

<sup>11</sup> We exclude the Russian Federation and the Ukraine from this analysis, given the recent origin of their high income inequality, which is not representative of the distributional context in which their current human development record was consolidated.

development indicators, despite an income per capita of a half in PPP dollars. A striking illustration of this lack of correlation between resources and human development, is the observation of a reversal in the general negative correlation between income per capita and infant mortality at middle income and mortality levels (table 4.3). There are, however, some low-inequality countries with low human development achievements in relation to their income per capita (Papua New Guinea, Bolivia, Morocco, Egypt), just as we find some good performers among high-inequality, upper-middle income countries (Chile, Costa Rica, Malaysia).

The composition of the low-inequality group suggests that their current human development record owes much to public efforts in the past, in some cases in the context of mixed economies (Sri-Lanka), but mostly in centrally planned economies (China and the former Soviet block countries). Nevertheless, the comparative advantage of the low-inequality group in human development does not appear to depend on current levels of public spending per capita, which are significantly lower in this group. Note that though low-inequality countries spend a smaller proportion of their GDP in public education, they devote a larger share (in per capita terms) per student in primary education. While this may suggest that low-inequality countries spend public resources more equitably, this is not in fact confirmed by the evidence considered in the following section. On the contrary, this evidence suggests the opposite tendency (see graph 5.12), consistently with the intensity of redistributive demands, as postulated by “medium voter” theories of the political economy of fiscal policy.

Table 4.1  
Average Inequality in International Regions (1990)

Region	Gini
LAC	55.4
Sub-Saharan Africa	45.0
East Asia and Pacific	41.2
Middle East and North Africa	35.6
South Asia	29.8
Eastern Europe (unweighted)	28.9
Low income	36.8
Lower-middle income	44.4
Upper-middle income	56.4
High-income economies	34.5
	(45.2)*

Population-weighted averages. Own construction from Deininger and Squire database (1996).

\*Pre-fisc Gini from Luxembourg Income Study database: average of countries reported in table A1 in the Annex.



Table 4.2  
Resources and Human Development in Low- and High Inequality Countries

Indicator	Year	Low Inequality Including China			High Inequality
Gini	1990's	34.4	40	55	
GNP/capita (\$US)	1998	1811	991	3469	
GNP/capita (\$US PPP)	1998	3265	3230	6487	
Population (million)	1998	365	1604	544	
Public Health Exp (% GNP)	1990's	2.7	2.2	2.3	
Public Health Exp/capita (\$US PPP)	1990's	89	73	149	
Public Education Exp (% GNP)	1996	4.4	2.8	4.9	
Public Education Exp/capita (\$US PPP)	1998	145	90	318	
In Primary/student (%GNP/capita)	1990	8.6	10.4	7.2	
In Primary/student (\$US PPP)	1990	198	158	467	
Life Expectancy	1997	69.1	69.4	69.1	
Infant Mortality	1997	30.6	31.7	32	
Child Mortality (under 5)	1997	37.8	38.7	40.3	
Maternal Mortality (100,000 live births)	1997	135.6	104.2	154.6	
Schooling	1990	5.4	5.8	5.1	
Illiteracy (% 15+)	1997	18.6	17.4	12.2	
Secondary Completed (% 25+)	1990	9.4	12.6	5.2	
Primary Dropout Rate (%)	1990	13.0	14.5	43.7	

Sources: WB (2000), Barro and Lee (1996). Note: A Gini of more/less than 45 is used to define "high"/"low" inequality countries. Averages are based on all middle-income countries by the World Bank classification (\$US 760-9360 in 1999), including China (classified as such in the WDR 2000/2001), but excluding the Russian Federation and the Ukraine whose high inequality indicators are of recent origin.

Table 4.3  
Infant Mortality and Income

IMR (1997)	Average GNP/cap (\$US 1998)
4-7	22415
9-22	2957
<b>23-33</b>	<b>1627</b>
<b>33-50</b>	<b>2104</b>
50-100	603
100-170	246

Source of data: WDI (WB)

Besides average levels of human development achievements, we must consider the distribution of these achievements. Only in the last few years has there been significant research on the measurement and explanation of health and education inequalities, and data are still scarce. Independently of the specific index used, it is

possible to measure total inequality in these dimensions, or only inequality as a function of specific characteristics, in particular income or other measures of socioeconomic status. In the Lorenz-curve framework, the difference lies in the concept used to order the population in the horizontal from worse- to better-off: the health or education criteria of interest, or an independent measure of socioeconomic status. Examples of the former kind include recent estimations of schooling Gini coefficients using the Barro-Lee data base (Thomas et al. 2000), and a generalized Gini coefficient (cubed and partly relative) for child mortality presented in the *World Health Report 2000/2001*. For the measures of progressivity in reference to equality of resources per need described above, however, we require the latter kind of indexes.

In the case of health, we use a small comparable set of concentration coefficients recently made available as a result of a World Bank project on health inequality measurement (Wagstaff 1999). In the case of education, we have calculated concentration coefficients for 43 countries from information on 9<sup>th</sup> grade completion rates for 15-19 year olds reported by Filmer and Pritchett (1998).<sup>12</sup> We have also calculated concentration coefficients for 15 Latin American countries from higher-quality information, using average schooling by income-ordered deciles derived from income and expenditure surveys (from IADB 1998, table 1.2.III). These schooling differences are reported in the Annex (graphs A.1 and A.2, starred countries represent samples limited to urban centers). Graphs 4.1 and 4.2 compare the education concentration coefficients ( $C_N$ ) obtained from these two sets with the Gini coefficients of the respective countries. Finally, graph 4.3 presents the corresponding comparison for Wagstaff's infant mortality concentration coefficients.

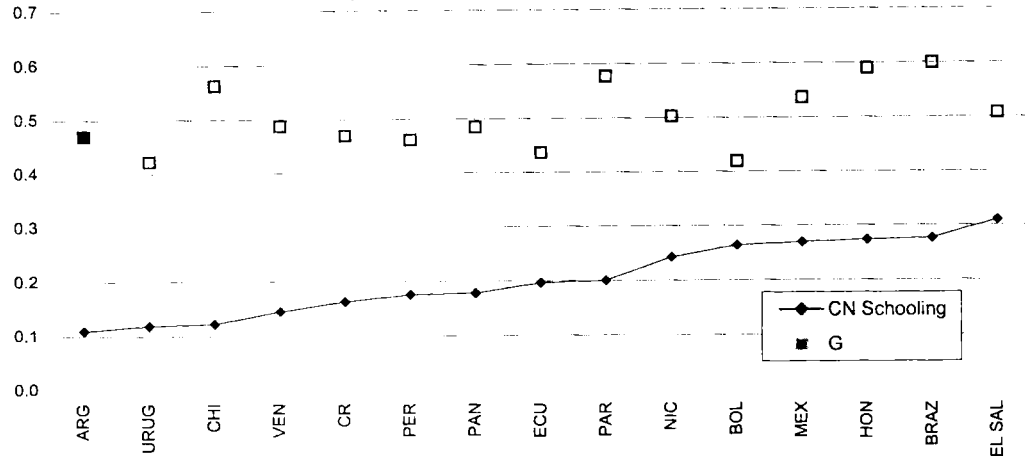
Five countries in the LA region (Guatemala, México, Panama, El Salvador, Brazil) present gaps of more than six years of schooling between the poorest 40% and the top 20% of the population. These countries appear to be among the most educationally polarized in the world, only second to India, Pakistan, and Morocco. Taking into account the middle group, on the other hand, the most educationally unequal countries appear to be in Africa.

We observe a positive relation between income inequality and the inequality in human development in the case of infant mortality,<sup>13</sup> with the only two LA countries included again appearing at the top end. The education concentration indicators, on the other hand, only appear to be mildly correlated with income inequality. In the wider set, all the LA countries included, except Guatemala, fall in the lower half of the set (ordered by completion rate concentration). Within the LA region, on the other hand, all countries in the lower half, except Chile, have Ginis below .5, while all in the upper half, except Bolivia, have Ginis above this level.

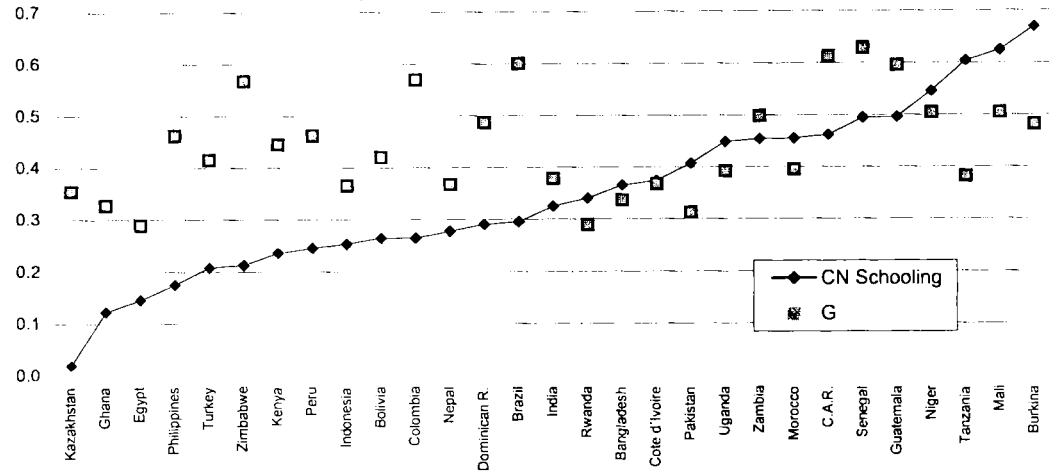
<sup>12</sup> Data available for three socioeconomic groups--poorest 40%, middle 40%, richest 20%--derived from demographic and health surveys (DHS).

<sup>13</sup> Surprisingly, the WHO index presents a negative correlation for the same countries.

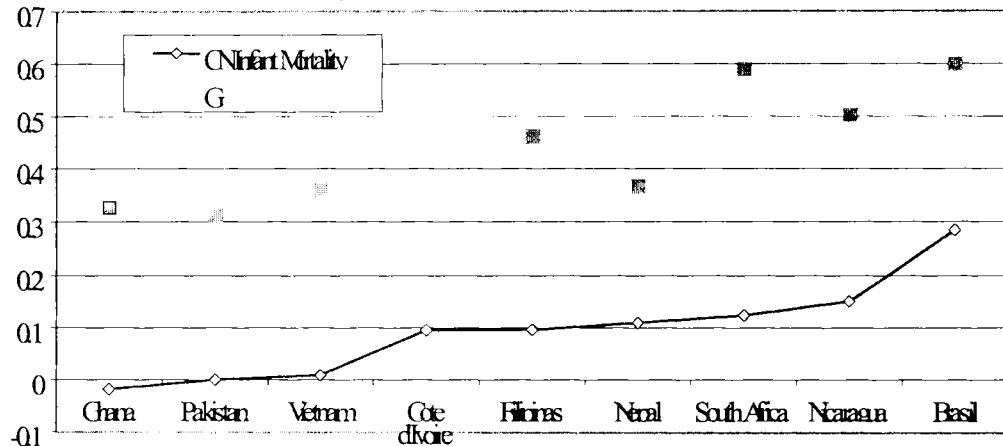
Graph 4.1: Income and Schooling Inequality



Graph 4.2: Income and Schooling Inequality



Graph 4.3: Income and Health Inequality



#### 4.2 Redistributive Supply: Fiscal Instruments

The rapid growth of the welfare state in the high-income democracies of the West during the second half of the 20<sup>th</sup> century has been amply studied. We can contrast this process with a similar expansion in the redistributive function of the state in middle-income countries, and the LA region in particular.

The most obvious contrasts refer to:

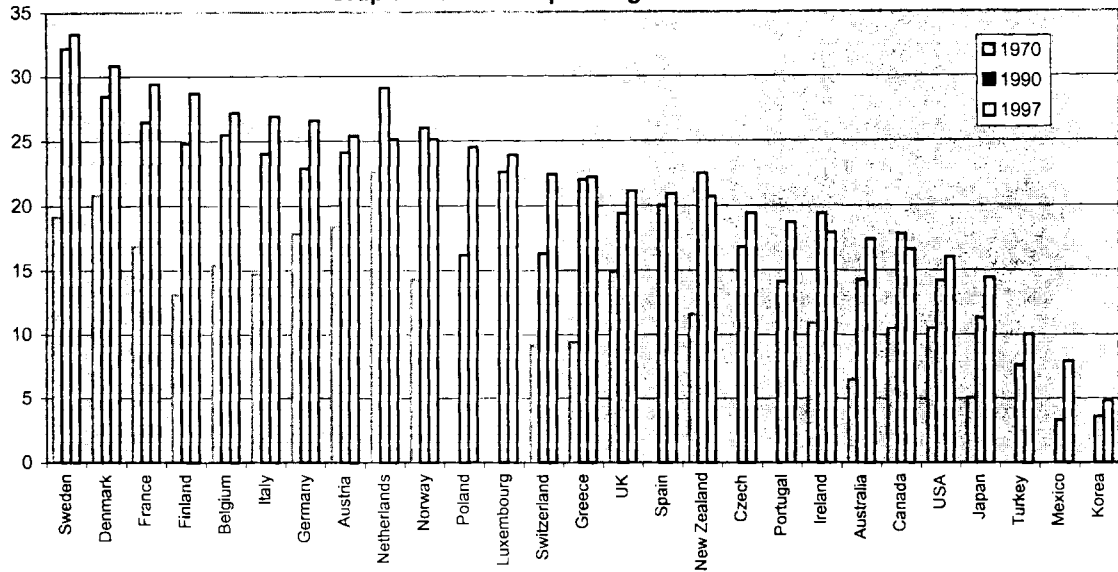
- a) the size of the redistributive fiscal instruments,
- b) the timing and causes of the expansion of the welfare state over recent decades,
- c) the relative importance of different instruments, and
- d) the coverage achieved.

The differences in size and the evolution of social expenditure over recent decades can be appreciated by contrasting Mexico with the rest of the OECD (graphs 4.6). The majority of the latter group channel more than 20% of GDP to public social expenditure, following a rapid expansion up to the 1980's. This trend has slowed down during the 1990's and even been reversed in some countries. In the case of Mexico, social spending grew from little more than 1% of GDP in 1940 to 9.2% in 1982,<sup>14</sup> then collapsed with the 1983 macroeconomic crisis, regaining the latter level only by the end of the century.

In the mature welfare states the expansion in social spending in the post-war years can be explained principally by the aging of the populations, the consequent epidemiological transition and rising health costs, and the redistributive preferences of the median voter in the context of well-established democracies and universal coverage of basic services. In the case of Mexico, the expansion in the three decades up to 1982 was associated with the creation and expansion of the principal public systems for education, health and social security, in the context of rapid population growth. The redistributive preferences which shaped public policy were those of urban groups, organized labor, and government bureaucracies, demanding post-basic education and health services and social security well before universal coverage of basic services was achieved.

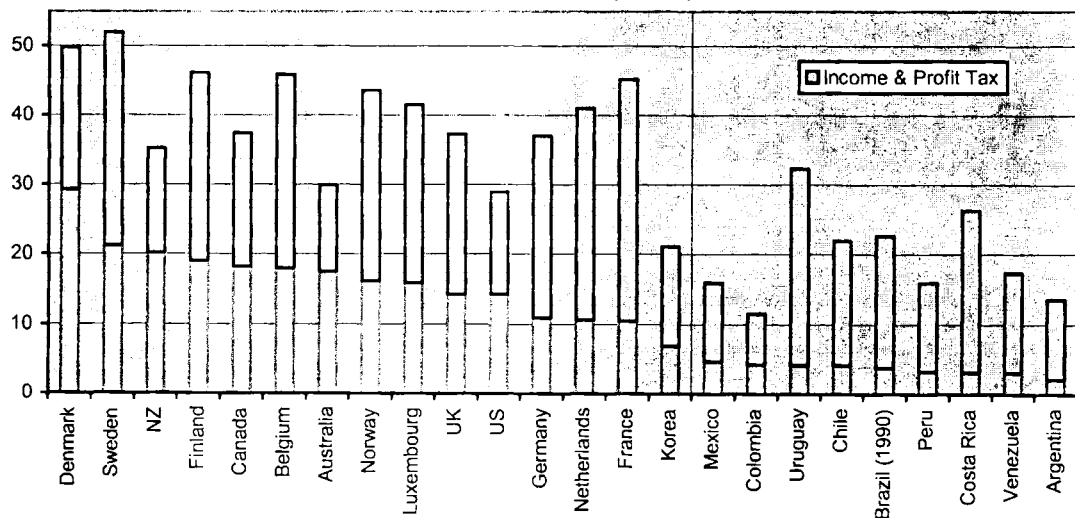
<sup>14</sup> The jump from 1960 to 1970 recorded in graph 4.7 reflects a change in budgetary reporting rules (the inclusion of social security spending within public social expenditure). The expansion in public social expenditure in fact took off in the 1940's, with the creation of the principal social security institutions (IMSS, ISSSTE) and important investments in higher education spending (UNAM).

Graph 4.6: Social Spending/GDP OECD



The expansion of public social expenditure in the mature welfare states has been made possible by sizable tax revenues (graph 4.8). With the exception of Mexico and Korea, all OECD countries included in the graph raise 30% of GDP or more in taxes, while the average for the included LA countries is 20%. In addition, the latter countries raise less than 5% of GDP through progressive instruments (income or profit taxes), while the OECD countries (with the noted exceptions) raise more than 10%, and a majority more than 15% through these instruments, thus reinforcing the redistributive impact of social expenditure (see below, graph 5.1, table A1).

Graph 4.8: Tax Revenue (%GDP) 1998



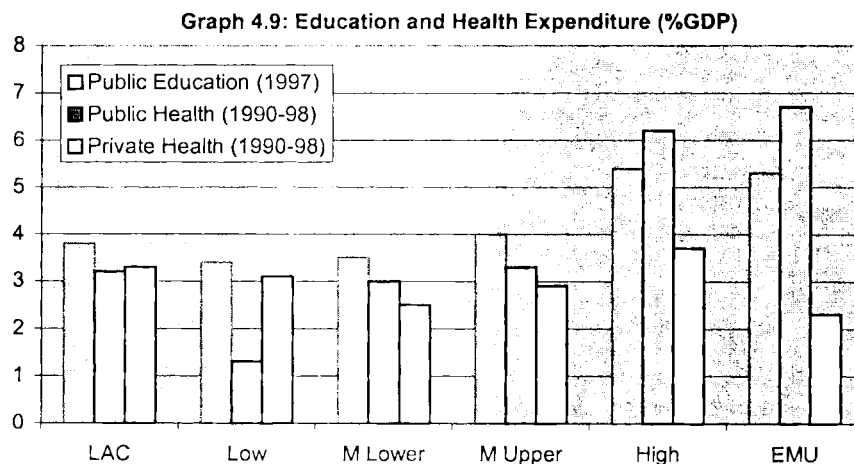
There are also some notable differences in the allocation of social expenditure. First, direct cash transfers—principally pensions and unemployment benefits--absorb a larger proportion of public expenditures in the mature welfare states (table 4.4).

Table 4.4: Cash Transfers (1981)  
(% of Public Social Expenditure)

Germany	54%
France	52%
Netherlands	50%
US	45%
Sweden	44%
UK	44%
Australia	38%
Canada	37%
Japan	36%
Chile (1990)	19%

Kay (1990, table 1), Smeeding et al (1993, table 1)), World Bank (1995, table 8).

Secondly, in the case of social services, public health spending as a proportion of GDP rises more rapidly with income than public education expenditure. This is true both cross-sectionally (graph 4.9, WDI) and in the recent history of the mature welfare states. While the increasing share of public health spending responds in part to the increasing health costs in higher-income countries, it also reflects an increasing participation of public resources in this sector: rising from 30% to 75% as we progress from low-income countries to the OECD average. In the case of the LA region, public health expenditure accounts for close to 50% of total health spending.



Finally, while public education expenditure is only moderately higher as a proportion of GDP in high-income countries than in middle- and low-income ones, there is an important contrast in the allocation of these resources (table 4.5). In

relation to the latter, developing countries spent 62% *less* per student in basic education as a proportion of GNP per capita, but 2.7 times *more* per student in higher education. High-income countries thus invest only 1.3 times more public resources per student in tertiary in relation to basic education, while this proportion is 5.7 in developing countries, and 3 in the LAC region. These differences may in part reflect differences in costs (due to different input combinations and returns to human capital, scale economies, inefficiencies, etc.), and the limited coverage of higher education in the LAC region (in turn explained by prohibitive opportunity costs for lower income groups). But they ultimately represent differences in revealed government preferences with important redistributive implications.<sup>15</sup>

## 5. Comparative Incidence Analysis

Using the data and measures described in the previous sections, we can obtain preliminary comparative estimates of the redistributive effort, impact and efficiency of fiscal policy in LA. These estimates are preliminary not only because the required information is highly incomplete, but mainly because, as noted above, there is no guarantee that the information which *is* available is strictly comparable. We consider in turn monetary and non-monetary instruments.

### 5.1 Income Taxes and Cash Transfers

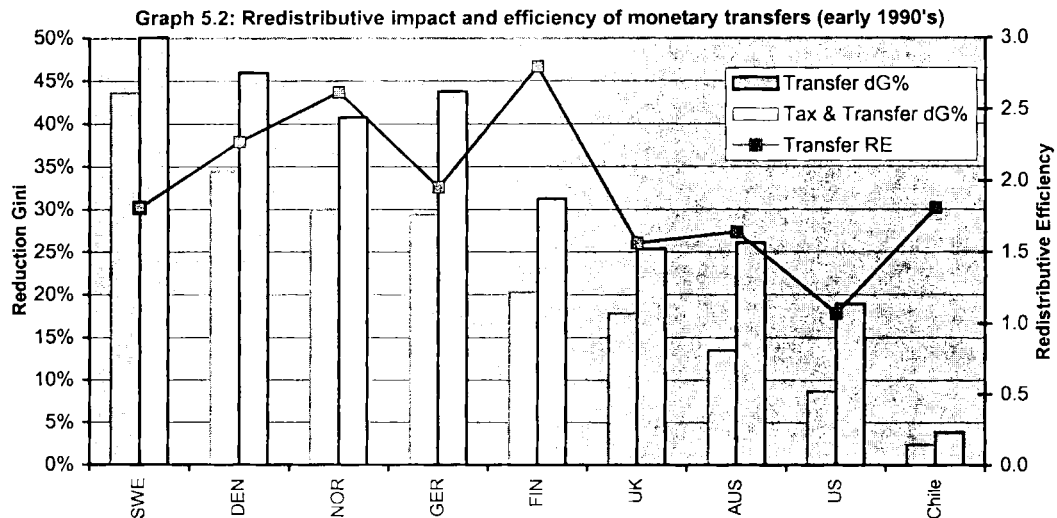
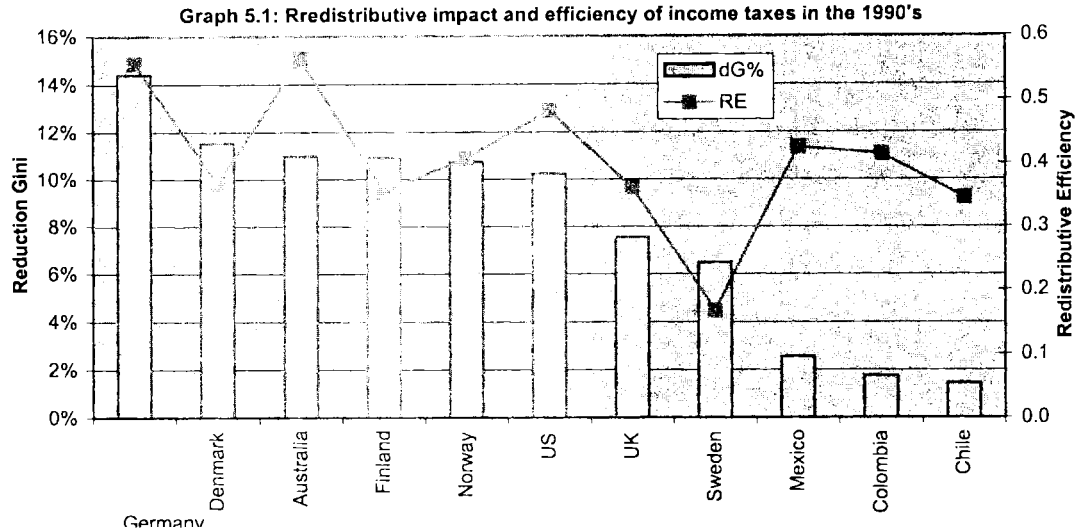
Graph 5.1 compares the redistributive impact and efficiency measures for income taxation in eight mature welfare states and three LA countries.<sup>16</sup> The reduction in the Gini coefficient achieved by this instrument is on average 10% in the former group, but only 1.6% in the latter. This difference is principally explained by the differences in average tax rates.<sup>17</sup> It is interesting to note that the redistributive *efficiency* (RE) of

<sup>15</sup> In the case of Mexico, for example, the ratio of spending per student in tertiary vs. primary education was reduced from 14 to 5 over in the course of the 1990s (Scott 2002).

<sup>16</sup> For definitions of these measures, see sect. 3 above. For the former group, we have used the impact estimated by Ervik (1998) from the LIS data (third wave), where taxes include income and social security taxes. To calculate the RE measures we compared this impact with the share of GDP absorbed by income, payroll, and social security taxes, as reported by the OECD. In the case of the latter group, we applied formula 2 (section 4) to calculate this impact on the basis of the concentration coefficients estimated for income tax in these countries in World Bank (1995), Velez (1996) and SHCP (2002).

<sup>17</sup> See graph 4.8, which understates this difference given that the present estimate is based on payroll and social security taxes as well as income taxes.

income taxation achieved by both groups is comparable: 0.41 and 0.40, on average, respectively, in the mature and LA welfare states.



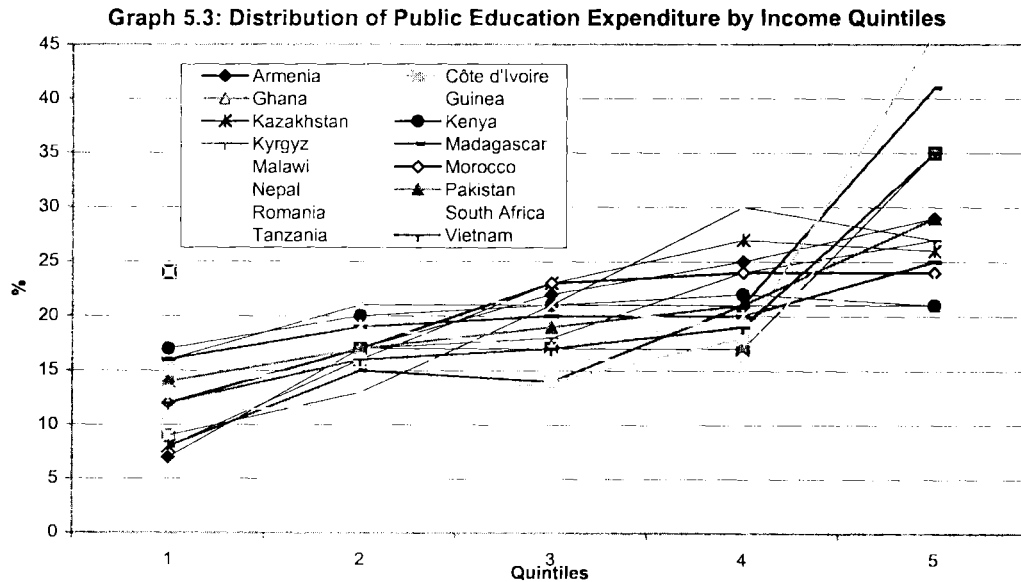
Graph 5.2 compares the redistributive impact of cash transfers, and the total impact of taxes and transfers, for the same mature welfare states and Chile (see table A1). We can see that the redistributive impact of transfers varies widely within the former group. This is largely due to the differences in average transfer rates, which are three times larger in Sweden than in the US. However, as in the case of taxes, we also observe important variations in the redistributive efficiency of these instrument: in relation to the US--the most inefficient redistributor in terms of transfers as well as taxes--an additional percentage point of GDP allocated to these transfers would have 70% more impact in Chile, and 2.8 times more impact in Finland.



### 5.2 Public Education and Health Expenditure

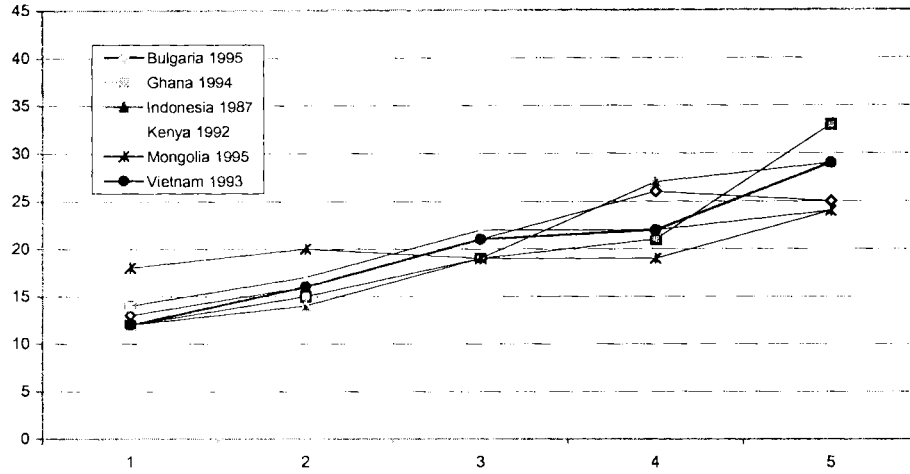
In this section and in tables A2 and A3 of the Annex we present the distributions of public education and health expenditure for thirty developing countries (thirteen Latin American), and the corresponding measures of redistributive effort, impact and efficiency. The data are representative of the 1990's and are drawn from World Bank poverty assessments and country studies listed in the bibliography below, except for Argentina (Cepal 2001) and Mexico (Scott 2002).<sup>18</sup>

Graphs 5.3 and 5.4 corroborate the commonly noted (absolutely) regressive pattern in public social spending, for all non-LA countries, except Romania. We have divided the LA region into those which conform to the typical pattern (graphs 5.5 and 5.6) and those which reveal progressive allocations (graphs 5.7 and 5.8). It is interesting to note that, with the exception of Mexico, all progressive cases are consistently so in both sectors: Argentina, Colombia, Costa Rica, Chile and Uruguay. These cases are exceptional by international standards and clearly deserve careful study.

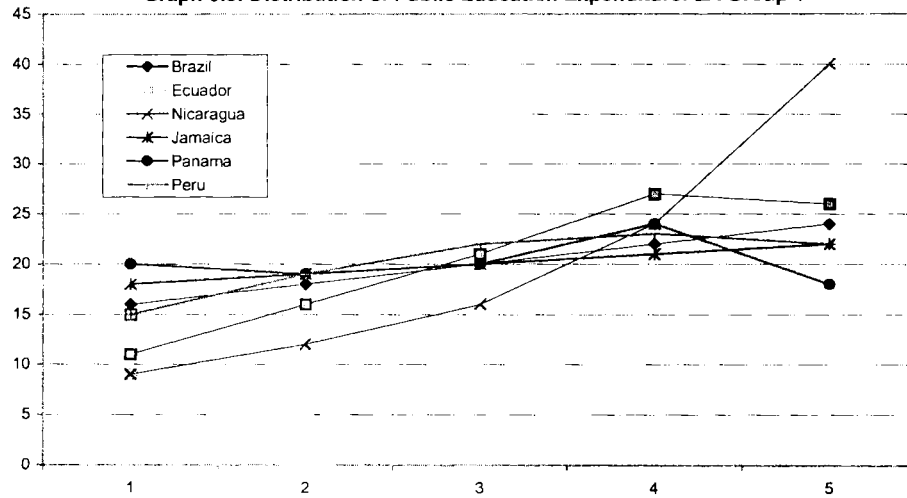


<sup>18</sup> The distribution of Brazil is not available for population quintiles in the original source, but the distribution reported here is a linear approximation to this (see discussion of table 2.1).

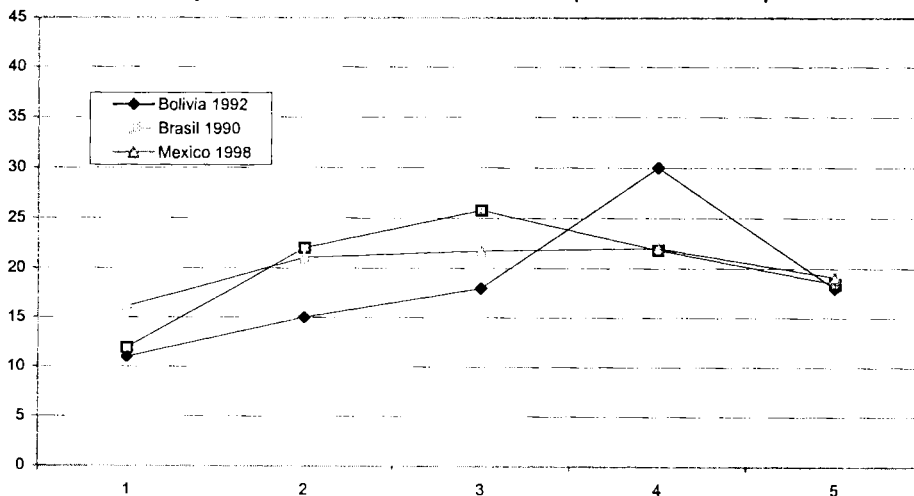
Graph 5.4: Distribution of Public Health Expenditure by Income Quintiles



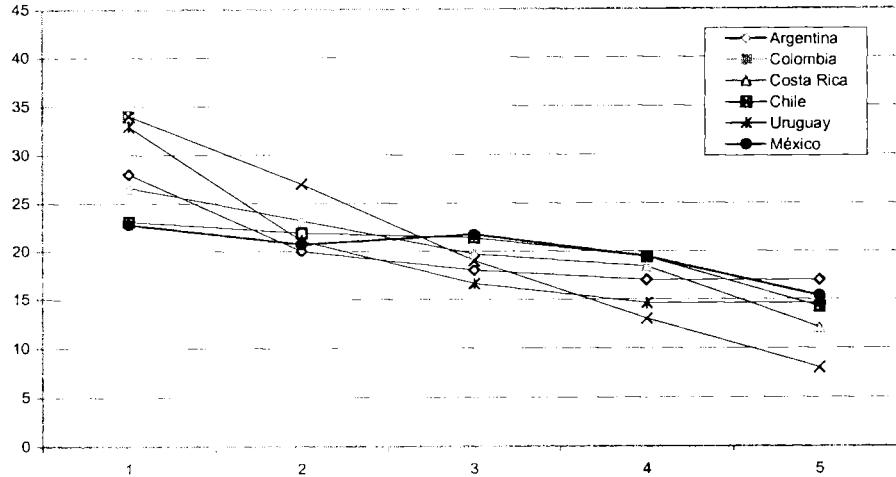
Graph 5.5: Distribution of Public Education Expenditure: LA Group 1



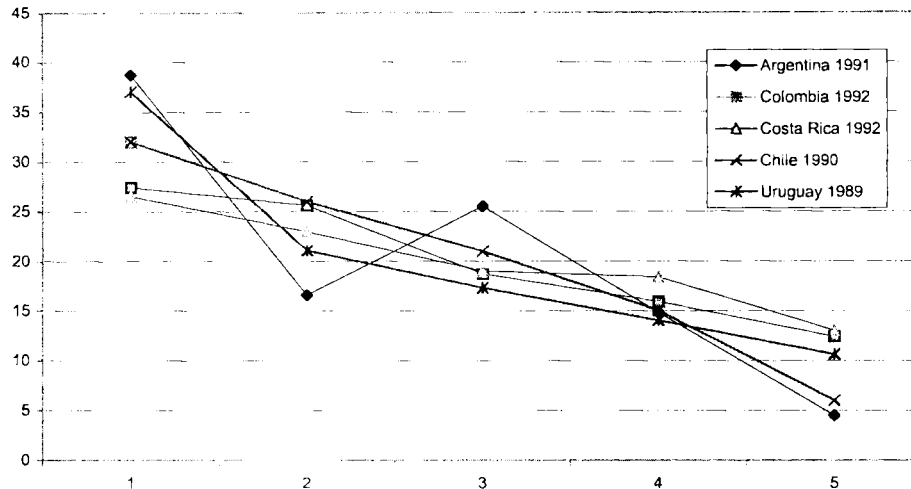
Graph 5.6: Distribution of Public Health Expenditure: LA Group 1



Graph 5.7: Distribution of Public Education Expenditure: LA Group 2



Graph 5.8: Distribution of Public Health Expenditure: LA Group 2



Tables A2 and A3 present the effort, impact, and efficiency measures corresponding to the above distributions. To minimize problems of comparability, the other variables used for these calculations are taken from standardised international data sets. The Gini coefficients, total household consumption, and public spending on education and health, are taken from the World Bank's *World Development Indicators, 2000*. The ratio of public to autonomous household spending on specific social sectors, a variable required to generate the alternative measures of redistributive success proposed in section 3, is less easily available. As in the case of the distribution of public social spending in kind, the importance of producing comparable national health and education accounts has been widely recognized in recent years, but reliable information is still only available for a limited number of countries. For the case of health, the public/autonomous expenditure ratio is reported in the *World Health Report* for the

first time in 2000. The reliability of this data is still, however, somewhat uncertain.<sup>19</sup> For the case of education we have not been able to find similar data.<sup>20</sup> Finally, to calculate progressivity relative to needs we have used the education (completion rates and schooling) and infant mortality concentration coefficients presented in sect. 4 above (see graphs 4.3, 4.4).

In the case of health we have thus been able to calculate the full set of proposed measures (table A3). For comparative purposes, we include also  $C_{ER}$  and  $C_{ERN}$  (and corresponding  $P_{ER}$  and  $P_{ERN}$ ) progressivity measures using fixed public/total social spending ratios, approximately equivalent to the OECD average (75%). In the case of education, we present the  $C_{ERN}$  measure using again the OECD average transfer rate within this sector (85%), though as we have cautioned in the previous footnote this is certainly overestimated and is only used here for illustrative purposes.

The following two graphs illustrate some of these measures, ordering countries by the degree of absolute progressivity ( $C$ ). In both cases we observe that redistributive impact ( $dG$ ) is largely determined by the average transfer rate. But progressivity clearly matters as well. In the case of education, contrast, for example, Uruguay with Nepal, with similar budgetary efforts but distanced in terms of redistributive impact by a factor of ten (similarly Costa Rica vs. Morocco, Chile vs. Kazakhstan; and in the case of health, Chile and Uruguay vs. Bulgaria). Interestingly, there appears to be a positive correlation between spending levels and progressivity, especially in the case of the regressive spenders. The most (Costa Rica, South Africa, Jamaica, Argentina, Colombia) and least (Nepal, Guinea, Madagascar, Vietnam, Ghana, and Indonesia) successful redistributors, present virtuous and vicious combinations (respectively) in the relative size and equity of social expenditure. The worst performers would thus gain little through marginal improvements in only one of these dimensions, and find themselves in this sense in a kind of redistributive trap. On the other hand, some moderate performers with generous budgets (Kenya, Brazil, Morocco) could achieve significant advances through more progressive allocations. There are analogous opportunities for budgetary expansion in the case of some moderately performing equitable spenders (notably, Chile and Uruguay in health). Most other countries would gain most through a simultaneous reform effort in both fronts.

We observe substantial gaps between actual measures of absolute progressivity ( $C$ ) of public health spending and the ideal reference distributions  $C_{ER}$  and  $C_{ERN}$  (graph 5.11) for most countries. Note, however, that public spending in Costa Rica achieves equality of resources in health and Mongolia and Bulgaria would only require

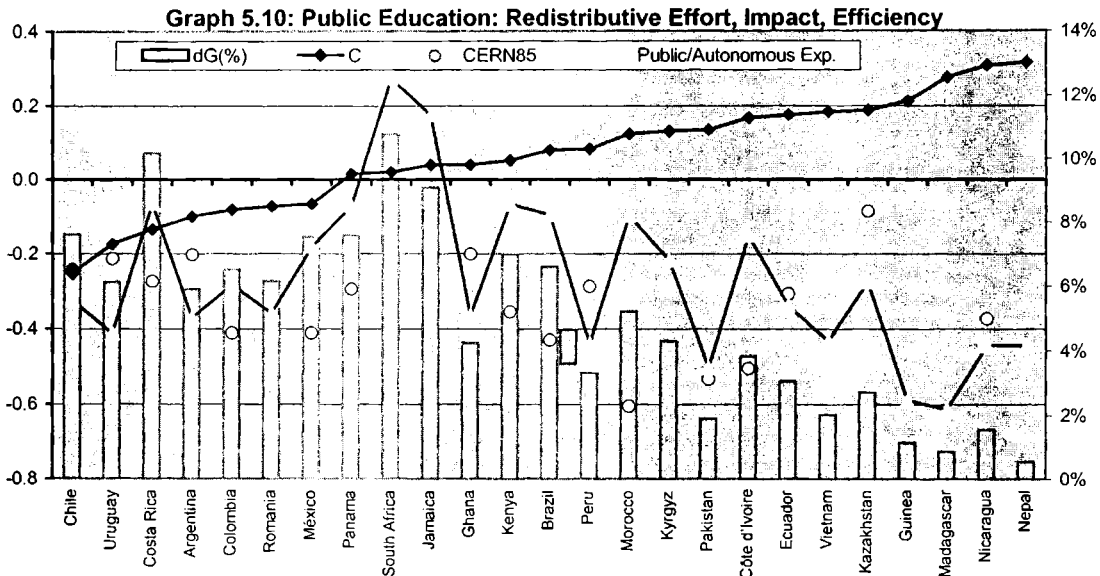
<sup>19</sup> The table reporting this variable warns: "All estimates are preliminary. As in every systems accounting build-up, the "first-round data" are likely to be substantially modified in subsequent stages of the system's development process." (WHR 2000, Annex Table 8, footnote *a*).

<sup>20</sup> The OECD publishes private expenditure for the countries it groups as well as some others, but this only appears to include tuition in private institutions, while what would be required for our purposes is total household spending on education goods and services, in public as well as private education. This implies an important overestimation of the educational transfer rate.

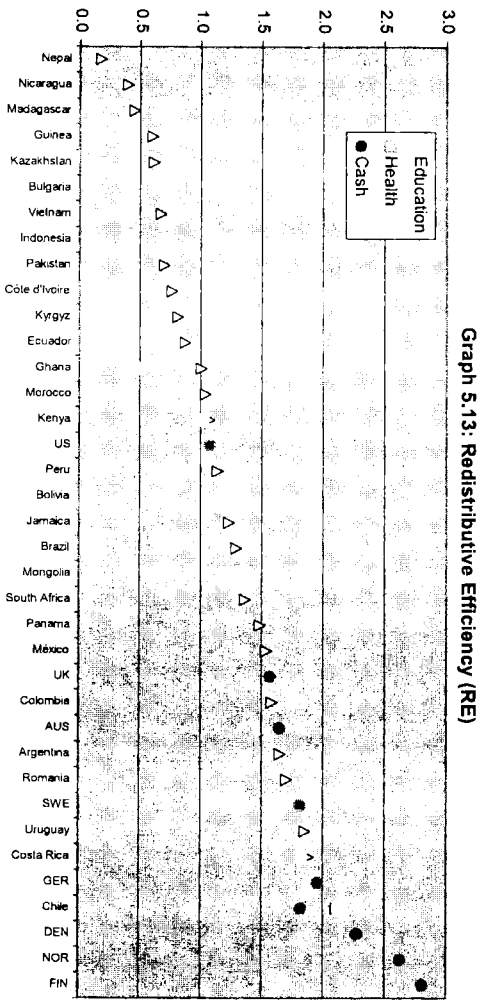
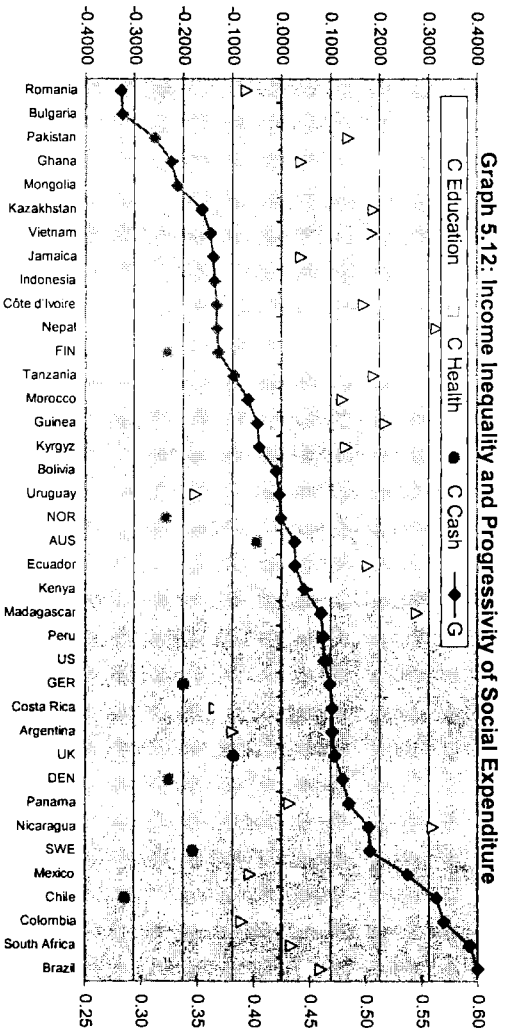
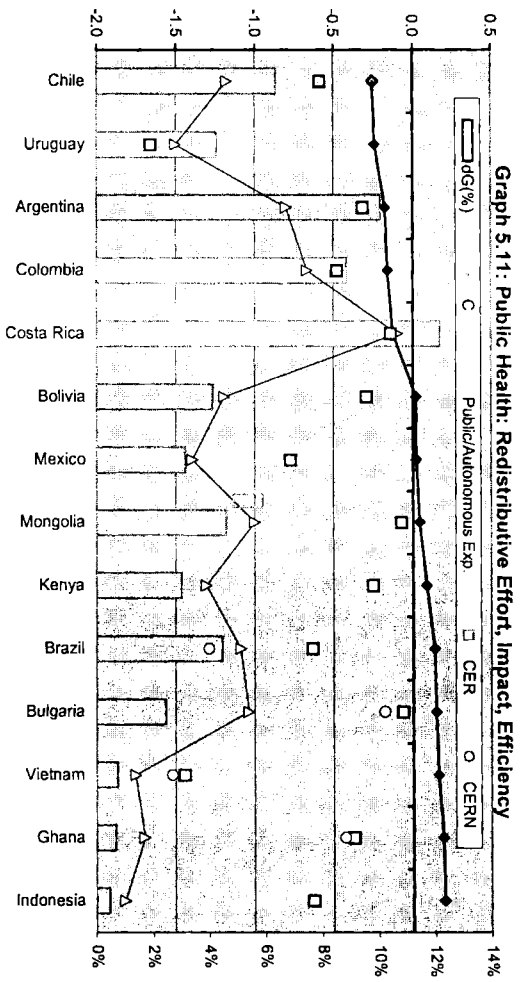
marginally progressive allocations to achieve this ideal. At the other extreme, Uruguay and Vietnam present similarly wide gaps from this ideal, despite a fifthfold superiority of the former in redistributive impact, given their contrasting distribution of private resources. Note also that adding the requirement of equality of resources *per need* ( $C_{ERN}$ ) increases the distance to the actual distribution significantly in Brazil, but not in Bulgaria, Vietnam and Ghana, where needs are more equally distributed. In the case of education, we observe that the distance between the actual and ideal  $C_{ERN}$  (85) distributions ( $P_{ERN}$ ) tends to fall with the degree of progressivity of the former, despite the assumption of a common transfer rate.

Graph 5.12 suggests an inverse relationship between income and social expenditure inequality: a majority of high-inequality countries present progressive allocations, while a majority of regressive allocations ( $C > 0$ ) are found in countries with Gini's below 0.4. This is consistent with the medium voter hypothesis on the political economy of fiscal equity.<sup>21</sup>

Finally, graph 5.13 shows the range of redistributive efficiency ratios across nations and instruments from 0.17(education in Nepal) to 2.8 (cash transfers in Finland). Within the education sector—the most comparable of the three—and within the LA region, the range goes from 0.4 in Nicaragua to 2.11 in Chile. In other words, an additional percentage point of GDP allocated to public education would have a redistributive impact 5.3 times larger in Chile than in Nicaragua. We can also see that, with the exception of the US, cash transfers in the mature welfare states tend to be more efficient than transfers in kind in the other countries.



<sup>21</sup> Note, however, that the high degree of inequality in autonomous income registered for the mature welfare states are largely endogenous to their massive monetary transfers.



## **6. Principal Findings, Policy Implications, Research Agenda**

We have compared redistributive effort, impact, and efficiency measures for the principal redistributive instruments available in modern fiscal systems (income taxes, monetary transfers, and public education and health spending) within Latin America, and between this region and other countries in the world. In this concluding section we summarise the principal findings of this comparative analysis, draw the relevant policy implications, and outline a future research agenda.

### *6.1 Principal Findings*

1. We found limitations in the availability of standardised and comparable information on the equity of fiscal systems, as well as in the measures established in the literature to summarise this information. Even standardised functional classifications of public social expenditure used by the major international organisations vary widely. More importantly, measures on the equity of this spending are only available for a limited number of countries, and with uncertain comparability. Though a major standardisation effort for the mature OECD welfare states has generated a comparable data set and series of comparative studies on the incidence of taxes and monetary transfers in these countries (Luxembourg Income Study), no similar effort exists for other regions in the world, and for social transfers “in kind” anywhere. While the availability of benefit incidence studies for a growing number of low and middle income countries, with a good coverage of the LA region, offers an opportunity to generate such a data set, we noted basic problems of comparability, in addition to well-known methodological limitations of traditional benefit incidence analysis as a guide for policy reform.

2. We proposed and applied two new measures of relative progressivity consistent with ideals of equality of resources, and resources per need, in these basic dimensions of human welfare. Unfortunately, the comparative information required to calculate these measures—the ratio of public to private education and health spending, and distributional data on basic education and health achievements as a function of income—is even scarcer and more uncertain. We calculated measures of progressivity of health spending relative to equality of resources (resources per need) for 14 (4) countries.

3. As a principal motivation and starting point for the present study we proposed a comparative typology of fiscal systems based on redistributive demands, measured by the distribution of autonomous (pre-tax/transfers) income, and redistributive capacity, measured by the scale of the fiscal system relative to national income. We have compared the case of LA as a region with comparative challenges in *both* of these dimensions—high inequality, low revenue—with two contrasting groups: countries with low pre-fiscal inequality, and large welfare states. On the redistributive demand

side, the available evidence suggests that in addition to exceptional income inequality, the LA region is also characterised by a high degree of polarisation in human development indicators. On the supply side, among the principal contrasts between social expenditure in LA and the mature OECD welfare states we have noted: a) the comparatively modest scale of the redistributive effort, b) the more recent expansive trend in social spending as a proportion of GDP, c) the importance among the causes of this expansion of political forces representative of the interests of a limited proportion of the population, as opposed to generally representative demographic/epidemiological demands, d) the limited and regressive coverage of social spending as a whole, especially pronounced in post-basic education and health services, due in part to the latter but also to the high level of economic inequality (implying prohibitive opportunity costs for poorer populations of attending tuition-free higher education), e) the weight within the menu of redistributive instruments of social spending “in kind”, over progressive taxation and monetary transfers, f) the weight, within the former, of education relative to health spending, g) a non-majoritarian participation of public transfers in total health spending (50% vs. 75% for OECD), and h) more than double the OECD average subsidy rate per student in tertiary in relation to primary education (though more than half the average ratio for developing countries).

4. The measures of progressivity, redistributive impact, and redistributive efficiency of social spending we have calculated for LA may be contrasted with those we have obtained for the other two groups, as follows (table 6.1). First, consistently with the region’s exceptional redistributive demands, social spending in LA achieves on average more than twice the redistributive impact (dG) observed in our (admittedly small) sample of developing countries, which presents substantially lower levels of pre-transfer income inequality. In the case of education this is explained by a 15 point advantage in the progressivity of public spending and a 10 point difference in income inequality. In the case of health, the gaps between these parameters is even larger and augmented by a significantly larger budgetary commitment in the LA region, accounting overall for more than a two-fold advantage in redistributive efficiency and a three-fold lead in redistributive impact. Secondly, health expenditure is more progressive and redistributively efficient than education expenditure in LA, in contrast to the other developing countries where the two sectors are remarkably similar. Thirdly, the mature welfare states achieve on average close to twice the redistributive impact through monetary transfers as is achieved by health and education spending jointly in LA. Not all of this difference is explained by the scale of resources channelled to these instruments as a proportion to national product: monetary transfers also appear to have a significant efficiency advantage as redistributive instruments. This cross-instrument comparison should, however, be read with some scepticism. On the one hand, it is clear that the redistributive efficiency of the latter is overestimated due to the incentive effects associated with these massive and generally means-tested transfers; on the other, the redistributive efficiency of social services is similarly overestimated as it assumes private benefits to equal public costs.

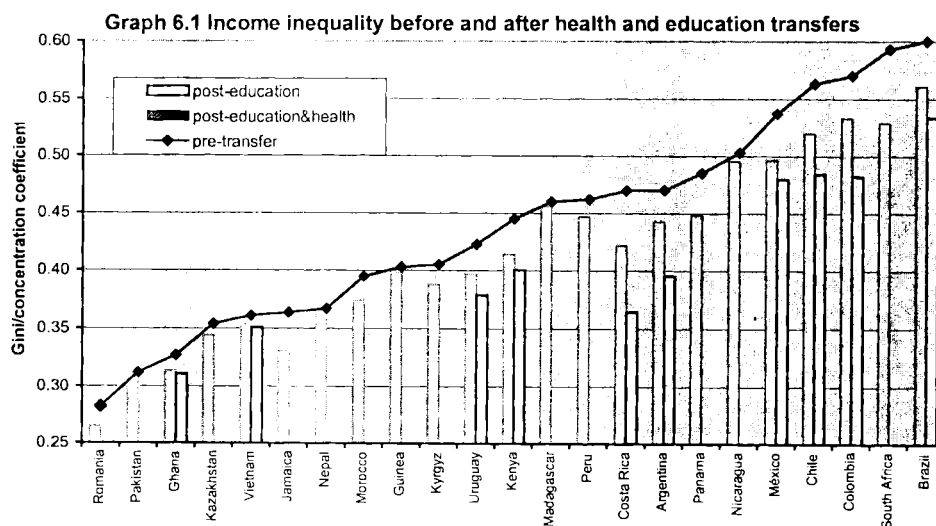


Table 6.1

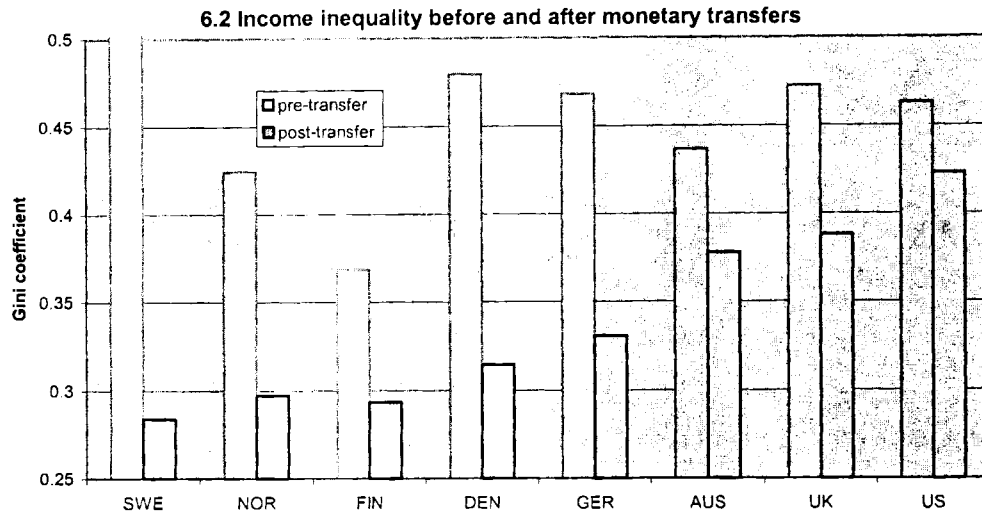
	C	G	P	%GDP	$\Delta G$	RE
<b>Latin America</b>						
Education	-0.01	0.49	-0.50	4.4%	-6.2%	1.42
Health	-0.12	0.51	-0.63	3.8%	-6.7%	1.73
<b>Other Developing C.</b>						
Education	0.14	0.39	-0.25	4.2%	-3.9%	0.84
Health	0.14	0.35	-0.21	2.2%	-2.0%	0.82
<b>Mature Welfare States</b>						
Monetary Transfers	-0.14	0.45	-0.59	12.6%	24.7%	1.97

Source: Tables A1-3

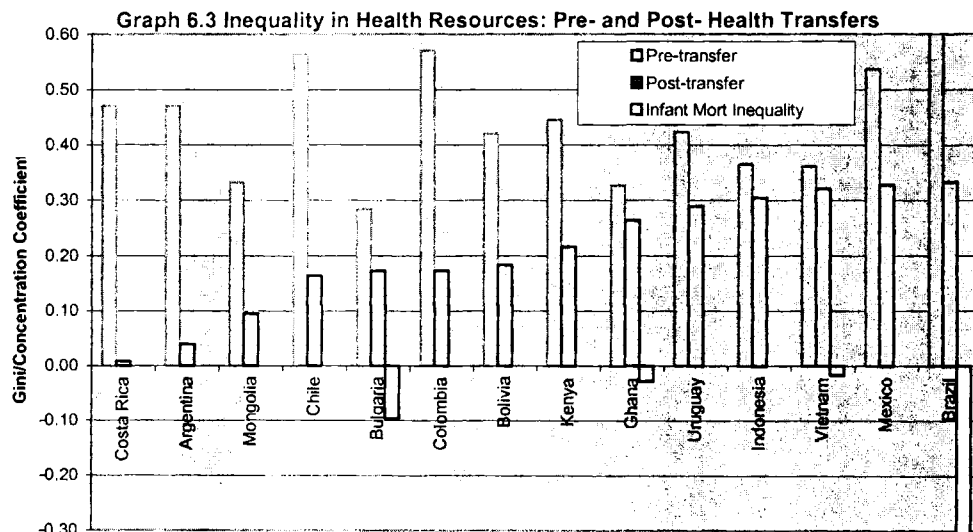
5. Looking within these groups of countries and instruments we find a wide range of redistributive results. In contrast to the mature welfare states (graph 6.2), where we observe radical reversals in the ordering of countries by level of inequality,<sup>22</sup> and despite the gap in redistributive performance observed in favour of the LA region (and South Africa) this is hardly enough to bridge the formidable distributive gap between the latter and the other countries in our sample (graph 6.1). The one exception is Costa Rica, which jumps from the upper half to the lower third of the distribution. Despite the relatively impressive redistributive results of some of the higher inequality countries, however, these are barely enough to affect their positions relative to their immediate (distributive) neighbours.



<sup>22</sup> Sweden goes from worst to best, subject to the noted overestimation error, which would of course be larger for the bigger and most equitable welfare states.



6. If we consider the impact of public social spending on the distribution of total (public and private) health spending, rather than general income inequality, however, the results are more impressive (graph 6.3). Costa Rica and Argentina appear to practically eliminate resource inequality in this critical sector, and even the least equitable post-transfer LA countries represented (Mexico and Brazil) achieve levels of health spending inequality comparable to Vietnam. Unfortunately, when we compare these achievements to the distribution of health needs, as measured by the infant mortality concentration coefficient, we find that in the case of Brazil the gap in relation to Vietnam is still formidable. Given the correlation between general income and health inequality (see above, graph 4.4), the gaps remaining to the ideal of equality of resources per need in the case of health are probably large for all high-inequality countries.



## 6.2 Policy Implications

The principal policy implications of the above findings may be classified into two separate categories. First, we have emphasised the need for comparable data on fiscal equity, especially “in kind” transfers. In addition to being a critical aspect of the future research agenda, the organisation and financing of systematic, long-term initiatives to generate and publish such information is also an important policy issue for governments interested in promoting the redistributive accountability of their fiscal systems. Similarly, the generation of the standardised international data sets on these transfers should be of interest to international organisations concerned with comparative monitoring and promoting studies of the redistributive impacts of fiscal systems in emerging welfare states. The information which should ideally be included in such a data set, to generate the measures we have suggested, would include: a) tax incidence and benefit incidence of social spending estimates based on a unified methodology, b) standardised national health and education accounts, including both private spending in these sectors and data on public expenditure using common classifications and with relevant intra-sectoral detail, and d) comparable information on the distribution of education and health needs.

Secondly, while the above findings must be interpreted as very preliminary estimations, because of both, the comparability issues just considered, and the limitations of benefit incidence analysis as a guide for policy reform, we may draw some preliminary recommendations. Perhaps the first and most general recommendation should be to advice against general recommendations. Even within the group of LA countries represented in our set we have found a great variety of results (tables 6.2 and 6.3). Costa Rica presents the largest redistributive impacts for both health and education spending. At the other extreme, Mexico only achieves 26% of this regional maximum in the case of health, and Nicaragua only 15% in the case of education.

Even at this very general level we can usefully classify countries for policy purposes according to their relative performance in terms of budgetary effort and spending equity (table 6.4). Comparatively speaking, some countries (in specific sectors) fail and others succeed in *both* dimensions, while others fail in one but succeed in the other. The former group, and especially those lagging behind, would reform most efficiently by advancing in both fronts simultaneously. This appears to be the case of Nicaragua, Peru and Ecuador in education, and Brazil, Mexico and Bolivia in health. Those countries (sectors) conforming the latter group could gain most by focusing on the principal constraining dimension first. But this considers only the benefit side. At the end the decision would depend critically, of course, on the relative feasibility/costs of increasing the overall sectoral budget vs. achieving more progressive distributions of these resources.

To consider this in more detail, the latter goal may in turn be usefully split between reforming intra-sectoral budgetary allocations (basic vs. higher education, health subsidies for the uninsured vs. the insured, etc.), and reforming the allocations

and targeting mechanisms within these subsectors. These two kinds of reform may face very different constraints. As we have illustrated in the case of Mexico, substantive budgetary reforms of the former kind may be implemented in either sector practically unnoticed if they are phased in gradually over several years. Targeting reforms of the latter kind, on the other hand, may be more challenging. Introducing new targeted programs with modest resources in relation to the overall sectoral budget and no competitive threat to the broader programs may be quite feasible. Achieving rapid expansions in the coverage of the latter programs, however, may prove more difficult, especially in the case of education.

To illustrate this issue, the following graphs compare the percentage allocations of public current expenditure per educational level (graph 6.4), and the distribution of these resources at each level (graphs 6.5-6.7), in eight LA countries. Note that there is no clear relation between the share of public education spending at the primary level and the concentration coefficient for total public education expenditure:<sup>23</sup> the two most progressive (Chile and Uruguay) and regressive (Ecuador and Brazil) cases, are both at opposite extremes in terms of this share. Note also that independently of the differences in these budgetary allocations, we observe some variability in targeting efficiency *within* each of them, especially at the lower end of the income distribution: the participation of the poorest quintile in public expenditure varies between 52% and 23%, 30% and 9%, and 23% and 1.6%, at the primary, secondary, and tertiary levels, respectively. Explaining these contrasts will be of critical importance in the design of educational reforms to decrease inequalities of educational opportunities in the region.

In contrast to the provision of health services, where limited coverage reflects mostly supply-side constraints, the high opportunity costs involved in formal education imply that limited educational coverage depends to a much larger extent on demand constraints. In the highly polarised societies typical of LA these costs may become prohibitive soon after basic education completion for a substantial part of the population at the lower end of the distribution, and even before that for the poorest of the poor. A number of innovative programs have emerged in recent years in the region designed precisely to compensate poor household for these costs, conditional on their children's school attendance. Their extension to increase education coverage at post-basic levels, however, may be unfeasible within present budgetary capacities, given growing opportunity costs, and the scale of the coverage gap. Here LA countries may face a redistributive trap. Given the exceptional levels of educational inequality, and the critical importance of this in accounting for income inequality in the region, arguably the best policy to reduce long term income inequality should be public

<sup>23</sup> This may be partly due to inconsistencies between the shares used in the original incidence studies to obtain the concentration coefficients for total public expenditure and those we report here which are taken from the UNESCO data set and correspond to 1996: according to the latter data, Costa Rica presents the largest share allocated to tertiary education in this group, but according to the cited incidence study (World Bank 1997b), it also presents the most regressive distribution at this level, implying a participation in education of the poorest quintile of just 16% in contrast to the 27% reported in the latter study.

education spending aimed at equalising opportunities to access education. But the required degree of progressivity in public education spending may be unachievable because of demand constraints on coverage, due precisely to the existing level of income inequality. This is clearly a mayor policy area to be explored in the region.

Table 6.2: Public Health Spending

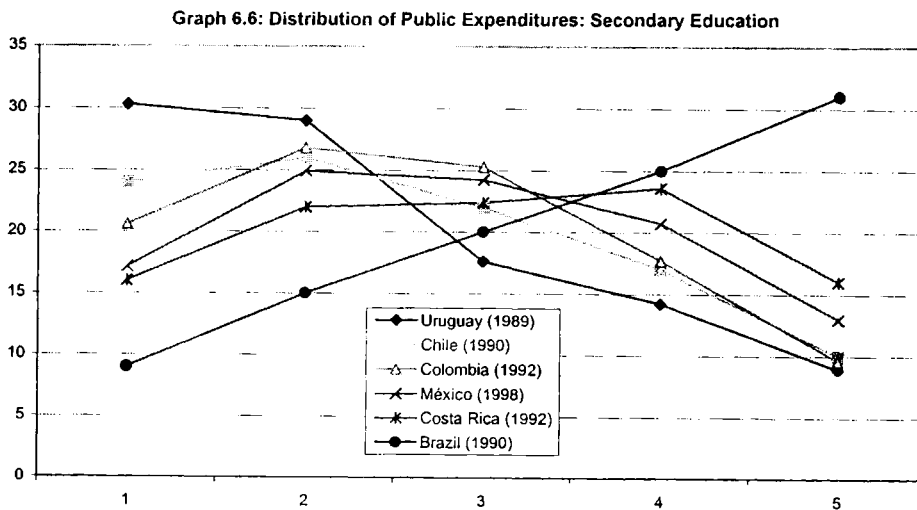
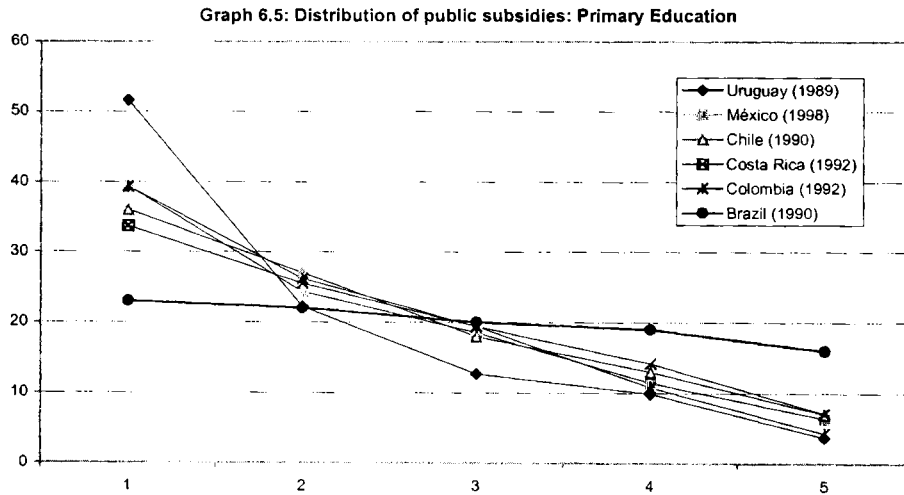
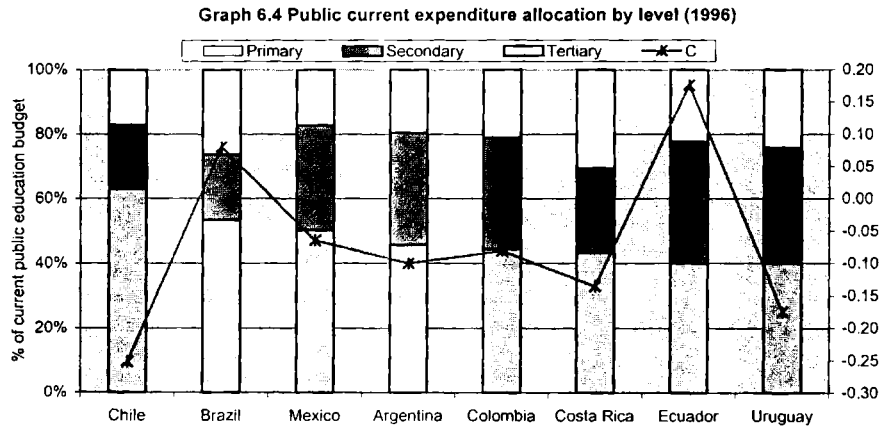
	<b>Budgetary Effort</b>	<b>Redistributive Efficiency</b>	<b>Redistributive Impact</b>
Costa Rica	100%	75%	100%
Argentina	63%	98%	83%
Colombia	70%	78%	73%
Chile	43%	91%	52%
Brazil	48%	57%	37%
Uruguay	26%	100%	35%
Bolivia	42%	60%	34%
Mexico	32%	61%	26%

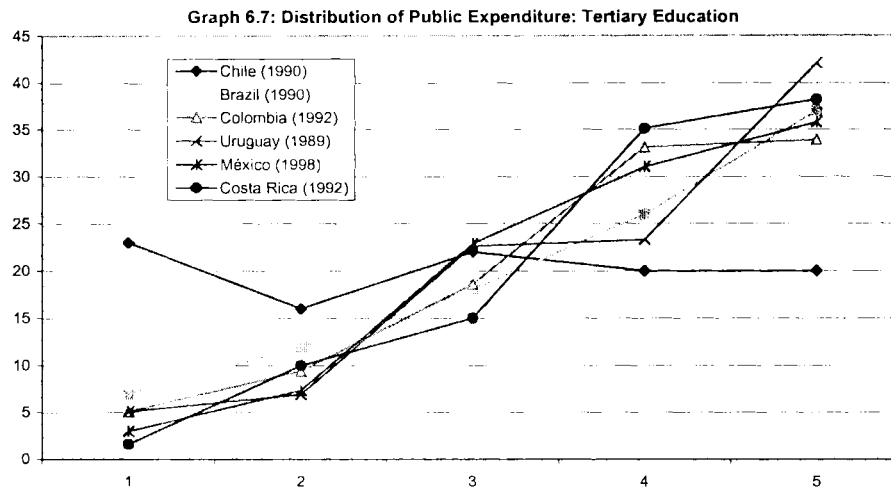
Table 6.3: Public Educación Spending

	<b>Esfuerzo Presupuestal</b>	<b>Eficiencia Redistributiva</b>	<b>Impacto Redistributivo</b>
Costa Rica	75%	86%	100%
Jamaica	100%	58%	89%
Chile	49%	100%	75%
Panama	75%	65%	75%
México	63%	76%	74%
Brazil	72%	58%	65%
Colombia	53%	79%	64%
Uruguay	40%	99%	60%
Argentina	44%	86%	58%
Peru	37%	57%	32%
Ecuador	47%	41%	30%
Nicaragua	36%	27%	15%

Table 6.4  
Public Spending on  
Education and Health (*italics*)

<b>Effort</b>	<b>Efficiency</b>	
	<b>Low</b>	<b>High</b>
<b>Low</b>	Nicaragua, Peru, Ecuador <i>Brazil, Mexico, Bolivia</i>	Uruguay, Chile, Argentina, Colombia <i>Uruguay Chile</i>
<b>High</b>	Brazil, Jamaica, Panama	Costa Rica, Mexico <i>Costa Rica, Colombia, Argentina</i>





### 6.3 Research Agenda

Given the research initiatives outlined in the first sections of these study, and the preliminary character of the measures presented in rest, the present study may be best interpreted as a broad research agenda itself. We may divide the recommended future elements in this agenda in three principal themes.

*Standardised data set and comparative case studies.* We have noted above the principal standardised information required to estimate comparable measures of fiscal equity for the countries in the LA region. The variability in redistributive performance documented here and the complexity of the possible causes accounting for these differences will also require detailed country and sectoral case studies, using a common methodology, covering the principal LA success-stories (Costa Rica and the Southern Cone) and the comparative regional failures.

*Accounting for progressivity: ¿structural and organisational constraints, or political economy?* Explaining the contrasting redistributive performances of these countries will require careful modelling and empirical analysis of structural variables (income and asset inequality; demographic, epidemiological, and educational profiles), public sector organisation (organisation, administration and operation of public services; budgetary and tax legislation; design of explicit and implicit targeting mechanisms), and the political economy of redistribution (political institutions; medium voter and interest group equilibria). Given the unique redistributive potential of social spending in modern mixed economies, the measures we have documented here could arguably be interpreted as revealed redistributive preferences of government, subject to structural and organisational constraints. The political economy of redistribution and targeting has received some attention over recent years, but in the absence of

adequately rich comparative data it has centred mostly on somewhat simple theoretical predictions, notably medium voter capture. The preliminary comparisons we have offered here, and especially the proposed standardised data set and case studies, could offer a rich empirical basis to explore this important theme.

*Reforming social policy: opportunities and constraints.* We have noted the relevance of the redistributive measures on social spending explored in this study for the reform of social spending in the region, from the perspective of a particular but rather basic objective: reducing inequalities in health and educational opportunities. These broad measures must evidently be complemented with detailed case studies of the differences in design and operation of social services in the region which could account for the observed variety in redistributive efficiency *within* sectors, and, as we have seen in the case of education, sub-sectors.

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## ANNEX

Table A1. Monetary Transfers and Income Taxes

	Australia	Denmark	Finland	Germany	Norway	Sweden	UK	US	Chile
	1989	1992	1991	1989	1991	1992	1991	1994	1992
G	0.437	0.480	0.369	0.468	0.424	0.504	0.472	0.463	0.458
%GDP	8.2%	15.1%	7.3%	15.0%	11.4%	24.1%	11.4%	8.1%	
% HH	13.7%	30.3%	14.2%	25.9%	23.8%	47.2%	17.3%	12.1%	1.4%
Cons.									
<b>Monetary Transfers</b>									
C	-0.052	-0.230	-0.232	-0.200	-0.236	-0.181	-0.099	0.091	-0.32
P	-0.489	-0.710	-0.601	-0.668	-0.661	-0.685	-0.571	-0.372	-0.710
$\Delta G$	0.059	0.165	0.075	0.137	0.127	0.220	0.084	0.040	0.011
$\Delta G\%$	13.5%	34.4%	20.3%	29.4%	29.9%	43.6%	17.8%	8.7%	2.4%
RE	1.64	2.27	2.80	1.95	2.62	1.81	1.56	1.07	1.81
<b>Income Taxes</b> (including contributions to social security)									
$\Delta G$	0.051	0.055	0.040	0.067	0.046	0.033	0.036	0.047	
$\Delta G\%$	13.5%	17.6%	13.7%	20.4%	15.4%	11.5%	9.2%	11.2%	
<b>Total Impact</b>									
$\Delta G$	0.114	0.220	0.115	0.205	0.173	0.252	0.120	0.088	
$\Delta G\%$	26.1%	45.9%	31.2%	43.8%	40.7%	50.1%	25.4%	18.9%	
<b>Public Spending in Health and Education</b> (% of total spending in these sectors)									
Education	75.5%	95.0%		78.3%	98.1%	97.3%	91.4%	75.0%	
Health	66.7%	82.7%	74.7%	78.2%	82.8%	81.6%	84.4%	45.9%	

Sources for original data: Ervik (1998), LIS data-base; World Bank (2000).

**Table A2. Public Education Expenditure: Measures of Redistributive Effort, Impact, and Efficiency**

		Quintiles					C	G	P	Public expend.		$\Delta G$	$\Delta G\%$	RE	$C_N$	$C_{ERN(85)}$	$P_{ERN(85)}$
		1	2	3	4	5				% GDP	%HH Consum						
Argentina	1991	28	20	18	17	17	-0.1000	0.4230	-0.5230	3.5%	5.0%	-2.72	-5.8%	1.15	0.11	-0.211	0.111
Brazil	1990	16	18	20	22	24	0.0800	0.6000	-0.5200	5.1%	8.2%	-3.95	-6.6%	0.80	0.28	-0.431	0.511
Colombia	1992	23	22	21	19	14	-0.0812	0.5700	-0.6512	4.1%	6.0%	-3.70	-6.5%	1.08	0.26	-0.411	0.330
Costa Rica	1992	27	23	20	18	12	-0.1352	0.4700	-0.6052	5.4%	8.6%	-4.78	-10.2%	1.19	0.16	-0.275	0.139
Côte d'Ivoire	1995	14	17	17	17	35	0.1680	0.3670	-0.1990	5.0%	7.6%	-1.40	-3.8%	0.50	0.37	-0.505	0.673
Chile	1990	34	27	19	13	8	-0.2520	0.5630	-0.8150	3.6%	5.5%	-4.28	-7.6%	1.37	0.12	-0.243	-0.009
Ecuador	1998	11	16	21	27	26	0.1760	0.4370	-0.2610	3.5%	5.4%	-1.33	-3.1%	0.57	0.196	-0.308	0.484
Ghana	1992	16	21	21	21	21	0.0400	0.3270	-0.2870	4.2%	5.1%	-1.38	-4.2%	0.84	0.12	-0.202	0.242
Guinea	1994	9	13	21	30	27	0.2120	0.4030	-0.1910	1.9%	2.5%	-0.46	-1.1%	0.46			
Jamaica	1992	18	19	20	21	22	0.0400	0.3640	-0.3240	7.4%	11.4%	-3.31	-9.1%	0.80			
Kazakhstan	1996	8	16	23	27	26	0.1880	0.3540	-0.1660	4.4%	6.1%	-0.96	-2.7%	0.44	0.02	-0.086	0.274
Kenya	1992/93	17	20	21	22	21	0.0520	0.4450	-0.3930	6.5%	8.6%	-3.10	-7.0%	0.81	0.24	-0.356	0.408
Kyrgyz	1993	14	17	18	24	27	0.1320	0.4050	-0.2730	5.3%	6.8%	-1.74	-4.3%	0.63			
Madagascar	1993/94	8	15	14	21	41	0.2760	0.4600	-0.1840	1.9%	2.2%	-0.39	-0.9%	0.39			
México	1998	23	21	22	19	15	-0.0648	0.5370	-0.6018	4.9%	7.2%	-4.04	-7.5%	1.05	0.27	-0.411	0.346
Morocco	1998/99	12	17	23	24	24	0.1240	0.3950	-0.2710	5.0%	8.2%	-2.05	-5.2%	0.63	0.45	-0.605	0.729
Nepal	1996	11	12	14	18	46	0.3160	0.3670	-0.0510	3.2%	4.2%	-0.20	-0.6%	0.13			
Nicaragua	1993	9	12	16	24	40	0.3080	0.5030	-0.1950	3.9%	4.1%	-0.78	-1.5%	0.37	0.242	-0.373	0.681
Pakistan	1991	14	17	19	21	29	0.1360	0.3120	-0.1760	2.7%	3.5%	-0.59	-1.9%	0.55	0.41	-0.533	0.669
Panama	1997	20	19	20	24	18	0.0160	0.4850	-0.4690	5.1%	8.5%	-3.67	-7.6%	0.89	0.178	-0.295	0.311
Peru	1994	15	19	22	23	22	0.0840	0.4620	-0.3780	2.9%	4.2%	-1.52	-3.3%	0.79	0.175	-0.287	0.371
Romania	1994	24	22	21	19	15	-0.0720	0.2820	-0.3540	3.6%	5.1%	-1.73	-6.1%	1.19			
South Africa	1993	21	19	17	20	23	0.0200	0.5930	-0.5730	7.9%	12.5%	-6.38	-10.8%	0.86			
Uruguay	1989	33	21	17	15	15	-0.1748	0.4230	-0.5978	3.3%	4.5%	-2.59	-6.1%	1.35	0.12	-0.214	0.040
Vietnam	1993	12	16	17	19	35	0.1840	0.3610	-0.1770	3.0%	4.3%	-0.73	-2.0%	0.47			

Sources for original data: benefir incidence data by quintile: Argentina: CEPAL (2000); Colombia: Vélez (1995); Mexico: Scott 2002; Brazil, Costa Rica, Chile and Uruguay: World Bank (1993, 1995, 1997a, 1997b); the rest: World Bank (2001, table 5.1).  $C_N$ : LA countries: IADB (1998, table 1.2.III); the rest: Filmer and Pritchett (1998). Gini coefficient (G), total household consumption (%HH consum), and public spending/GDP, are taken from the World Bank (2000).

**Table A3. Public Health Expenditure: Measures of Redistributive Effort, Impact, and Efficiency**

		Quintiles					C	G	P	Public spending			$\Delta G$	$\frac{\Delta G}{G}$	RE
		1	2	3	4	5				%	%HH	% Total			
										GDP	Consum	Health			
Argentina	1991	39	17	26	15	5	-0.280	0.470	-0.750	4.7%	6.7%	58%	-4.73	-10.1%	2.13
Bolivia	1992	11	15	18	30	18	0.020	0.420	-0.400	3.4%	4.5%	59%	-1.73	-4.1%	1.20
Brazil	1990	12	22	26	22	18	0.051	0.600	-0.549	3.2%	5.1%	49%	-2.67	-4.4%	1.40
Bulgaria	1995	13	16	21	26	25	0.148	0.283	-0.135	3.9%	5.4%	82%	-0.69	-2.4%	0.62
Colombia	1992	27	26	19	16	12	-0.159	0.570	-0.729	5.1%	7.5%	55%	-5.06	-8.9%	1.75
Costa Rica	1992	27	23	19	18	13	-0.128	0.470	-0.598	6.7%	10.6%	77%	-5.75	-12.2%	1.82
Chile	1990	32	26	21	15	6	-0.252	0.563	-0.815	3.0%	4.6%	49%	-3.58	-6.4%	2.13
Ghana	1994	12	15	19	21	33	0.192	0.327	-0.135	1.4%	1.7%	47%	-0.23	-0.7%	0.49
Indonesia	1987	12	14	19	27	29	0.200	0.365	-0.165	0.6%	1.0%	37%	-0.16	-0.5%	0.72
Kenya	1992	14	17	22	22	24	0.088	0.445	-0.357	2.9%	3.9%	64%	-1.33	-3.0%	1.02
Mexico	1998	16	21	22	22	19	0.028	0.537	-0.509	2.3%	3.4%	41%	-1.66	-3.1%	1.35
Mongolia	1995	18	20	19	19	24	0.044	0.332	-0.288	3.5%	5.6%	82%	-1.53	-4.6%	1.30
Uruguay	1989	37	21	17	14	11	-0.240	0.423	-0.663	2.0%	2.8%	20%	-1.79	-4.2%	2.09
Vietnam	1993	12	16	21	22	29	0.160	0.361	-0.201	1.0%	1.4%	20%	-0.27	-0.8%	0.78

*Sources for original data:* benefit incidence data by quintile: Argentina: CEPAL (2000); Colombia: Vélez (1995); Mexico: Scott 2002; Brazil, Costa Rica, Chile and Uruguay: World Bank (1993, 1995, 1997a, 1997b); the rest: World Bank (2001, table 5.2).  $C_N$ : Wagstaff (1999); Gini coefficient (G), total household consumption (%HH consum), and public spending/GDP: World Bank (2000). Public health spending as a proportion of total health spending (% total health): WHO 2001.

Tabla A3. Cont.

	$\Delta G_S$	$\Delta G_S(\%)$	$G_S^{Post}$	$C_{ER}$	$C_{ER(75)}$	$P_{ER}$	$P_{ER(75)}$	$C_N$	$C_{ERN}$	$C_{ERN(75)}$	$P_{ERN}$	$P_{ERN(75)}$
Argentina	-43.11	-91.69	0.039	-0.348	-0.157	0.068	-0.123					
Bolivia	-23.64	-56.29	0.184	-0.291	-0.140	0.311	0.160					
Brazil	-26.72	-44.53	0.333	-0.632	-0.200	0.683	0.251	-0.322	-1.293	-0.629	1.34	0.68
Bulgaria	-11.06	-39.07	0.172	-0.063	-0.094	0.211	0.242	-0.096	-0.180	-0.222	0.33	0.37
Colombia	-39.72	-69.68	0.173	-0.476	-0.190	0.317	0.031					
Costa Rica	-46.07	-98.03	0.009	-0.140	-0.157	0.012	0.029					
Chile	-39.94	-70.93	0.164	-0.586	-0.188	0.334	-0.064					
Ghana	-6.34	-19.40	0.264	-0.369	-0.109	0.561	0.301	-0.028	-0.428	-0.172	0.62	0.36
Indonesia	-6.07	-16.64	0.304	-0.627	-0.122	0.827	0.322					
Kenya	-22.88	-51.42	0.216	-0.249	-0.148	0.337	0.236					
Mexico	-20.89	-38.90	0.328	-0.773	-0.179	0.800	0.207					
Mongolia	-23.62	-71.13	0.096	-0.073	-0.111	0.117	0.155					
Uruguay	-13.45	-31.80	0.288	-1.661	-0.141	1.421	-0.099					
Vietnam	-4.02	-11.14	0.321	-1.444	-0.120	1.604	0.280	-0.016	-1.524	-0.156	1.68	0.32

Sources for original data: benefit incidence data by quintile: Argentina: CEPAL (2000); Colombia: Vélez (1995); Mexico: Scott 2002; Brazil, Costa Rica, Chile and Uruguay: World Bank (1993, 1995, 1997a, 1997b); the rest: World Bank (2001, table 5.2).  $C_N$ : Wagstaff (1999); Gini coefficient (G), total household consumption (%HH consum), and public spending/GDP: World Bank (2000). Public health spending as a proportion of total health spending (% total health): WHO 2001.