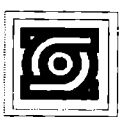

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NÚMERO 235

John Scott

PUBLIC SPENDING AND INEQUALITY OF OPPORTUNITIES IN MEXICO: 1970-2000

Resumen

Prestamos un análisis de la progresividad absoluta y relativa (incidencia) y la eficiencia redistributiva del gasto público social en México en el año 2000, incluyendo educación, salud, seguridad social, subsidios alimentarios y eléctrico, y dos programas de transferencias monetarias dirigidas que representan los principales programas de lucha contra la pobreza (PROGRESA) y apoyo a productores agrícolas (PROCAMPO) implementados en México actualmente. Combinando estos resultados con estimaciones disponibles para el mismo año de la incidencia de impuestos, obtenemos el impacto global y la contribución relativa del conjunto de instrumentos redistributivos disponibles en el sistema fiscal de México actualmente. También presentamos un análisis retrospectivo de las asignaciones presupuestales en las últimas tres décadas, y el uso de servicios de la última década. Observamos incrementos notables en el uso de servicios básicos de educación y salud por parte de las poblaciones más pobres entre 1996 y el 2000, consistentes con los incentivos a la demanda de PROGRESA.

Abstract

We present an analysis of the absolute and relative progressivity (incidence) and redistributive efficiency of public social expenditure in Mexico in the year 2000, covering education, health, social security, food and electricity subsidies, and two targeted monetary transfer programs representing the principal anti-poverty (PROGRESA) and agriculture support (PROCAMPO) programs implemented in Mexico at this date. Combining these results with tax incidence estimates available for the same year we obtain the impact and relative redistributive contribution of the set of redistributive instruments available in the Mexican fiscal system. We also present a retrospective analysis of budgetary allocations over the last three decades, and the use of social services in the last decade. We observe notable increases in the use of basic education and health services by the poor between 1996 and 2000, consistent with the demand incentives of PROGRESA.

Introduction

This paper presents an analysis of the progressivity, incidence and redistributive efficiency of public expenditure in Mexico in the year 2000, covering education, health, social security, food and electricity subsidies, and two targeted monetary transfers constituting the principal anti-poverty (PROGRESA) and agriculture support (PROCAMPO) programs implemented in Mexico at this date. These represent the principal redistributive instruments available to the Mexican state, accounting for 85% of social spending, and 50% of public spending (net of public debt payments and revenue-shares to the states). We combine these results with tax incidence estimates available for the same year to obtain an estimate of the total redistributive impact of the Mexican fiscal system, identifying the relative contribution of its principal instruments. As well as measures of progressivity and redistributive impact commonly used in benefit incidence analysis (estimating the impact on income inequality), we present new measures aimed at what might be considered a more relevant redistributive target for public spending on health and education services: reducing inequalities in education and health opportunities. We also present a retrospective analysis covering budgetary allocations over the last three decades, and the evolution of access to social services in the last decade. To put these distributions in perspective, we also include a comparative analysis based on data from 27 developing countries, 11 of them from Latinamerica.

The paper is structured as follows. The firts section presents some motivation for the present study and a brief review of past studies on the distribution of social spending in Mexico. Section 2 describes the measures of progressivity and redistributive impact and the data used in this study. Section 3 presents the principal results for the year 2000. Section 4 presents the retrospective incidence analysis of social spending for the last decade, as well as the comparative analysis. Section 5 draws some implications on reforming social spending in Mexico, and on the interpretation of benefit incidence analysis generally.

1. Motivation

The analysis of the redistributive impact of social spending in Mexico is of particular interest for a number of reasons. First, over the last four decades (1960-2000) public social spending has grown from 1.7% to 9.2% of GNP, becoming the principal budgetary commitment of the federal government. In 2000, social expenditure absorbed 60% of federal spending net of public debt payments and revenue-shares to the states (42% of total public spending).

Second, for seven decades up to the year 2000 Mexico was ruled continuously by a single party (*Partido Revolucionario Institucional*) whose claim to legitimacy, in the absence of credible democratic institutions, was build on two principal pillars: the capacity to deliver economic and political stability, and the redistributive project originating in the Mexican Revolution. In contrast to the former dimension, with half a century of remarkable stability abruptly interrupted over the last two decades,[1] the redistributive record of the post-revolutionary state is less transparent. This is of course not only of historical interest. The distribution of the benefits from social spending in the present and near future will be largely determined by the national institutions of public education, health, and social security inherited from this period, given the established infrastructure and entrenched interest groups.

Third, despite important progress in education and health achievements over the second half of the 20th century, Mexico's human development record is still bellow expectations by international standards. The infant mortality rate was (17%) below the average for upper-middle income countries in 1960, but (16%) above this average by 1997.[2] At present, infant mortality in Mexico is comparable to China, not much lower than Vietnam, and significantly higher than Sri Lanka, despite the distance between Mexico and these countries in per capita income and public spending (table 1.1), and literacy and secondary enrollment rates are similarly disappointing. Despite exceptional progress in average schooling over the last four decades, from 2.8 to 7.7 years, the latter still represents a two-year schooling deficit given Mexico's per capita income (Londoño 1996).

Table 1.1
Human Development and Economic Resources

		Mexico	Chile	Vietnam	China	Sri Lanka
GDP/*per capita* ($US PPP)	1999	7719	8370	1755	3291	3056
Public Health Exp./*per cap.*($US)	1990's	111	110	4	16	11
Public Education Exp./*per cap.* ($US)	1997	216	171	11	18	28
Primary Edu. Exp./student ($US PPP 1985)	1990	200	356		146	244
Gini Coefficient	1990's	53.7	56.5	36.1	40.3	34.4
Life Expectancy (years)	1998	72	75	68.5	70	73.5
Infant Mortality (% live births)	1998	3	1	3.4	3.1	1.6
Illiteracy (% adult population)	1998	9	4.5	7	17	9
Secondary enrollment (% age group)	1997	66	85	55	70	76

World Bank (1999, 2000), Barro and Lee (1996).

[1] The 1940-1980 period of "stable development", as it is described by economic historians, came to a halt with the 1982 debt crisis, and an even longer record of political stability was interrupted in 1994 by the Zapatista uprising and two high-profile political assassination, of the presidential candidate and the general secretary of the ruling party.

[2] This is calculated from the Barro-Lee data set and World Bank (1999).

Fourth, the distribution of income and assets in Mexico is highly unequal. Income inequality has remained persistently high in the second half of the century, further increasing over the last two decades (Lustig and Székely 1998). A mayor cause of this trend is the increasing returns to education observed in many countries, but aggravated in the case of Mexico by the distribution of schooling.[3] According to IADB (1998), the schooling gap between the richest 20% and poorest 40% of the population in Mexico (7.3 years) was the widest in Latin America in the last decade, and the average schooling for the poorest 10% of the adult population (2.1 years) was approximately *equivalent* to, *half,* and a *third* of the level achieved by the corresponding decile in Honduras, Peru and Chile, respectively.[4] Complete primary education, which in Argentina, Chile and Uruguay is achieved even by those in the poorest decile, is not achieved until the seventh decile in the case of Mexico.

An important part of the explanation for Mexico's modest and highly unequal human development record lies in the distribution of income, which severely limits the access of the poorer households to private health and education services, as well as to goods and assets complementary to these in the production of health and educational achievements. But the distribution of income is in turn largely explained by the prevailing distribution of assets, especially, at the lower end of the distribution, human assets like schooling. Given the distribution of private spending on health and education services in Mexico, the educational and health opportunities open to the poor depend to a large extent on their access to publicly provided services.

Finally, despite the former points, evidence on the redistributive impact of public spending on these services is surprisingly scarce, as explained below.

1.1 Previous Studies

Following pioneering studies like Selowski (1979) on Colombia, benefit incidence analysis for public social spending have been undertaken for a growing number of developing countries, especially in the last decade. Most of these studies have originated in the context of World Bank poverty assessment reports or public expenditure reviews. Their results have recently been compiled in mayor reports by some of the principal international organizations concerned with economic and social development,[5] jointly covering 27 developing countries, 12 of them in the LAC region (Argentina, Brazil, Bolivia, Chile, Colombia, Costa Rica, Ecuador,

[3] Boullion, Legovini, Lustig (1998). For a contrast between Mexico and Taiwan and Brazil on this point see Kanbur and Lustig (1999).
[4] Appendix Table 1.2.III, 25 year olds. Filmer and Pritchett (1998) present a broader set, where only the Indian Sub-Continent and Morocco appear be more unequal than Mexico.
[5] CEPAL (1994, ch. III; 2001, ch. IV), IADB (1998, ch. 8), World Bank (2001, ch. 5). See also Yaqub (1999), Filmer et al. (2000), and Scott (2002a) for a broad comparative study.

Jamaica, Panama, Peru, Nicaragua, and Uruguay). Mexico is notably absent from these lists.

There are a number of studies on the sectoral and geographic allocation of social spending in Mexico up to the early 1980's, including Wilkie (1978), Aspe and Beristáin (1984), Lustig (1989), and Maddison et al. (1992). While none of these includes estimates of the distribution of social spending by income-ordered population groups,[6] some nevertheless draw conclusions on the redistributive impact of social spending. Aspe and Beristáin, for example, end the most detailed and comprehensive review of social spending in Mexico in the 1970s with a bleak conclusion:

> "The greatest significance of this study is a negative one: the educational and health policies have not been corrective and have not diminished the disparity in income, but have, on the contrary, confirmed and reaffirmed these conditions."[7]

Fortunately, this strong statement was both empirically unsupported, given the information available to these authors, and highly unlikely given the information available to us today. This interpretation suggests three possible confusions:[8] a) deducing regressive allocation of *overall* spending in education and health from inequitable budgetary allocations *per beneficiary* (tertiary vs. basic education, health services for the insured vs. uninsured), b) deducing regressivity *relative* to the distribution of autonomous income from regressivity in absolute terms, and c) considering social security spending *gross* of social security taxes contributed by the recipients of these benefits, when only a small fraction (5%) of the latter were subsidized by the government from general tax revenue (before the 1997 IMSS reform). We will see that, while public spending on tertiary education in the 1970s and 1980s was certainly regressive even relative to the highly unequal distribution of autonomous income in Mexico (thus contributing to further increase inequality), this could hardly have been true of public education and health spending as a whole even with the exceptionally inequitable allocations observed in this period (section 4).

More recent studies have focused on the effects of the post-1982 budgetary cuts (Friedman et al. 1995, Pánuco and Székely 1996) and a number of targeted programs designed to protect the poor, but relatively modest in size relative to non-targeted social spending (most notably, see the comprehensive impact evaluation of PROGRESA in 1997-2000 by IFPRI).

Finally, estimations of the distribution of the beneficiaries of public spending have only appeared, for the case of education, in recent years (see Castro-Leal and

[6] One exception, quoted for example by Lustig (1989) and Gil-Díaz y Thirsk (1997), is an undergraduate thesis (Reyes Heroles 1976) reporting incidence tables for 1968.

[7] Aspe and Beristáin (1984), p. 323.

[8] Some of these confusions may remain. See, for example, Corbacho y Schwartz (2002, pp. 12, 24), who quote without questioning the Aspe-Beristáin conclusion with similar suggestions from more recent studies.

Dayton 1994, quoted in Corbacho and Schwartz 2002, and Lopez-Acevedo and Salinas 2001, for 1992 and 1996, respectively). Gonzalez-Pier y Parker (1999) estimate the distribution of the health care financing in Mexico, but not of the benefits from public health spending. Scott (2001a) estimates the incidence of spending on education, health, and social security in 1996, and Scott (2001b) does the same for 1998, separating the health from non-health benfits of social security, and including electricity and PROCAMPO subsidies.

2. Methodological Issues

This section introduces the measures of progressivity and redistributive impact and efficiency used here, and describes the sources and treatment of the data.

2.1 Measures

Benefit incidence analysis (BIA) estimates the distribution of benefits received by households from public social spending. In the case of goods and services, or transfers "in kind", the value of these benefits is commonly assumed to be equal to the cost of provision to the government. Their distribution among households is typically estimated from the use of services as reported in national income and expenditure surveys. The limitations of this method to guide policy analysis and reform have received much attention in recent years, giving rise to a number of methodological developments:[9] a) estimating the subjective utility obtained by beneficiaries from the use of public services (for example, through willingness-to-pay or hedonistic prices), b) taking into account behavioral and general equilibrium effects, as is common practice in tax incidence analysis, c) estimating the incidence of marginal changes in the coverage of established programs. A more basic but generally unnoted limitation of BIA concerns the assumed redistributive objective, and the measures of progressivity used to judge redistributive effort defined in terms of this objective.

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* (K), corresponding to the difference between the former and the Gini coefficient for autonomous income (G):[10]

$$K = C - G \tag{1}$$

[9] See Van de Walle and Nead (1995), Van de Walle (1998), Lanlouw and Ravallion 1999, Ajwad and Wodon (2001), Bourguignon et al. (2002).
[10] See Kakwani (1977).

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 Lorenz curve for the distribution of autonomous income (K). 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 K 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 K 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 K and the average transfer rate (transferred resources as a proportion of autonomous household income), γ:

$$\Delta G = K\frac{\gamma}{(1+\gamma)}, \tag{2}$$

Finally, redistributive *efficiency* (RE) can be measure as the elasticity of this impact with respect to the size of the transfer:

$$RE = \frac{\Delta G/G}{\gamma}, \tag{3}$$

Despite its widespread use, these measures have some limitations in the context of benefit incidence analysis. One obvious objection is that the analysis assumes the total cost of social services to be absorbed by its distributive objective, ignoring non-distributive benefits. This is inconsistent with most economic theory on social spending, which assumes the primary function of these instruments to be the correction of market failures, in particular informational asymmetries and externalities (see Barr 1992). But even within the redistributive project, the objective implicit in these measures may be questioned. This is defined in the space of income, rather than of the specific dimensions of human welfare, like health and education, which social spending *in kind* (as opposed to untagged monetary transfers) is designed to address. Rather than an eccentric interpretation of the redistributive aims of social spending, this choice of space is explained by the analytic tools of BIA. First, it is a natural choice given the evaluation of transfers in kind as monetary transfers. Secondly, it reflects the origins of BIA and standard measures of progressivity in the context of *tax* incidence analysis, which in turn draws ultimately from the theory of income inequality measurement (see Lambert 1993 and Kakwani 1980).

The measurement of (relative) progressivity as the deviation from proportionality to income is explicitly postulated by Kakwani as his principal normative axiom.[11] However, the rationale for measuring progressivity as deviation from perfect proportionality is less obvious in the case of transfers, and lacks a relevant standard of optimality in both cases, which would allow measuring to what extent a progressive instrument falls short from or overshoots its redistributive target. In the case of non-cash transfers this reference point is especially dubious, because these are naturally aimed at redistributive objectives defined in non-cash spaces. 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 and services, 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.):

$$\Delta G_S = K_S \frac{\gamma_S}{(1+\gamma_S)}, \tag{4}$$

where $K_S = C_S - G_S$, the difference between the concentration coefficient of public spending in S and the Gini of household spending in S, and γ_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:[12]

$$C_{ER} = -\frac{G_S}{\gamma_S}. \tag{5}$$

Note that if public spending in S has a minority share (γ_S <1), even perfect targeting could not equalize spending in a highly unequal society ($G_S = 0.5$).

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

[11] Axiom 12.2 in Kakwani (1977).

[12] Setting $G_S^{Post} = 0$, and thus $\Delta G_S = -G$ in (4) (*where* $\Delta G_S = G_S^{Post} - G$).

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 to the production of 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 we may assume equivalent 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.[13] When theses 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:[14]

$$C_{ERN} = C_{ER} + C_N(1 + \frac{1}{\gamma_S}). \quad (6)$$

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:

$$K_{ER} = C_S - C_{ER}, \quad (7)$$

$$K_{ERN} = C_S - C_{ERN}. \quad (8)$$

2.2 Data Limitations and Assumptions

The late appearance of benefit incidence studies for Mexico is largely explained by data limitations, both on the use of services by households and on budgetary allocations. Some of these restrictions have been relaxed in recent years, but some

[13] For the case of health, Wagstaff et al. (1989) defined "illness" concentration curves, plotting the cumulative distribution of the population ordered by income against the cumulative distribution of illness.

[14] Setting $G_S^{Post} = C_N$ in (4).

important ones remain. With one exception (noted below), all data on use of services and transfers received by households are obtained from the *Encuesta Nacional de Ingresos y Gastos de los Hogares* (ENIGH) for 2000 (and for 1992, 1994, 1996, 1998, in the retrospective analysis). We identify specific data limitations below by type of program.

Public expenditure information is obtained from public government reports, mainly the Statistical Annex of the yearly "Informes de Gobierno" presented by the President to Congress. All public spending data in this paper refer to federal spending, defined here to include decentralized spending in health and education financed by specific federal funds allocated to these sectors, [15] as well as direct spending by the federal government in the states, but excluding social spending financed by local taxes and by the shares of federal taxes devolved to the states (*Participaciones*). Information on the allocation of local social spending of the latter kind is not generally available. Federal spending in this definition represents the bulk of public spending in Mexico: close to 95% in health, and 85% in education.[16] Table A.1 (in the Annex) reports the items evaluated here and their budgets.

Education. Prior to 1992 the ENIGH did not distinguish between students in public and private education. Even in its more recent editions, this source reports whether or not a person is enrolled in a public school and the level of education attained, but not the level of present enrollment. Before 1996 the level attained was reported in terms of complete/incomplete cycles (primary, lower secondary, higher secondary, tertiary, post-graduate), and only since then in individual school years. We infer present enrollment by assuming that all those reporting attendance are enrolled in the school-year (cycle) immediately following that reported as completed (the same cycle for those reporting incomplete cycles).

Health. The ENIGH reports use of health services in public institutions, including the social security institutions serving formal sector workers (*Instituto Mexicano del Seguro Social*, IMSS) and state workers (*Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado*, ISSSTE),[17] and the services offered to the uninsured population by the health ministry (SSA).[18] The *type* of services used is identified in

[15] These funds are classified in the federal budget as *aportaciones (Ramo 33)*. Given Mexico's high degree of fiscal centralization, apart from some minor local taxes, all spending by local governments is financed from federal revenue. The latter funds are distinct from both federal spending in the states and the state's spending financed through general tax revenue in that the services financed are locally administered, but the federation retains an important degree of allocative and regulatory control.

[16] Zedillo (2000) and Funsalud (1998). There are, however, important variations across states in the importance of locally financed education services.

[17] Note that IMSS also has a program of clinics serving poor uninsured rural communities: IMSS-Solidaridad. We shall not consider here social security services specific to the national oil company (PEMEX) and the armed forces.

[18] This includes the decentralized funds administered by state health ministries, *Fondo de Aportaciones para los Servicios de Salud* (FASSA).

44 categories. In the absence of data on the costs of specific services in these institutions, we will use the information offered by the ENIGH on private spending in these categories as an approximation to the costs of services used in the public sector. We will estimate the distribution of public health spending under three alternative assumptions: a) same cost for all services in each institution, b) differentiated average costs for different types of services, and c) differentiated average costs for different types of services in each decile. The last alternative is motivated by the hypothesis that richer households not only tend to consume more expensive services (using public health services as insurance against high-cost events), but have access to higher quality services even within the same type.

Social Security (pensions and other non-health benefits). Pensions and other non-health benefits allocated through the social security institutions are the most complex benefits of social spending to impute to households, and would require a study on its own. These are financed partly through social security taxes paid by their direct beneficiaries and their employees, as well as general taxes, over the working life of the beneficiaries. A recent reform of IMSS has increased the participation of general vs. social security taxes. Here we shall ignore financing, and consider the distribution of beneficiaries only, distinguishing between active and retired workers. For the former population we use active workers reporting affiliation to IMSS or ISSSTE, and for the latter we use pensioners, both as reported in the ENIGH. In the latter case the ENIGH only reports the institution of affiliation in an insignificant number of cases, so we apply the affiliation reported by other members within the pensioner's household to infer the rest. Given the complexities of imputing benefits received net of past contributions, we do not attempt to estimate the distribution of public expenditure on this concept, though we will report the distribution of active workers and pensioners affiliated to the social security institutions.

Other subsidies and transfers. The ENIGH also reports other public subsidies. This includes direct monetary transfers from the principal anti-poverty (*Programa de Education, Salud y Alimentación*, PROGRESA)[19] and agricultural support (PROCAMPO) programs in operation in Mexico at this date. The *electricity subsidy* for residential consumption--which in the year 2000 was larger than spending on health services for the uninsured and four times larger than the PROGRESA transfers—is inferred from reported spending on electricity. We apply the residential tariff schedule published by the principal public electricity company (*Compania Federal de Electricidad*, CFE), to impute electricity consumption (kWh) to households. Applying the average costs of production per kWh reported by the

[19] The ENIGH (2000) reports scholarships received from this program. The program has been renamed (in 2002) *Programa de Desarrollo Humano Oportunidades.*

government[20] we obtain the distribution of the subsidy as the difference between costs and spending. Finally, we estimate the distribution of the principal *food subsidy* programs from the 1999 *Encuesta Nacional de Nutrición* (ENN), using the ENIGH 2000 to impute income to households in the ENN.[21] These include the food component of PROGRESA, the principal school breakfast program (DIF), and the targeted tortilla (FIDELIST) and milk (LICONSA) programs.[22]

To estimate incidence and redistributive impact we have adjusted autonomous household spending data from the ENIGH for underreporting, using aggregate household consumption reported in the *National Accounts*. The resulting adjustment factor is 1.64. While such adjustments have commonly been applied in poverty measurements in Mexico, as elsewhere, there is as yet no general consensus on the right method of adjustment. Given this lack, the conceptual differences between the two sources, and the uncertainty about the distribution of the unreported resources, an academic committee recently established to define a methodology for an official poverty measure in Mexico has recently recommended *not* to adjust for that purpose.[23] Nevertheless, in the present context it is of critical importance to ensure consistency of public spending with *aggregate* private spending, as the size of the redistributive effect varies directly with the ratio between these magnitudes, or the average transfer rate (see eq. 2 above). Note that in the absence of this adjustment the redistributive impact of public spending would be *overestimated* by a large factor.

To obtain the measures of progressivity relative to equality of resources in health and education and the corresponding measures of redistributive impact we use (adjusted) total household spending in these sectors. Lacking adequate data on the distribution of ill-health, we only report measures defined relative to needs in the case of education. We use needs concentration coefficients based on the distribution of children aged 6-15 not attending school (from the ENIGH).

Finally, all measures are calculated using two alternative units of analysis (households and persons) and two alternative ordering concepts (total and per capita household income), implying four categories:

a)	dh yt	households ordered by total income
b)	dh ypc	households ordered by per capita income
c)	dp yt	persons ordered by total income
d)	dp ypc	persons ordered by per capita income

[20] Statistical Annex, 1er Informe de Gobierno, 2001

[21] We would like to thank Juan Rivera and the *Centro de Investigaciones en Nutrición y Salud*, in the *Instituto Nacional de Salud Pública* in Mexico for access to this survey.

[22] The ENIGH also considers various housing subsidies, but only 37 interviewed households report being beneficiary of such programs.

[23] See Comité Técnico para la Medición de la Pobreza (2002).

The population orderings are constructed by ordering households according to the two income concepts, but partitioning them into population deciles. Table A.2 presents the distribution of income and spending in the year 2000 using the four concepts. All measures of the redistributive impact reported in the next section are calculated with respect to *spending net of taxes* by household and population, except when we combine taxes and total spending, when we use income (adjusted in the aggregate with the same factor as the former).

3. The distribution of social spending (and other subsidies and transfers) in 2000.

Tables A.3 to A.7 present the distribution of the principal redistributive instruments available to the Mexican government in 2000, and table A.8 (graph 3.1) presents the corresponding concentration coefficients. These are distributed over a wide range, between 0.66 and –0.73, with social security and tertiary education on one extreme, and PROGRESA and health services for the uninsured at the other. Though only 7 of the 18 programs included are progressive in absolute terms, with the exception of ISSSTE pensioners none is regressive relative to the distribution of autonomous resources. Focusing on the lower end of the distribution (graph 3.2), we see that only the same 7 programs priorize the poorer half of the population, and only PROGRESA allocates a majority of its resources to the extreme poor (20%). On the other hand, with the exception of PROGRESA and SSA, all programs in effect favor the moderate (50%) over the extremely poor.

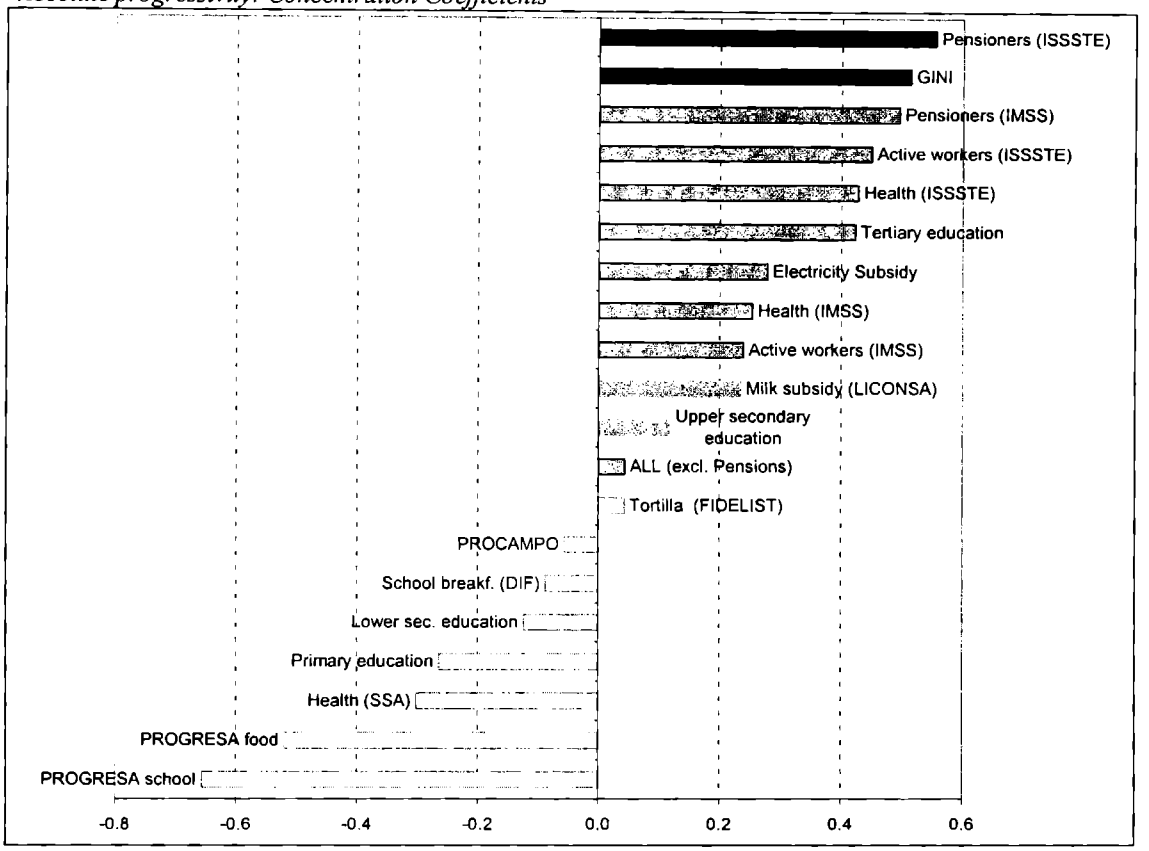
Considering specific programs, we may note the following:

a) In the case of education, given the limited coverage and barriers to entry (opportunity and indirect costs), it is not surprising to observe that public spending becomes rapidly less progressive the higher the level of attainment. However, the participation of the poor in tertiary education is low in comparison to other countries in the region.[24]

b) Within the health sector, again the limited coverage and barriers to entry (formal and state sector employment) explain the gap in progressivity between the insured and the uninsured. Comparing the three different methods we have used to impute costs (see table A.4) confirms that the richer deciles tend to access more expensive types (and quality) of services within each institution.

[24] The poorest 40% of the population accounts for only 9.6% of the students in tertiary education in Mexico, for 19% in Brazil and for 39% in Chile. See table 6.7, Scott (2002a).

Graph 3.1
Absolute progressivity: Concentration Coefficients



Data: ENIGH 2000, ENN 1999 (food subsidies). Tables in ANNEX. Population deciles ordered by income per capita.

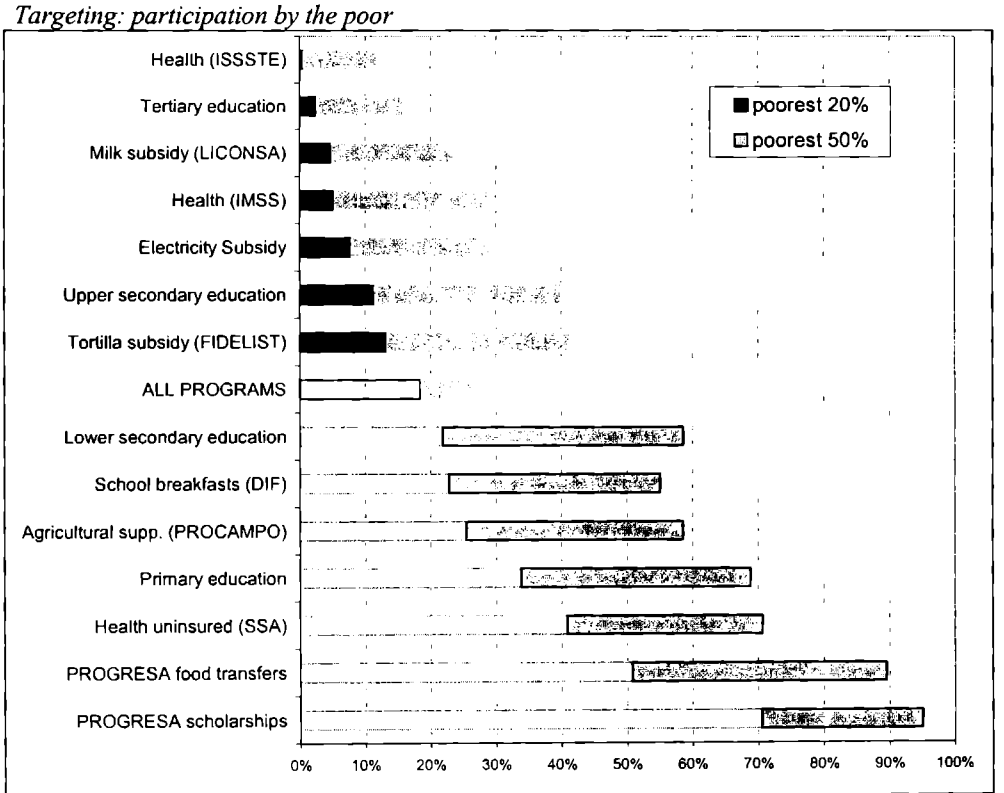
c) In the case of the non-health benefits from social security (table A.5), we observe that subsidies to actual pensioners are far more regressive than the contribution made by the government to the future pensions of active workers, reflecting a more limited and privileged coverage of social security in past decades.

d) The contrast in progressivity observed is more surprising in the case of food subsidies. PROGRESA (food component), the largest program of this kind at present, is by far the most progressive of all the programs considered here, the targeted tortilla and milk food subsidies are anti-poor, and in the case of LICONSA among the most anti-poor of all programs considered. Note that the residential electricity subsidy and health services for formal sector workers are more pro-poor than the latter subsidy. The contrast between PROGRESA and LICONSA would be larger still if we considered transfers received by beneficiaries net of administrative costs. Despite the logistic complexity and geographic dispersion of the former program (targeting only small rural communities in 2000), these costs (principally targeting costs) have been estimated at 8.9% (Coady 2000), while the operation costs in LICONSA, despite its urban concentration, have been estimated to be in the

order of 36% (Grosh 1994), apparently due in part to the rehidration process of milk, stored and transported in powdered form.

e) Considering the energy and agricultural subsidies, again we observe contrasting patterns. PROCAMPO, which is allocated essentially in proportion to the size of land-holdings cultivated with protected crops in the past, is pro-poor though only mildly progressive considered overall due to the high participation of the richest decile. The residential electricity subsidy is regressive despite a tariff schedule which is progressive in consumption.

Graph 3.2
Targeting: participation by the poor



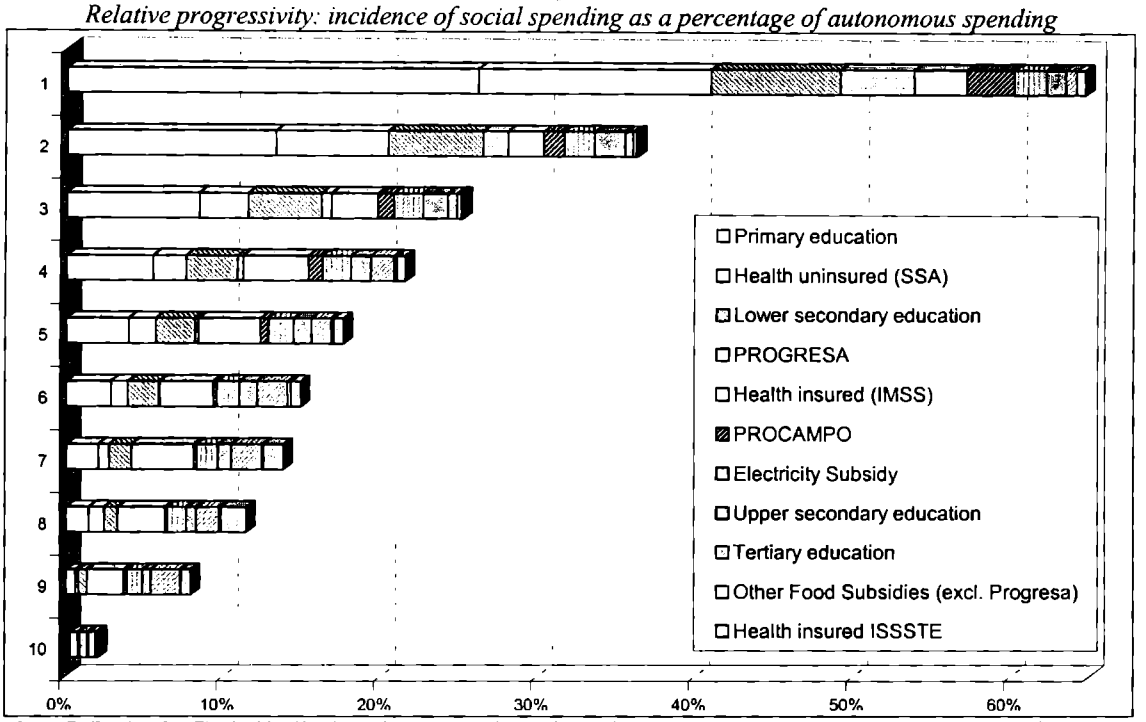
Data: ENIGH 2000, ENN 1999 (food subsidies). Tables in ANNEX. Population deciles ordered by income per capita.

Taking all these resources together (except pensions), the distribution of social spending in Mexico is slightly regressive in absolute terms, and definitely reveals no allocative preference towards the poor. Due to the highly unequal distribution of autonomous resources in Mexico, however, public expenditure still has a very important redistributive potential. Graph 3.3 presents the relative progressivity of these programs, or the incidence as a percentage of autonomous spending. We observe that public spending on these instruments is highly progressive in relative terms. The estimated impact especially at the lower end of the distribution is highly

sensitive to the ordering concept used. With income per capita, the programs considered jointly increase the consumption possibilities of the poorest and richest deciles by 65% and 4%, respectively. The bulk of the impact on the poor is due to basic education and health services for the uninsured.

Graph 3.3

Relative progressivity: incidence of social spending as a percentage of autonomous spending



Data: ENIGH 2000, ENN 1999 (food subsidies), 1er Informe de Gobierno, Fox (2002). Autonomous household spending adjusted for consistency with National Accounts. Population deciles ordered by income per capita. Tables in ANNEX.

Table 3.1 presents measures of impact on the reduction of (spending) inequality and redistributive efficiency. Jointly these programs have the potential of reducing inequality among the population by close to 9%. The bulk of this impact (77.5% in dp ypc) is due to basic education and SSA and IMSS health services, followed by PROGRESA, upper secondary education and electricity subsidies, each of which contributes around 5%. In terms of efficiency, each percentage point of autonomous spending redistributed through these instruments implies on average a reduction in the order of 0.9 percentage points in inequality, with a wide dispersion: from just 0.17 (tertiary education and ISSSTE health services), to 2.3 (PROGRESA scholarships). Thus, in the margin, each peso reallocated from the former programs to the latter would multiply its redistributive impact by more than 13 times. The redistributive efficiency of PROGRESA would be even larger if we considered the indirect impact which the program is designed to have on the demand for education and health services at the low end of the distribution, thus increasing the progressivity of these services (section 4).

Table 3.1
Measures of Redistributive Impact and Efficiency

Concept	Transfer rate (γ) (%)	Reduction of Inequality (total: ΔG/G) (programs: % contribution)				Redistributive Efficiency (RE)			
		dh yt	dp yt	dh ypc	dp ypc	dh yt	dp yt	dh ypc	Dp ypc
All Programs	**9.88**	**-8.68**	**-9.31**	**-11.46**	**-8.93**	**-0.88**	**-0.94**	**-1.16**	**-0.90**
Education	**4.86**	**48.8%**	**48.7%**	**56.6%**	**56.9%**	**-0.87**	**-0.93**	**-1.33**	**-1.05**
Primary	2.05	30.2%	30.0%	33.0%	34.1%	-1.28	-1.36	-1.85	-1.48
Lower Secondary	1.15	13.8%	13.7%	15.8%	15.8%	-1.04	-1.11	-1.57	-1.23
Upper Secondary	0.58	3.8%	3.9%	5.1%	4.9%	-0.57	-0.63	-1.02	-0.76
Tertiary	1.08	0.9%	1.2%	2.7%	2.1%	-0.08	-0.10	-0.29	-0.17
Health	**1.82**	**34.5%**	**34.2%**	**29.6%**	**28.5%**	**-0.86**	**-0.92**	**-0.97**	**-0.73**
IMSS	0.67	14.4%	14.3%	12.3%	11.1%	-0.62	-0.67	-0.71	-0.50
ISSSTE	0.22	1.5%	1.7%	1.5%	1.0%	-0.25	-0.29	-0.32	-0.16
SSA	0.93	18.6%	18.3%	15.7%	16.5%	-1.72	-1.82	-1.92	-1.57
Food Subsidies	**0.22**	**3.6%**	**3.5%**	**3.3%**	**3.4%**	**-1.63**	**-1.73**	**-1.96**	**-1.60**
PROGRESA (food)	0.13	2.6%	2.6%	2.3%	2.5%	-2.06	-2.17	-2.42	-2.01
School breakfasts (DIF)	0.04	0.5%	0.5%	0.5%	0.5%	-1.16	-1.24	-1.48	-1.17
Milk (LICONSA)	0.01	0.1%	0.1%	0.1%	0.1%	-0.54	-0.60	-0.72	-0.54
Tortilla (FIDELIST)	0.04	0.4%	0.4%	0.4%	0.4%	-0.94	-1.01	-1.19	-0.92
PROGRESA (scholar.)	0.11	2.5%	3.0%	2.1%	2.7%	-2.05	-2.59	-2.25	-2.28
PROCAMPO	0.30	3.9%	3.9%	3.3%	3.4%	-1.23	-1.29	-1.34	-1.11
Electricity subsidy	0.97	6.7%	6.7%	5.2%	4.9%	-0.59	-0.64	-0.61	-0.45

Data: ENIGH 2000, ENN 1999 (food subsidies), 1er Informe de Gobierno, Fox (2002). Autonomous household spending adjusted for consistency with National Accounts. Tables in ANNEX.

Table 3.2 presents measures of progressivity and redistributive impact defined in terms of reducing inequalities in educational and health opportunities, rather than in total resources. The potential effect of public spending in these sectors is to cut the inequality in autonomous educational and health spending by close to a half. This effect appears to be larger in the case of health than in education, contrary to what might be expected from their impact on overall inequality (table 3.1), and despite the fact that public spending is on average slightly less progressive in the former sector, because public resources accounted for a larger share of total spending on health (61%) than on education (46%) in Mexico in 2000. It should be noted, however, that an important part of the latter resources are financed directly or indirectly by their beneficiaries through social security taxes. If we only considered general tax-financed social spending the sectoral transfer rates would be more similar.

To eliminate resource inequality in these sectors completely under the 2000 public budget constraints would require an improvement in progressivity in the order of 58 points in the case of education, and 46 points in the case of health (dp ypc). We can also see that the more ambitious ideal of equality of resources *per need* in the former sector could not be achieved at all through any reform in the allocation of public spending (within the 2000 budget), nor through any increase in the sectoral

transfer rate given the distribution of public and autonomous education spending observed in 2000), but only through simultaneous (and radical) improvements in both. For example, even if all private education spending was taxed and transferred back through public education (γ_S=1), educational needs (children aged 6-15 not attending school) are so unequally distributed that the equity of public spending would still have to improve by 37 points.[25]

Table 3.2
Redistributive Impact and Inequality of Opportunities

	Education			
	dh yt	**dp yt**	**dh ypc**	**dp ypc**
CC	0.0548	0.0233	-0.1529	-0.0324
$\Delta G_S / G_S$ (%)	-40.3	-43.2	-61.8	-48.4
C_{ER}	-0.571	-0.548	-0.513	-0.613
K_{ER}	0.6262	0.5715	0.3598	0.5810
C_N				-0.4053
C_{ERN}				-1.5034
K_{ERN}				1.4710
	Health			
	dh yt	**dp yt**	**dh ypc**	**dp ypc**
CC	0.0604	0.0323	0.0050	0.1314
$\Delta G_S / G_S$ (%)	-53.1	-56.5	-60.1	-45.2
C_{ER}	-0.308	-0.296	-0.277	-0.331
K_{ER}	0.3688	0.3282	0.2818	0.4625

Data: ENIGH 2000, ENN 1999 (food subsidies), 1er Informe de Gobierno, Fox (2002). Autonomous household spending adjusted for consistency with National Accounts. Tables in ANNEX.

Finally, it may be of interest to consider the redistributive impact of these resources in the context of the fiscal system as a whole. Tax incidence studies for Mexico are as scarce as benefit incidence studies.[26] Here we use an estimate of the distribution of tax burdens for 2000 reported in SHCP (2002), covering the principal tax instruments available in Mexico at this date.[27] Table 3.3 reports the total redistributive impact of the fiscal system in 2000, and its decomposition into taxes and transfers.

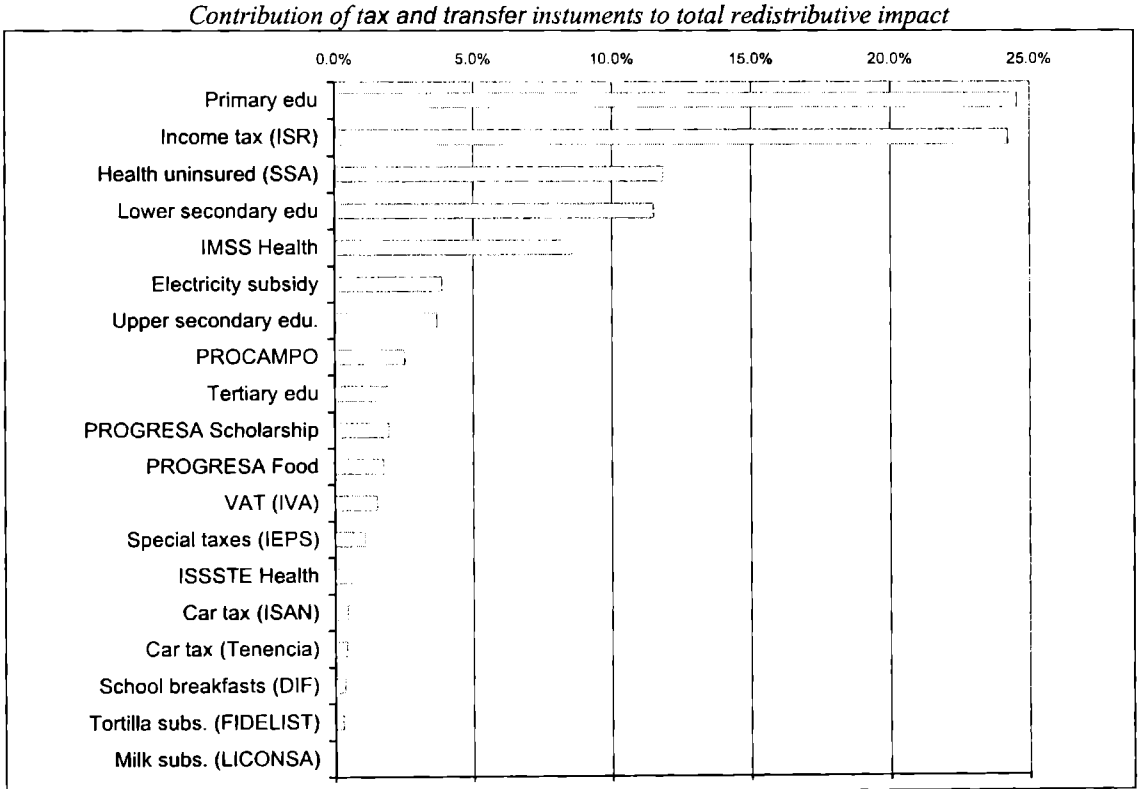
[25] Note that this estimate of C_{ERN} represents an upper bound as it fails to take into account the reduction in the value of C_N which would occur under equality of post-transfer social spending.
[26] The principal study of this kind based on a general equilibrium model available for Mexico is Gil-Diaz (1987), which compared the 1977 and 1980 tax systems.
[27] This study considers only direct (partial equilibrium) effects. The taxes included are: general income tax (ISR), social security taxes (only those paid by workers directly, not those paid by employees, which absorb the principal share of these taxes), VAT (IVA), and other indirect taxes on petrol, tabacco, and alcoholic beverages (IEPS), and on new car purchases and car use (ISAN, Tenencia).

Table 3.3
Redistributive Impact of Taxes and Transfers on Income

		Households		Population	
		Total income	Per Capita income	Total income	Per Capita income
Reduction of Inequality (ΔG/G)	**Total**	**-11.86%**	**-12.05%**	**-15.26%**	**-11.57%**
	Taxes	-3.79%	-3.47%	-4.77%	-3.29%
	Transfers	-8.07%	-8.58%	-10.50%	-8.28%
Relative Contribution	Taxes	31.9%	28.8%	31.2%	28.4%
	Transfers	68.1%	71.2%	68.8%	71.6%
Redistribitive Efficiency (ΔG/G)/γ	Taxes	-0.29	-0.27	-0.37	-0.25
	Transfers	-0.95	-1.01	-1.23	-0.97

Data: Distribution of tax burdens is taken from SHCP (2002), where it is based on ENIGH 2000. Transfers include all public expenditure programs reported in table 3.1. Tables in ANNEX. Autonomous household income adjusted for consistency with National Accounts.

Graph 3.4
Contribution of tax and transfer instuments to total redistributive impact

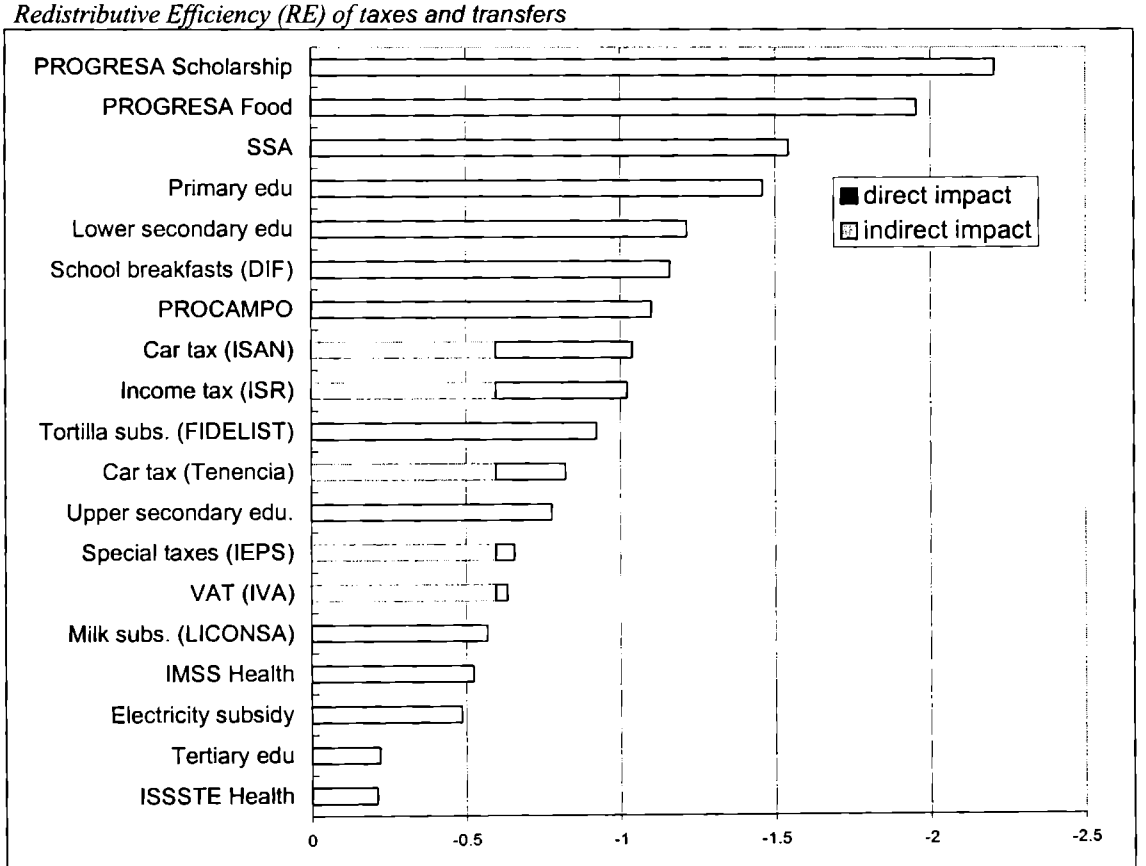


Data: Distribution of tax burdens is taken from SHCP (2002), where it is based on ENIGH 2000. Transfers from tables in ANNEX. Autonomous household income adjusted for consistency with National Accounts. Population deciles ordered by income per capita.

Considering only the direct redistributive impact of taxes (i.e. ignoring the indirect impact achieved by financing redistributive expenditure), we can see that public expenditure accounts for close to 70% of this impact, and is four times more efficient as a redistributive impact than taxes. Comparing the tax/transfer instruments individually (graph 3.4), primary education and income tax each

account for almost a quarter of the total redistributive impact estimated. Graph 3.5 compares these instruments in terms of redistributive efficiency, including the indirect as well as direct impact in the case of taxes. The former is assumed to be equal to the average redistributive efficiency achieved by the programs analyzed here, adjusted to take into account that only a fraction (65%) of total tax revenue is absorbed by these programs. Considering only their direct effect, even the highly progressive tax on new car purchases (ISAN) and income taxes fall among the least efficient redistributive instruments, below the electricity subsidy. Including their indirect effect, however, they fall in the middle of the range.

Graph 3.5
Redistributive Efficiency (RE) of taxes and transfers



Data: Distribution of tax burdens is taken from SHCP (2002), where it is based on ENIGH 2000. Transfers from tables in ANNEX. Autonomous household income adjusted for consistency with National Accounts. Population deciles ordered by income per capita.

4. The evolution of the distribution of social spending in Mexico: 1970-2000.

As noted in the introduction, the distribution and redistributive impact of social spending in Mexico in the last century is of historical interest given the redistributive project claimed by all administrations to the very end of the post-revolutionary, pre-democratic era (1930-2000). Did these governments deliver? But it is mainly of interest for the understanding of the present and planning of the future, for several reasons:

a) the present distribution of social spending is largely explained by past allocations, through installed fiscal infrastructure, established administrative bureaucracies, massive and highly organized provider labor unions, human capital endowments of these providers, beneficiary interest groups, institutional practices and culture, etc.
b) these inherited determinants represent formidable constraints which any mayor future reform effort will have to face, and
c) the distribution of human capital in Mexico (thus the distribution of income) at present, and especially the present human capital endowments of households at the lower end of the distribution (thus present poverty rates), is explained in an important part by the access (and quality) which the actual labor force had to public education and health services over the last half-century.

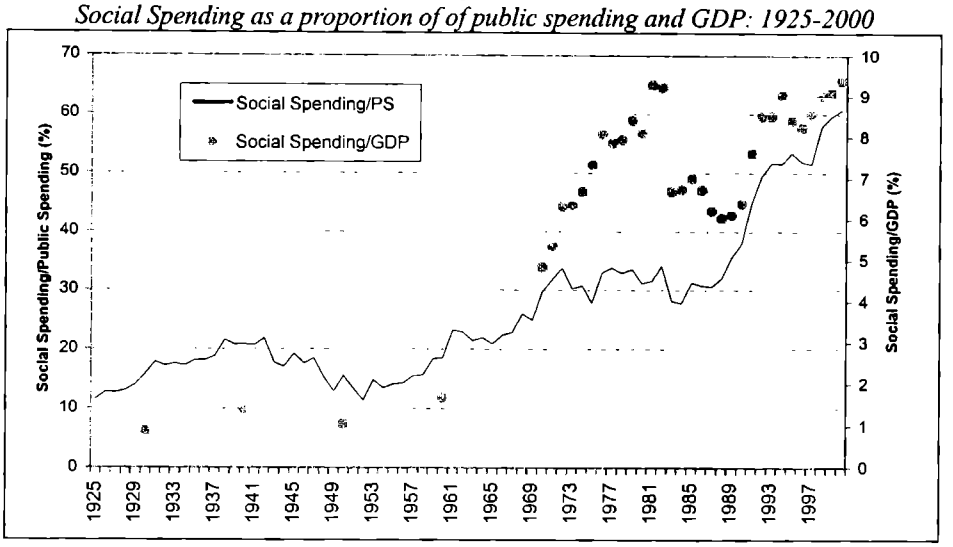
After providing a historical perspective, the section concludes with a comparative perspective on the distribution of social spending in Mexico.

4.1 The emergence of the welfare state

Between the early 1940's and 1982 social spending in Mexico grew from less than 2% to more than 9% of GDP (graph 4.1). This growth reflected the creation and expanding coverage of social security in the 1940's and 1950's[28], and a rapid expansion of public education in the 1970's. In the aftermath of the 1983 crisis, social spending was cut back and only regained its 1982 level--as a proportion of GDP as well as in real per capita terms—by the end of the 1990's. In contrast to the earlier peak, financed by high levels of public expenditure, the latter has been achieved by almost doubling the share of social spending in the public budget over the 1990's.

[28] IMSS was created in 1944 and ISSSTE in 1959.

Graph 4.1
Social Spending as a proportion of of public spending and GDP: 1925-2000



Source: *INEGI (1994), Zedillo (1999).*

Education absorbed the majority of these resources in the first half of the century. Though by 1970 health and social security accounted for a majority share of public social spending, the bulk of this was financed by its beneficiaries through social security taxes on employers and employees.[29] Considering general-tax financed federal transfers to social security only, education and health have absorbed on average over the 1970-2000 period 59% and 21% of these transfers, respectively (table 4.1).

Table 4.1 Social Expenditure 1971-2000

Years	Administration	Public Social Exp./GDP	Public Social Exp./Public Exp*	Education Exp/ Social Exp**	Health & Social Security Exp./Social Exp.**
1971-1976	Echeverría	6.7	31.2	36 (57)	52 (24)
1977-1982	López-Portillo	8.5	32.9	40 (58)	43 (19)
1983-1988	De la Madrid	6.6	30.1	42 (62)	44 (16)
1989-1994	Salinas	7.7	45.2	42 (62)	45 (20)
1995-2000	Zedillo	8.8	55.8	43 (57)	44 (25)

Salinas (1994), Zedillo (1999), SHCP (2000). *net of debt payments and state participations. **gross (net) of social security tax-financed expenditure.

In the course of the second half of the 20th century the public education system in Mexico expanded from 3 to 18.5 million students in basic (primary and lower secondary) education, and from less than 70 thousand to 3.6 million students in

[29] The 1997 IMSS reform implies a large increase in the share of general taxation in social security financing, from 5% to 40% approximately (SHCP 1998).

higher (upper secondary and tertiary education (table 4.2). In the case of basic education this expansion came to an end in the early 1980s, when primary education enrollment indeed dropped by almost a million students during that decade. This is explained by demographic trends and the high coverage rate achieved at this level by 1980, but partly also by the 1983 macroeconomic crisis, which in addition to a sharp cut in public spending led to increased dropout rates as poorer households could not afford the opportunity cost of education even at this early age. On the other hand, lower secondary school enrollment expanded by a million over the same decade. In the case of higher education, the principal expansion has been achieved over the last three decades, at an average rate of a million a decade.

Table 4.2 Public Education Enrollment

Year	Enrollment (thousand students)				Coverage (% of age group)	
	Primary	Lower Secondary	Upper Secondary	Tertiary	Basic (5-14)	Higher (15-24)
1950	2,997	70	37	30	45%	1%
1960	5,730	272	129	83	62%	3%
1970	8,802	890	288	215	69%	6%
1980	13,952	2,510	867	896	85%	13%
1990	13,516	3,852	1,592	1,013	83%	15%
2000	13,668	4,864	2,253	1,364	83%	19%

INEGI (1994), Zedillo (2000), INEGI (2001).

Considering the evolution of federal spending on education in 1970-2000 (table 4.3, graphs 4.2, 4.3), note the low level of spending per primary student in the 1970's despite a rapidly growing educational budget, benefiting mostly students in higher levels of education. In the decade following the 1968 student revolt, the share of public education spending on upper-secondary and tertiary education increased from 20% to 42%. Note that this occurred just as enrollment in public basic education was growing by 70%, from 9.7 to 16.5 million students. The impact on spending per student in basic education was aggravated in the 1983-1988 administration, as this educational level absorbed a disproportionate share of the budgetary cuts, and spending on basic education dropped to its lowest level in the whole period.

To put these spending levels in perspective, according to the Barro-Lee (1996) data set on schooling years and schooling quality over the 1960-1990 period Mexico's spending per student in primary school lagged behind all regions in the world except Sub-Saharan Africa and South Asia (table 4.4). As a proportion of GDP per capita, spending per primary school student in Mexico over this period was a third of the average for developing countries and the third lowest value for this variable for all middle income countries represented in this set. Spending per student was on average 10 times higher in tertiary than in primary education in the 1970s

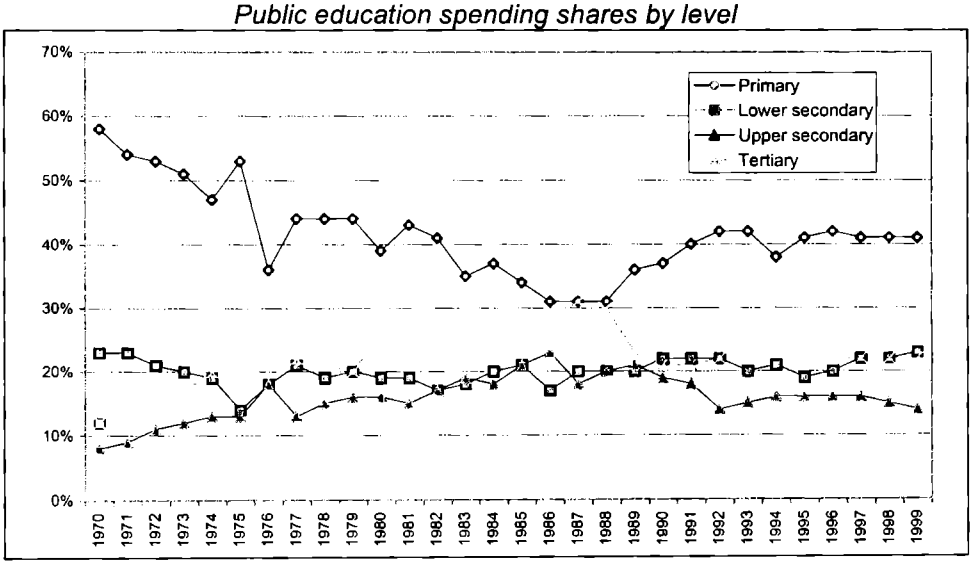
and 1980s. The bias against basic education was decisively corrected in the 1990's, as this factor was reduced to 5 at the end of the 1990's.[30]

Table 4.3 Public Education Spending (pesos of 2000)

			1971-1976	1977-1982	1983-1988	1989-1994	1995-2000
		% GDP	2.41	3.42	2.73	3.23	3.76
		Per capita	907	1593	1157	1429	1855
Budget Share (%)		Primary	48	42	33	40	38
		Lower Secondary	19	19	19	21	20
		Upper Secondary	13	16	20	17	17
		Tertiary	20	23	28	23	25
Spending per student	Pesos (x 1000)	Primary	1.4	2.3	1.1	3.3	5.3
		Lower Secondary	4.3	5.9	2.5	6.1	8.2
		Upper Secondary	7.3	12.5	6.7	11.2	12.5
		Tertiary	16.0	21.8	13.4	24.7	30.7
	GDP/cap	**Primary**	**4.1**	**5.6**	**3.5**	**8.5**	**12**
	multiple	**Tertiary/Primary**	**11.9**	**9.7**	**12**	**7.5**	**5.8**

Sources: Aspe and Beristain (1984), Salinas (1994), Zedillo (2000), SHCP (2000).

Graph 4.2
Public education spending shares by level



Source: Salinas (1994), Zedillo (2000), SHCP (2000).

[30] This turnabout may be explained by the access to public office of Pedro Aspe, the coauthor of the study on the distribution of social spending quorted above (section 1), as Finance Minister in the Salinas administration.To put these factors in perspective, note the OECD average is less than 2 (Unesco).

Table 4.4
Public Spending Per Student in Primary Education ($US PPP 1985)

	1960-1990	% GDP/capita	school hours per year
Mexico	**175**	**4**	**780**
Latin America and Caribbean	256	9.1	952
Middle East and North Africa	404	13.4	944
Sub-Saharan Africa	143	16.6	1026
East Asia and Pacific	295	9.3	1097
South Asia	101	9.1	981
Centrally Planned Economies	774	24.3	845
Developing Countries	251	12.7	977
OECD	1656	15.7	974

Barro-Lee 1996 Data Set.

Table 4.5
Public Spending on Health and Social Security Spending (pesos of 2000)

	Government Administrations				
	1971-1976	1977-1982	1983-1988	1989-1994	1995-2000
% GDP	3.45	3.62	2.86	3.45	3.85
Per capita	1,293	1,683	1,207	1,520	1,908
Coverage (% of total population)					
IMSS	23.9	32.9	39.8	42.5	41.8
ISSSTE	4.5	7.3	8.4	9.7	10.1
General tax-financed budget shares					
SSA	44.4	44.6	52.1	43.4	36.4
IMSS & ISSSTE	55.6	55.4	47.9	56.6	63.6
Per beneficiary					
SSA	238	381	300	359	516
IMSS	3,340	3,050	1,992	2,308	2,562
ISSSTE	7,011	6,136	3,141	2,870	3,128
Insured/Uninsured	**17.6**	**9.6**	**7.4**	**6.9**	**5.5**
(Net of SS Taxes)	**(3.3)**	**(1.9)**	**(1.0)**	**(1.3)**	**(1.8)**

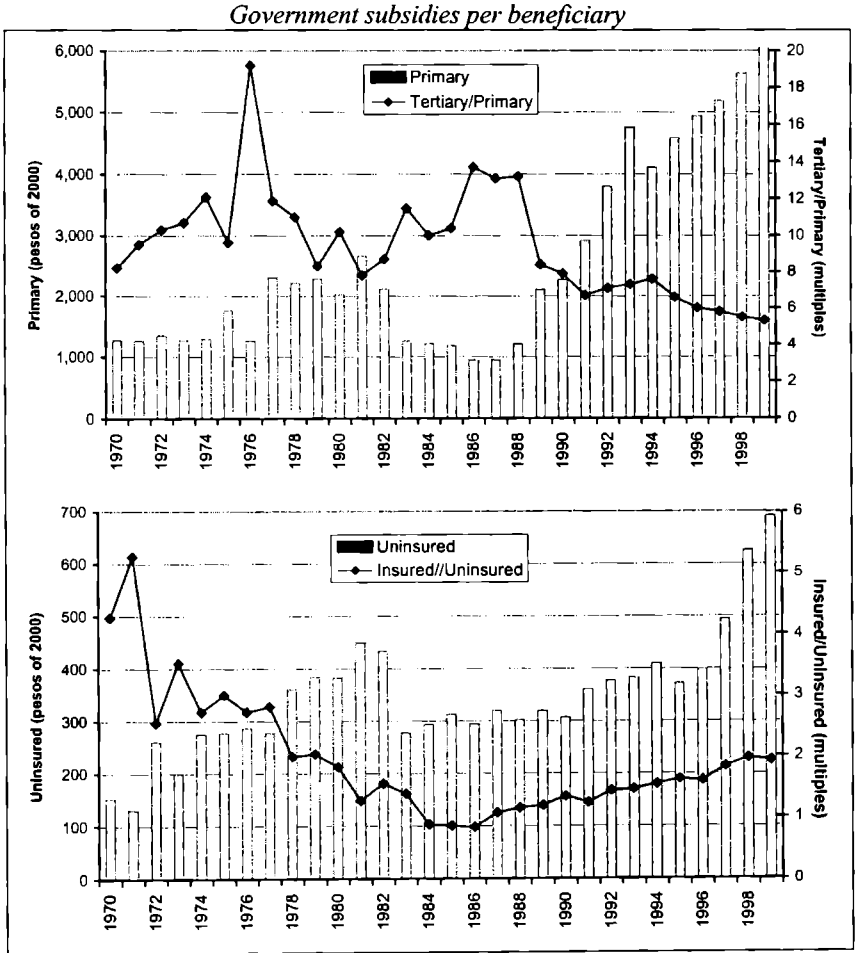
Salinas (1994), Zedillo (2000), SHCP (2000).

Turning now to health and social security (table 4.5, graph 4.3), [31] note that despite growing over the last 50 years from 1 to 55 million persons, the coverage of social security has barely been able to keep up with population growth: the number of uninsured remained stable at close to 40 million in the 1980s, increasing to 44 million in the following decade. The budgets of these institutions represented 87% of total public spending on health and social security on average in the last three decades. Considering only government transfers financed through general tax revenue, the insured population absorbed 56% of subsidies on health and social

[31] Health and social secuirity subsidies are reported jointly because the official historical data on subsidies to the social security institutions (in presidential reports to Congress) does not disaggragate health from non-health components.

security. Though transfers per beneficiary were thus not as radically skewed in favor of the insured as suggested by the total budgets of these institutions,[32] and the difference disappeared completely in the middle 1980s, government subsidies to social security creeped back over the rest of the period and were in 2000 twice per beneficiary in comparison to the uninsured. Considering only spending on health services, however, the subsidies in this year were similar per potential user (rightholder), and less than a half from those received by the uninsured per actual user.[33]

Graph 4.3
Government subsidies per beneficiary



Source: Aspe and Beristain (1984), Salinas (1994), Zedillo (2000), SHCP (2000). Includes only general tax-financed subsidies to the insured.

[32] Coverage and spending per beneficiary is defined here in relation to the rightholders to these services, or *potential* rather than actual users. In the case of the social security institutions we have used official estimates of affiliated workers and their families. For the SSA, serving the uninsured population, we the coverage assumed is simply the complement of the insured population in the total population. This ignores a further source of inequality within the uninsured, arising from limitations to the access of SSA facilities.

[33] In addition to the phased implementation of the 1997 IMSS reform, this has been due to the resumption of federal subsidies to ISSSTE in 1993, which had been eliminated in 1984.

4.2 Distributional implications

What are the distributional implications of these budgetary allocations? As noted above (section 2), adequate data to estimate the incidence of social spending in Mexico only exist for the 1990's, and in fact only the last three versions of the ENIGH (1996, 1998, 2000) are strictly comparable for this purpose. We therefore present two types of analysis here. First we use the latter series to consider the evolution of the distribution of access to social services over the last decade. Secondly, we consider the distribution of social spending which *would have* resulted in 1996 with the budgetary priorities revealed by five government administrations over the last three decades.

Graphs 4.5-4.8 present the distribution of students in public education by level of attention for 1992-2000. This information is combined with the budgetary allocations per student reported for these years to obtain the distribution of total public spending in education (graph 4.9). and the corresponding concentration coefficients (graph 4.10). We observe a clear trend towards increasing progressivity between 1992 and 1994, and between 1996 and 2000 at all educational levels.[34] This trend is further reinforced in total educational spending by the increasing budgetary share in favor of basic education documented above (graph 4.3), revealing a gain in progressivity of slightly more than a point a year over the 8 year period. It is interesting to note that the largest gain in progressivity over the 1996-2000 period is observed in lower-secondary education, and is largely explained by a large expansion of enrollment at this level in the poorest quintile (graph 4.6), consistent with the finding of an important enrollment impact of the PROGERSA scholarships in the transition between primary and lower secondary education. Note also that before 1998 tertiary education came close to being regressive even in relative terms, and must certainly have been so in the previous decades.

Graphs 4.11-4.13 present the distribution of the users of health services, and table 4.6 presents the concentration coefficients corresponding to the latter, as well as to the distribution of the population covered by social security. Again we observe notable gains of progressivity in the case of the services provided for the uninsured explained principally by an increase in the use of services at the lower end of the distribution (graph 4.11). The use of health services by the poorest quintile *doubles* between 1998 and 2000. This is again consistent with the impact of PROGRESA (health component) on the use of services. In the case of the health services offered by the social security institution we observe an important expansion over the whole distribution between 1998 and 2000 in the case of IMSS. In the case of ISSSTE, we observe a significant gain in progressivity explained principally by an increase in the use of services in the 4-9th deciles. Note that the distribution of government

[34] These two sub-periods are not strictly comparable because of the change in the reporing of enrollment levels introduced in the 1996 ENIGH (see section 2.2). The apparent retrocess between 1994 and 1996 may thus be an artifact of this change, or a real effect of the 1995 crisis.

subsidies to the ISSSTE health services in 1996 were regressive in relative terms, thus contributing to increase inequality (Scott 2001a).

The coverage of social security failed to achieve any gain in progressivity over the decade.

Graph 4.14 presents concentration coefficients for education, health/social security spending[35] implied by budgetary allocations within these sectors for the last three decades. It is interesting to note that the two mayor instruments of social spending have converged towards neutrality in the last decade from opposing directions, effectively canceling each other out in the second half of the period. The gains in progressivity achieved over the 1980's and the 1990's were driven by different causes. The former was a by-product of the sharp reduction in government transfers to social security provoked by the 1983 crisis,[36] while the latter reflect an explicit policy decision to increase spending on basic education and health services. The latter effect has been dampened, however, by the gradual recuperation of federal transfers to social security. Comparing administrations, it is interesting to note that Lopez-Portillo's (1977-1982) was the only one presiding over decreasingly regressive trends in both health and education spending. At the opposite extreme, the Echeverría (1971-1976) administration was the only one in this period presiding over increasingly regressive trends in both sectors. Social spending in de la Madrid's (1983-1988) administration shows the exact converse pattern to the Salinas (1989-1994) and Zedillo (1995-2000) administrations, with a regressive trend in education spending but a progressive trend in health and social security spending.

Table 4.6
Concentration coefficients for the distribution of health spending and of the coverage of social security

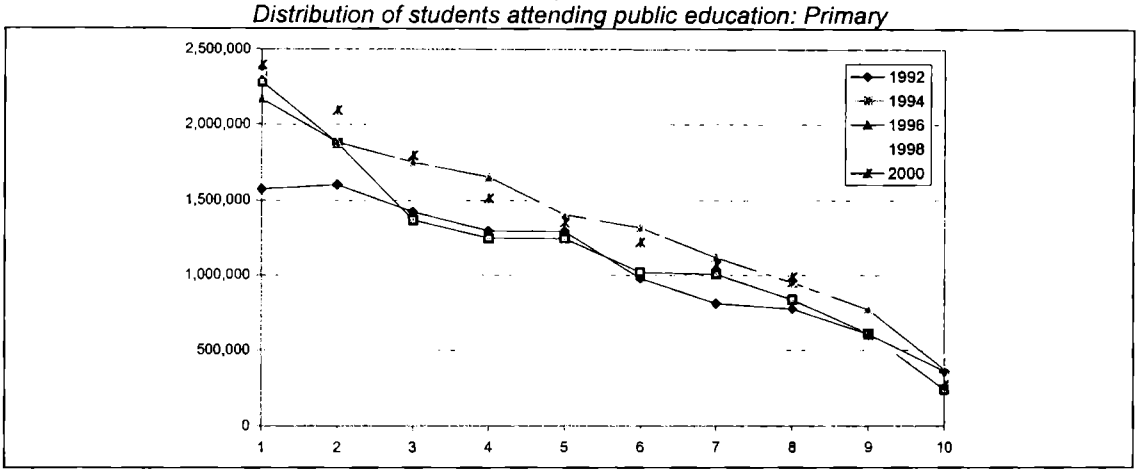
	SSA	IMSS		ISSSTE	
	Health	Heath	SS Coverage	Health	SS Coverage
1992			0.3390		0.5059
1994			0.3387		0.5234
1996	-0.1667	0.2603	0.3422	0.5491	0.5415
1998	-0.3472	0.2706	0.3203	0.4979	0.5626
2000	-0.3015	0.2540	0.3422	0.4281	0.5293

Data: *ENIGH 1992, 1994, 1996, 1998, 2000. Population deciles ordered by income per capita.Health benefits distributed by average cost per type of service used.*

[35] In this analysis we include government subsidies to social security financed by general tax revenue, and the distribution of these subsidies is estimated using benefits received by workers and their families *net* of social security taxes paid by workers. To estimate this distribution we apply the old IMSS up to 1997, and the reformed law thereafter.

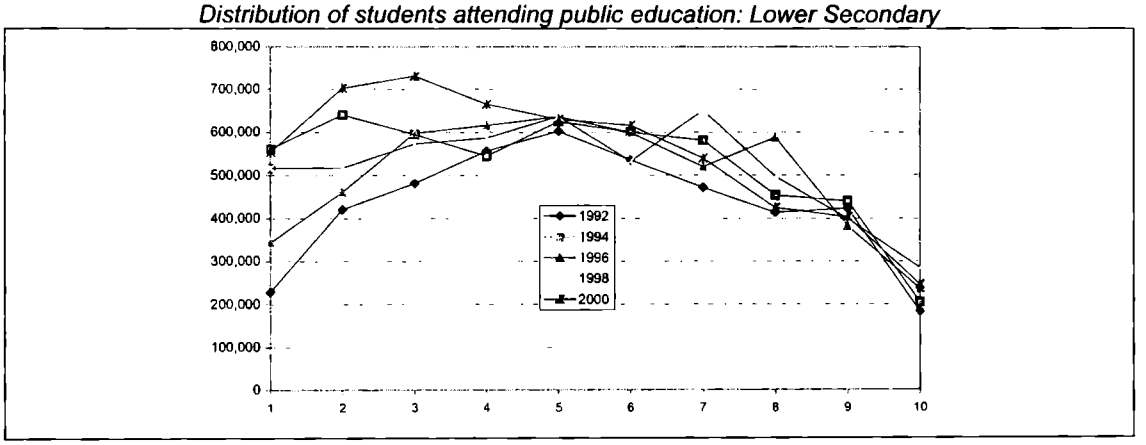
[36] The regressive pattern of cuts in education spending implemented in the same period (1983-1988) suggests that the cuts in social security were not primarily motivated by a concern with equity.

Graph 4.5
Distribution of students attending public education: Primary



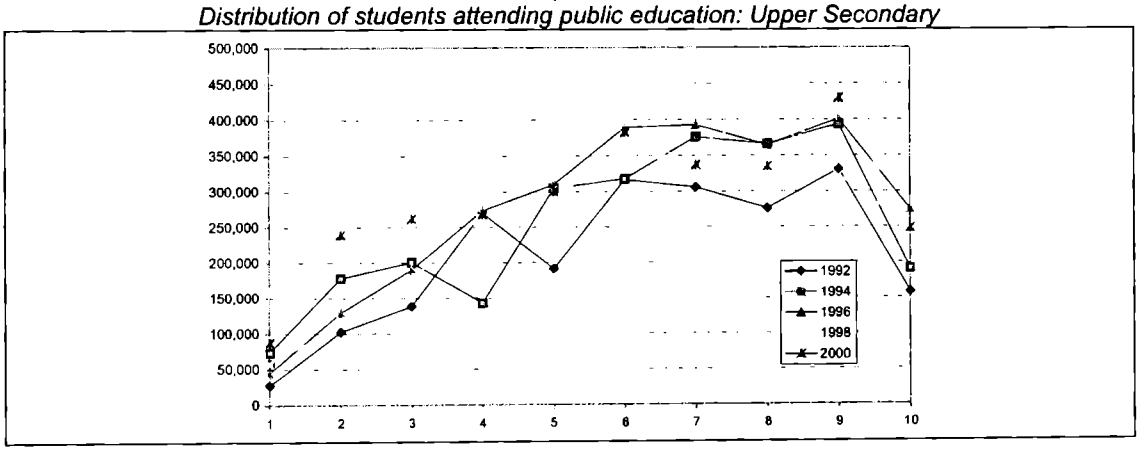
Data: ENIGH 1992, 1994, 1996, 1998, 2000. Population deciles ordered by income per capita.

Graph 4.6
Distribution of students attending public education: Lower Secondary



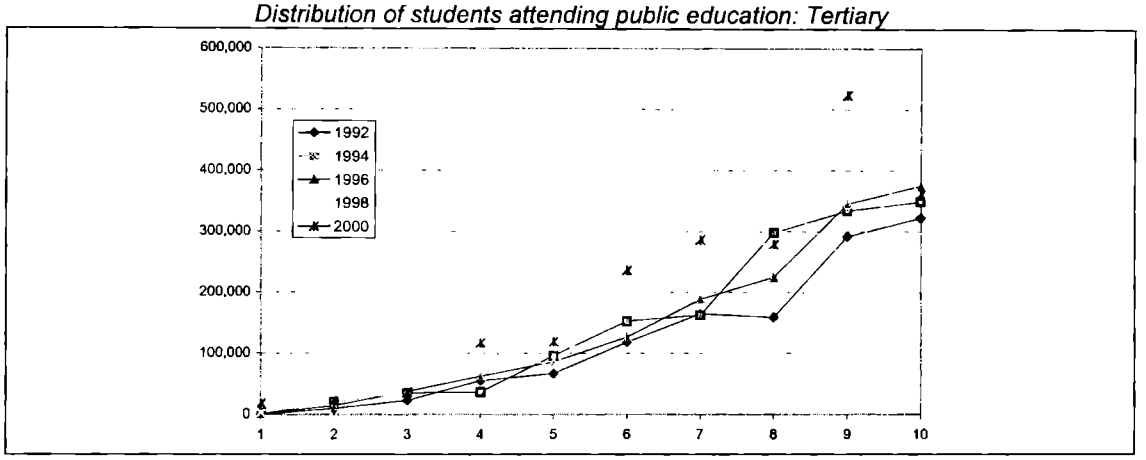
Data: *ENIGH 1992, 1994, 1996, 1998, 2000. Population deciles ordered by income per capita.*

Graph 4.7
Distribution of students attending public education: Upper Secondary



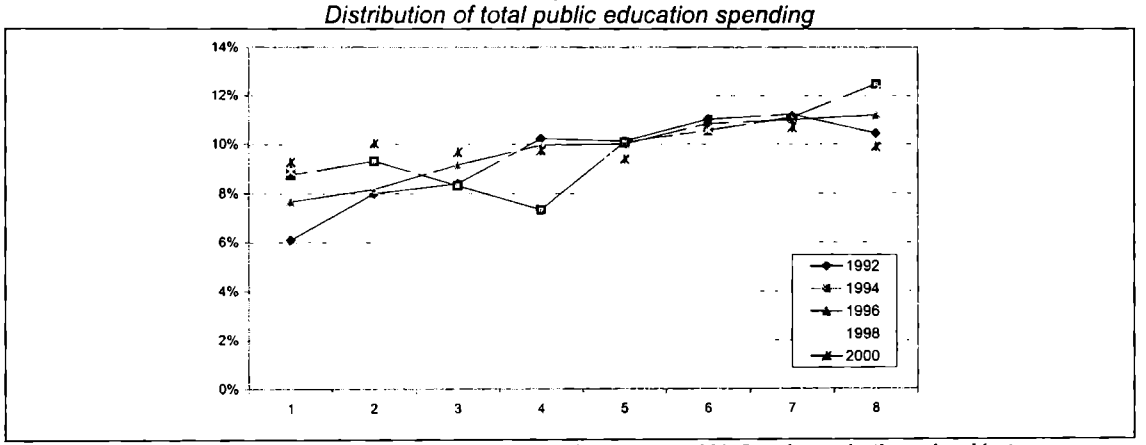
Data: *ENIGH 1992, 1994, 1996, 1998, 2000. Population deciles ordered by income per capita.*

Graph 4.8
Distribution of students attending public education: Tertiary



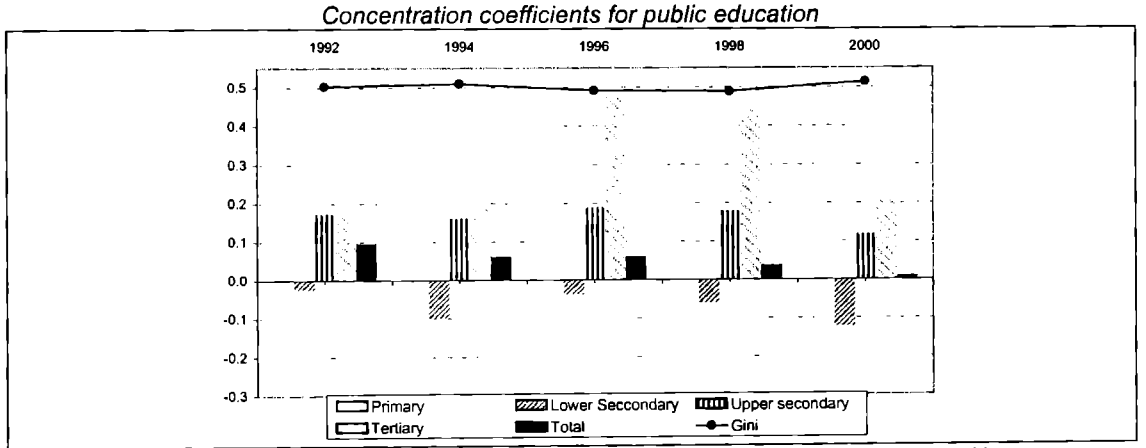
Data: *ENIGH 1992, 1994, 1996, 1998, 2000. Population deciles ordered by income per capita.*

Graph 4.9
Distribution of total public education spending



Data: *ENIGH 1992, 1994, 1996, 1998, 2000; 1er Informe de Gobierno, Fox, 2001. Population deciles ordered by income per capita.*

Graph 4.10
Concentration coefficients for public education

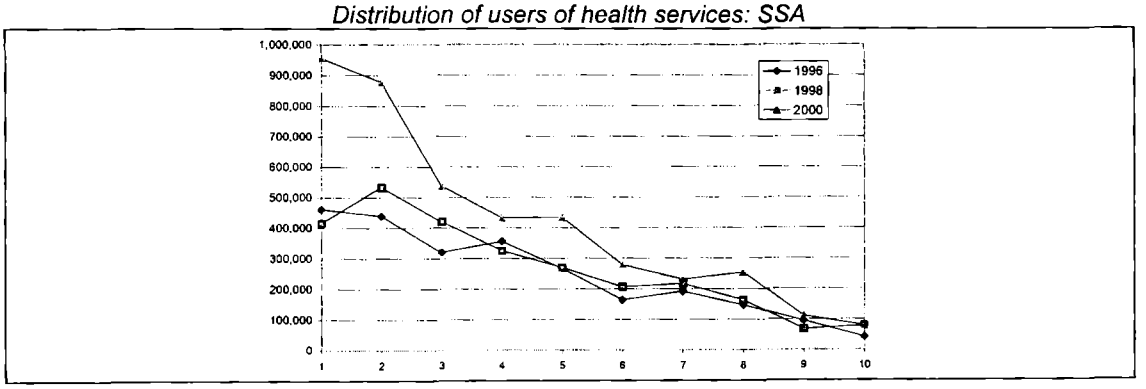


Data: *ENIGH 1992, 1994, 1996, 1998, 2000. 1er Informe de Gobierno, Fox, 2001. Population deciles ordered by income per capita.*

Graphs 4.11-4.13 present the distribution of the users of health services, and table 4.6 presents the concentration coefficients corresponding to the latter, as well as to the distribution of the population covered by social security. Again we observe notable gains of progressivity in the case of the services provided for the uninsured explained principally by an increase in the use of services at the lower end of the distribution (graph 4.11). The use of health services by the poorest quintile *doubles* between 1998 and 2000. This is again consistent with the impact of PROGRESA (health component) on the use of services. In the case of the health services offered by the social security institution we observe an important expansion over the whole distribution between 1998 and 2000 in the case of IMSS. In the case of ISSSTE, we observe a significant gain in progressivity explained principally by an increase in the use of services in the 4-9th deciles. Note that the distribution of government subsidies to the ISSSTE health services in 1996 were regressive in relative terms, thus contributing to increase inequality (Scott 2001a).

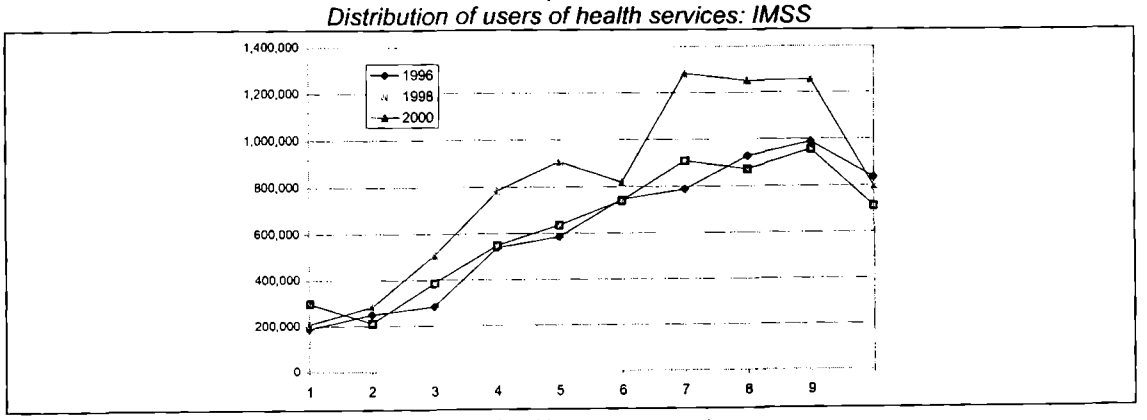
The coverage of social security failed to achieve any gain in progressivity over the decade.

Graph 4.11
Distribution of users of health services: SSA



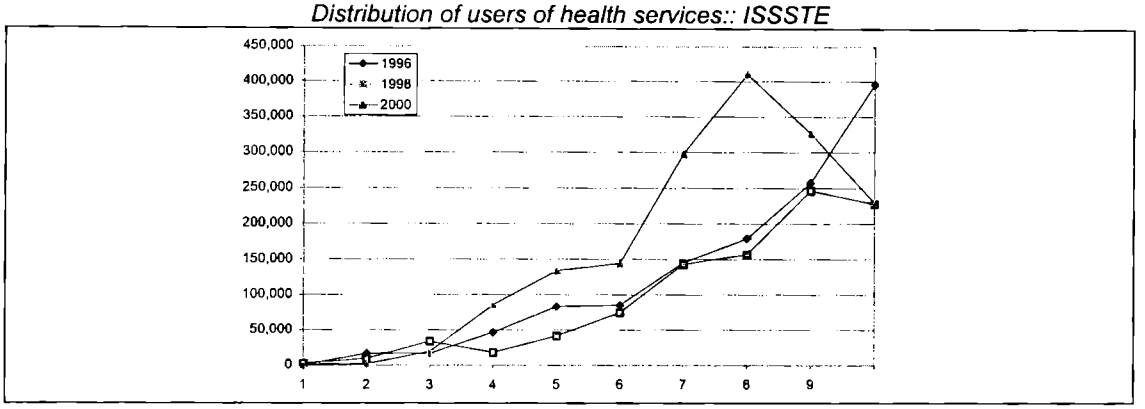
Data: *ENIGH 1996, 1998, 2000. Population deciles ordered by income per capita*

Graph 4.12
Distribution of users of health services: IMSS



Data: *ENIGH 1996, 1998, 2000. Population deciles ordered by income per capita*

Graph 4.13
Distribution of users of health services:: ISSSTE



Data: *ENIGH 1996, 1998, 2000. Population deciles ordered by income per capita.*

Graph 4.14 presents concentration coefficients for education, health/social security spending[37] implied by budgetary allocations within these sectors for the last three decades. It is interesting to note that the two mayor instruments of social spending have converged towards neutrality in the last decade from opposing directions, effectively canceling each other out in the second half of the period. The gains in progressivity achieved over the 1980's and the 1990's were driven by different causes. The former was a by-product of the sharp reduction in government transfers to social security provoked by the 1983 crisis,[38] while the latter reflect an explicit policy decision to increase spending on basic education and health services. The latter effect has been dampened, however, by the gradual recuperation of federal transfers to social security. Comparing administrations, it is interesting to note that Lopez-Portillo's (1977-1982) was the only one presiding over decreasingly regressive trends in both health and education spending. At the opposite extreme, the Echeverría (1971-1976) administration was the only one in this period presiding over increasingly regressive trends in both sectors. Social spending in de la Madrid's (1983-1988) administration shows the exact converse pattern to the Salinas (1989-1994) and Zedillo (1995-2000) administrations, with a regressive trend in education spending but a progressive trend in health and social security spending.

The actual gain in progressivity achieved over this period is obviously *underestimated* by these simulations, given the more limited coverage of social services in the 1970's.[39] However, for education and health spending as a whole to

[37] In this analysis we include government subsidies to social security financed by general tax revenue, and the distribution of these subsidies is estimated using benefits received by workers and their families *net* of social security taxes paid by workers. To estimate this distribution we apply the old IMSS up to 1997, and the reformed law thereafter.

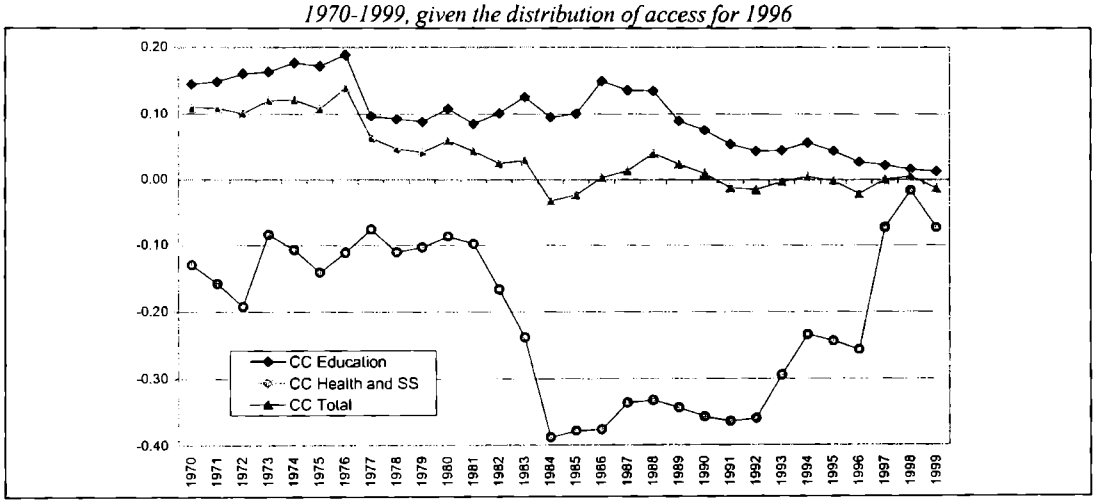
[38] The regressive pattern of cuts in education spending implemented in the same period (1983-1988) suggests that the cuts in social security were not primarily motivated by a concern with equity.

[39] The coverage of basic and higher education in 1970 was 83% and 32% of that achieved by 2000, respectively (tables 4.2), while the coverage of social security in 1971-1976 was 55% of that achieved by 1995-2000 (table 4.5).

contribute to *increase*, rather than reduce, inequality in this period, as suggested by Aspe and Beristáin (see quote above, section 1), this underestimation would have to be of the order of more then than 30 points in the case of education, and more than 60 points in the case of health. This seems highly improbable even in the former case, as 65% of the education budget in the 1970s was absorbed by basic education, which had achieved a coverage of almost 70% by 1970 increasing to 85% over the decade, surpassing even present-day levels (tables 4.2, 4.3). It would be more probable (though still highly unlikely) in the 1983-1988 (De la Madrid) administration, when higher (upper-secondary and tertiary) education absorbed almost half of the educational budget while reaching only 14% of the relevant age-group.[40]

Graph 4.14

Concentration coefficients and redistributive impact of social spending implied by the budgetary allocations of 1970-1999, given the distribution of access for 1996



Data: ENIGH 1996, Salinas (1994), Zedillo (2000). Population deciles ordered by income per capita.

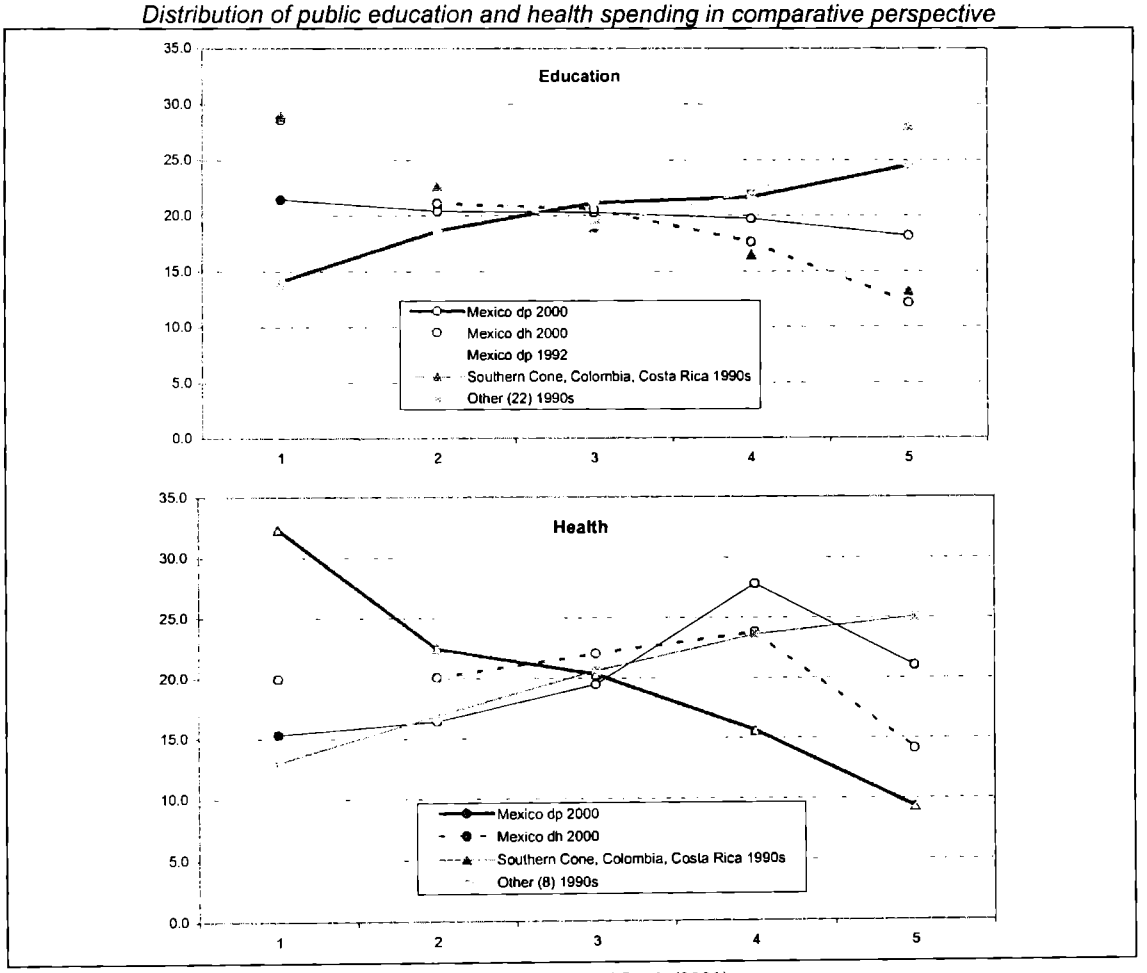
4.3 A comparative perspective

How does the distribution of social spending in Mexico compare with the distribution observed in other countries? Despite the availability of benefit incidence estimates for a growing number of countries (see above, note 5), there are important problems of comparability due to definitional and methodological variations between studies (Scott 2002a). With this qualification, we contrast the case of Mexico with (unweighted) averages for two sets of countries (graph 4.15): a) a group of Latin American countries presenting exceptionally progressive distributions in both sectors (Argentina, Chile, Colombia, Costa Rica, and Uruguay) in relation to most other developing (including LA) countries for which such

[40] This would require the distribution of upper-secondary education to be similar to the pattern observed for tertiary education today. But given the relatively static distribution of students at this level in the 1990s (graphs 4.7, 4.10) this could hardly have been the case only half a decade earlier.

estimates are available, and b) the latter set of countries.[41] In the case of education, the distribution in Mexico has shifted between 1992 and 2000 from the typical regressive pattern observed in developing countries towards the progressive pattern of the selected LA countries (the latter pattern is indeed achieved in terms of household deciles). In the case of health, on the other hand, Mexico presents a distribution close to the typical regressive pattern of other developing countries, in sharp contrast to the highly progressive pattern observed in the group of LA countries. It should be noted, however, that comparability is especially uncertain in this sector, due to the inclusion or not of social security (net or gross of social security taxes).

Graph 4.15
Distribution of public education and health spending in comparative perspective



Data for other countries: Scott (2002a), CEPAL (1994, 2001), World Bank (2001).

[41] See Scott (2002a) and the references in note 5 above for the complete list of countries, sources and results for individual countries. In the case of Mexico, we report population and household deciles ordered by income per capita, as both of these are commonly used, and in the case of health we use the orderings assuming constant costs independently of type of service used (the 'use' column in table A.4) for similar reasons.

5. Conclusion and policy implications: the mechanisms of progressivity.

We have seen that significant gains in the progressivity of social spending have been achieved in Mexico over the last fifteen years through broad reallocations in favor of basic education and health services for the uninsured, effectively reinforced since 1997 though subsidies on the demand for these services targeted at the rural poor (PROGRESA). This is a text-book application of the emphasis on public expenditure on basic services which has been a central recommendation of the principal international organizations concerned with development over the last decades (World Bank 1990, 2000, UNDP 1991). This recommendation has in turn been supported by the finding in benefit incidence studies that basic services are consistently the most progressive services and subsidies implemented by governments in developing countries.[42]

Unfortunately, this interpretation of benefit incidence analysis, and the ensuing policy advice, has a mayor flaw. It ignores the principal mechanism accounting for the exceptional degree of progressivity observed in the consumption of basic public education and health services in many low and medium income countries. On the face of it this finding should be surprising. Though some of these services are restricted to specific groups (formal sector or state workers, etc.), those which are found to be exceptionally equitable in their use are generally offered universally to all the demanding population. This is certainly the case in Mexico. In actual practice there are important "barriers to entry" for the poorer populations, including: a) prohibitive opportunity costs in the case of education (forgone labor income growing with the educational cycle), b) co-payments required for the use of services (e.g. school material), and c) urban bias and centralization in the localization of services, illustrated in the case of Mexico by the concentration of food subsidies in the capital city in the early 1990s documented above.

Why then are basic universal education and health services so progressive and pro-poor? One obvious reason for this is the demographic composition of poorer households, but this is taken into account when we use population deciles ordered by income per capita, and explains why we observe significantly higher degrees of progressivity when we use household deciles ordered by the same concept. The main explanation must be that these services apply an implicit but evidently effective *self-targeting* mechanism through the *quality* of the services offered. In the absence of other (administrative) targeting mechanisms, the exceptional progressivity of these instruments may be best interpreted as evidence of their exceptional low quality in relation to equivalent services available privately. This has an unfortunate implication. Any successful effort to increase the quality of these services, as the present (2001-2006) administration has set itself the task to do, will necessarily be at the cost of their equity (in the absence of administrative targeting mechanisms). On

[42] This is especially true in recent years, as the "efficiency" argument in favour of basic vs. tertiary services has been weakened by increasing returns to education.

the other hand, without an effort of this kind, the substantial budgetary commitment which has been secured in favor of these services over the last decade will fail to provide their beneficiaries with the human capital required to access permanently and self-sufficiently to better standards of life.

This also points to a basic limitation of benefit incidence analysis as a source for measures of redistributive impact and efficiency of the kind we have presented here. These measures not only fail to address the relevant redistributive space (educational and health opportunities), as we have argued above (section 2), but by the same account they *overestimate* the impact on income space, as they evaluate transfers "in kind" as if they were direct monetary transfers targeted to their beneficiaries costlessly. This ignores costs to the beneficiary of receiving "tagged" vs. "untagged" transfers, inefficiencies in the provision of services, and targeting costs (including participation, as well as administrative costs, when the latter apply). The measures reported here are therefore best interpreted as measures of the *maximum potential* impact and efficiency of these instruments. Except in the case of the monetary instruments considered (taxes, and the PROCAMPO and PROGRESA transfers), the distance to actual impact/efficiency may be substantial. But there is a more fundamental problem. By the argument in the previous paragraph, this error must be larger the higher the value of the redistributive efficiency measured, thus limiting the policy-guiding relevance of the analysis.

This is also relevant in answering a further question. We have estimated that public education and health spending in Mexico in the year 2000 reduced inequality in the resources available to households to access goods and services in these sectors by close to 50% (table 3.2). Why then has inequality persisted at exceptional levels by international standards not only in income, but in education and health achievements? This is a complex question which would have to consider three important factors. First, the unequal distribution of (autonomous) income is obviously not irrelevant to the latter achievements. Secondly, we have seen that the present redistributive potential of public expenditure in these sectors is of recent origin. This is especially relevant in the case of education, where the reallocation of resources in favour of basic education in the 1990s (and the participation incentives targeted on the poor on the last years of the decade) will reveal its full impact on the educational inequality in the working population (and thus on autonomous income inequality) only in decades to come. The third factor, however, may be the most relevant for the future reform of social policy in Mexico: this is the deficient quality of the most equitable services.

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ANNEX

Table A.1
Public Spending on Redistributive Instruments 2000

	Million pesos of 2000	%
Total	**484,408**	**100**
Education	**181,277**	**37.4**
Primary	76,453	15.8
Lower Secondary	43,010	8.9
Upper Secondary	21,474	4.4
Tertiary	40,339	8.3
Health	**129,512**	**26.7**
IMSS	74,498	15.4
ISSSTE	20,119	4.2
SSA	34,895	7.2
Social security (pensions and other non-health benefits)	**115,708**	**23.9**
IMSS active workers	51,502	10.6
ISSSTE active workers	8,620	1.8
IMSS pensioners	38,122	7.9
ISSSTE pensioners	17,464	3.6
Other Subsidies and Transfers	**57,911**	**12**
Electricity subsidy (residential)	36,244	7.5
PROCAMPO (agricultural support)	10,379	2.1
PROGRESA (food transfers)	4,104	0.8
PROGRESA (scholarships)	4,003	0.8
Tortilla (FIDELIST)	1,396	0.3
School breakfasts (DIF)	1,332	0.3
Milk (LICONSA)	453	0.1

PEF 2000, 2002; 1er Informe de Gobierno, Vicente Fox 2001.

Table A.2
Distribution of Autonomous Resources in 2000 (% shares)

Deciles	Households		Population	
	total income	per capita income	Total income	per capita income
	INCOME			
I	1.5	2.1	1.8	1.2
II	2.5	3.3	2.8	2.2
III	3.5	4.2	3.7	3.1
IV	4.4	5.0	4.7	4.1
V	5.5	6.3	5.5	5.1
VI	6.9	7.6	7.1	6.5
VII	8.6	8.9	9.0	8.3
VIII	10.9	11.2	10.5	10.8
IX	15.9	14.8	15.3	15.7
X	40.3	36.5	39.5	43.0
	SPENDING			
I	1.8	2.4	2.1	1.4
II	2.8	3.5	3.1	2.4
III	3.8	4.4	4.0	3.3
IV	4.7	5.1	5.0	4.2
V	5.7	6.4	5.7	5.2
VI	6.8	7.4	7.2	6.6
VII	8.6	8.6	8.9	8.0
VIII	10.8	11.2	10.3	10.5
IX	14.8	14.1	14.3	15.3
X	40.2	36.8	39.4	43.0

Data: ENIGH 2000

Table A.3
Distribution of Public Education Expenditure in 2000

Deciles		Total income					Per capita income				
		Total	Primary	Lower Secondary	Upper Secondary	Tertiary	Total	Primary	Lower Secondary	Upper Secondary	Tertiary
Households	I	6.8	11.7	6.3	2.1	0.5	15.2	25.2	15.7	5.3	1.2
	II	9.3	13.7	10.4	6.0	1.5	13.3	18.0	16.2	12.0	2.1
	III	9.1	11.7	12.3	6.9	2.1	11.1	13.1	14.3	10.2	4.6
	IV	9.7	12.2	11.9	7.7	3.6	10.0	10.8	11.4	10.1	6.8
	V	11.1	11.9	10.8	11.2	10.0	10.2	9.4	11.3	12.1	9.2
	VI	10.5	10.2	12.4	11.9	8.5	10.4	8.2	8.8	13.6	14.6
	VII	10.2	9.3	10.6	11.5	10.7	8.9	7.2	8.6	9.4	12.3
	VIII	12.1	9.1	10.5	15.2	18.0	8.7	4.6	6.7	12.6	16.8
	IX	12.3	6.5	9.0	18.0	23.6	8.3	2.5	5.3	9.8	22.0
	X	8.8	3.7	5.9	9.4	21.4	3.8	1.2	1.7	4.7	10.4
Population	I	8.1	13.6	8.0	2.5	0.7	10.5	18.0	10.0	3.0	0.9
	II	9.5	13.8	10.2	6.5	2.2	10.9	15.8	12.8	8.3	1.1
	III	9.9	12.9	13.5	7.2	1.7	10.3	13.5	13.3	9.1	1.8
	IV	10.1	11.9	10.9	9.8	5.8	10.1	11.4	12.1	9.3	5.8
	V	10.9	11.3	11.7	10.4	9.5	9.6	10.2	11.4	10.4	6.0
	VI	10.1	9.1	11.4	12.5	9.3	10.7	9.2	11.2	13.2	11.8
	VII	10.2	9.9	10.6	11.1	9.8	10.3	8.0	9.8	11.7	14.3
	VIII	11.4	8.1	9.7	14.9	17.7	9.4	7.4	7.7	11.6	14.0
	IX	11.8	6.0	8.4	16.9	23.7	11.2	4.5	7.3	14.9	26.2
	X	8.1	3.4	5.5	8.3	19.7	7.0	2.0	4.4	8.6	18.1

Data: ENIGH 2000, 1er Informe de Gobierno, Vicente Fox 2001.

Table A.4a
Distribution of Public Health Spending

Decile			Total			SSA			IMSS			ISSSTE		
			Use	Type of Service	Type & quality	Use	Type of Service	Type and quality	Use	Type of Service	Type and quality	Use	Type of Service	Type and quality
Households	Total Income	I	9.8	9.0	5.8	27.5	25.8	18.0	4.0	3.5	1.7	0.3	0.2	0.1
		II	8.8	7.7	5.7	18.9	17.3	14.6	6.0	4.9	2.8	1.8	1.2	0.6
		III	8.4	7.6	5.3	13.3	13.0	10.9	7.4	6.2	3.7	3.5	3.4	1.5
		IV	9.9	9.0	6.6	12.3	10.8	10.3	9.7	8.7	5.7	6.4	7.1	3.8
		V	10.6	9.3	7.3	8.2	8.4	9.5	11.8	10.0	6.7	10.6	8.5	5.6
		VI	12.5	12.2	11.8	7.4	6.7	7.6	15.7	15.9	15.5	9.7	7.9	5.6
		VII	10.9	11.1	11.1	4.4	5.4	5.9	12.6	12.7	11.8	16.1	15.1	17.3
		VIII	11.4	12.5	14.3	3.6	4.8	8.2	12.6	11.9	13.7	20.8	27.7	27.3
		IX	12.3	16.8	22.3	2.8	5.1	8.6	15.1	22.0	29.6	18.5	17.5	19.0
		X	5.4	4.9	9.8	1.7	2.5	6.5	5.2	4.2	8.8	12.2	11.4	19.2
		CC	0.0053	0.0604	0.2153	**-0.4176**	**-0.3540**	**-0.1737**	**0.1132**	**0.1737**	**0.3289**	**0.3391**	**0.3597**	**0.4694**
	Per capita income	I	10.9	10.1	7.5	32.0	30.5	23.8	3.9	3.2	1.9	0.1	0.0	0.0
		II	9.1	7.8	5.1	20.7	18.0	13.1	6.0	5.0	2.7	0.5	0.6	0.4
		III	9.3	8.0	6.3	11.7	10.5	9.8	9.2	7.7	5.5	5.3	4.5	2.8
		IV	10.8	9.8	7.2	10.1	9.6	8.3	12.0	11.0	7.7	7.4	5.6	3.6
		V	9.1	8.8	7.2	8.1	7.1	7.6	10.1	10.2	7.7	7.5	6.8	4.7
		VI	12.9	14.1	15.6	6.1	7.6	11.0	14.7	16.5	17.7	18.0	16.7	16.1
		VII	12.9	15.3	14.1	5.3	9.2	10.8	14.5	14.2	13.5	20.2	30.1	22.6
		VIII	10.9	12.4	14.1	2.7	3.3	6.3	12.2	15.7	16.9	20.3	15.9	17.2
		IX	8.7	8.3	11.3	1.5	1.8	3.4	11.4	10.4	13.9	10.8	11.6	15.5
		X	5.4	5.4	11.4	1.7	2.4	5.9	6.0	6.1	12.5	9.8	8.2	17.0
		CC	**-0.0339**	**0.0050**	**0.1469**	**-0.4692**	**-0.4028**	**-0.2367**	**0.0842**	**0.1191**	**0.2584**	**0.2842**	**0.2902**	**0.3993**

Data: ENIGH 2000, 1er Informe de Gobierno, Vicente Fox 2001.

Table A.4b
Distribution of Public Health Spending

Decile			Total			SSA			IMSS			ISSSTE		
			Use	Type of Service	Type and quality	Use	Type of Service	Type and quality	Use	Type of Service	Type and quality	Use	Type of Service	Type and quality
Population	Total Income	I	11.0	10.3	6.6	31.5	30.3	20.7	4.3	3.7	1.8	0.3	0.2	0.1
		II	9.1	7.6	5.3	16.9	14.9	12.3	7.2	5.8	3.2	2.6	1.8	1.0
		III	9.0	8.0	6.0	14.7	13.7	12.1	7.5	6.3	4.1	4.8	4.2	2.4
		IV	9.8	9.4	6.7	10.5	9.5	8.9	10.8	10.3	6.6	4.6	5.8	3.0
		V	10.7	8.9	6.5	7.6	7.8	7.4	11.8	9.1	6.1	12.0	9.7	6.1
		VI	12.2	12.3	13.4	7.4	6.9	8.6	14.8	16.0	17.6	10.7	8.1	5.9
		VII	11.6	11.6	11.2	4.1	5.0	5.4	13.3	12.7	11.5	18.3	19.4	20.2
		VIII	10.4	12.0	16.0	3.3	5.6	11.9	11.0	11.2	14.5	20.4	25.9	28.5
		IX	11.3	15.2	19.4	2.4	3.7	6.5	14.3	20.9	26.5	15.4	14.1	15.6
		X	5.0	4.6	9.0	1.7	2.5	6.2	4.9	4.0	8.0	11.0	10.5	17.2
		CC	**-0.0252**	**0.0323**	**0.1901**	**-0.4467**	**-0.3827**	**-0.1807**	**0.0836**	**0.1472**	**0.2969**	**0.3032**	**0.3265**	**0.4376**
	Per capita income	I	7.6	7.4	5.3	22.8	22.3	16.8	2.6	2.4	1.3	0.1	0.0	0.0
		II	7.7	6.7	4.4	20.9	18.5	13.1	3.5	2.8	1.4	0.1	0.3	0.1
		III	7.3	5.9	4.6	12.8	10.8	9.8	6.3	4.9	3.2	1.2	0.9	0.6
		IV	9.2	8.3	5.9	10.3	9.5	8.0	9.7	8.8	5.9	5.2	4.4	2.3
		V	10.5	9.4	7.0	10.3	9.5	8.7	11.2	10.3	7.1	8.1	6.1	4.0
		VI	9.0	9.7	8.4	6.7	7.6	7.7	10.1	11.1	9.3	8.7	8.0	6.0
		VII	13.4	13.6	12.9	5.5	5.8	6.7	15.9	15.8	14.8	18.1	18.9	16.3
		VIII	14.4	16.9	19.6	6.0	10.6	18.1	15.5	15.9	17.4	24.9	32.0	29.9
		IX	12.7	13.6	16.0	2.6	2.9	4.8	15.5	17.7	20.4	19.8	17.4	18.8
		X	8.3	8.6	16.1	1.9	2.6	6.1	9.8	10.5	19.3	13.9	12.0	22.0
		CC	**0.0884**	**0.1314**	**0.2765**	**-0.3687**	**-0.3015**	**-0.1167**	**0.2129**	**0.2540**	**0.3949**	**0.4202**	**0.4281**	0.5198

Data: ENIGH 2000, 1er Informe de Gobierno, Vicente Fox 2001.

Table A.5

Distribution of public expenditure on pensions and other non-health benefits from Social Security

	Deciles	Households				Population			
		Active workers		Pensioners		Active workers		Pensioners	
		IMSS	ISSSTE	IMSS	ISSSTE	IMSS	ISSSTE	IMSS	ISSSTE
Total income	I	0.4	-	0.0	0.0	0.6	-	0.0	0.0
	II	2.9	0.1	0.6	0.0	3.5	0.1	0.6	0.0
	III	5.3	0.6	1.3	1.5	6.1	1.2	1.6	3.5
	IV	8.1	3.7	2.4	2.6	8.4	4.0	5.3	3.2
	V	9.7	5.7	9.4	6.7	9.7	6.6	7.7	4.2
	VI	13.0	7.6	6.3	6.3	13.3	8.3	6.7	8.9
	VII	12.6	14.6	12.9	17.9	13.3	15.7	15.0	17.7
	VIII	16.1	19.9	17.0	13.3	15.3	19.1	15.2	12.0
	IX	16.8	22.4	22.2	11.6	15.3	20.5	21.6	10.5
	X	15.1	25.3	27.9	40.1	14.5	24.4	26.3	40.1
Per capita income	I	1.9	0.2	0.1	0.0	0.9	0.1	0.0	0.0
	II	6.8	1.4	1.1	0.0	3.6	0.3	0.7	0.0
	III	9.5	4.6	2.2	7.9	6.6	1.7	0.9	2.7
	IV	11.0	5.8	9.3	3.4	9.8	4.6	4.7	5.2
	V	12.9	11.0	8.2	3.3	10.5	7.1	7.7	4.7
	VI	13.4	13.8	14.1	7.8	12.7	11.0	7.4	3.5
	VII	12.6	14.1	8.1	11.2	14.3	14.6	15.5	12.5
	VIII	11.7	17.6	15.5	17.7	14.4	19.7	9.8	13.8
	IX	11.4	17.3	25.9	15.8	14.1	19.5	27.8	20.3
	X	8.7	14.3	15.5	32.9	13.1	21.4	25.4	37.4

Data: ENIGH 2000.

Table A.6
Distribution of Food Subsidies in 1999/2000

		Households					Population				
Deciles		**Total**	Progresa	**DIF**	**FIDELIST**	**LICONSA**	**Total**	Progresa	**DIF**	**FIDELIST**	**LICONSA**
Total income	I	19.0	27.0	8.0	6.7	2.4	20.8	29.2	10.6	7.2	2.6
	II	15.6	20.7	10.9	6.4	2.9	15.7	21.1	9.8	6.6	3.7
	III	14.1	17.3	12.2	6.8	7.2	15.6	18.9	14.1	8.4	7.3
	IV	12.7	14.5	11.7	9.2	6.5	12.6	14.5	10.4	10.2	6.4
	V	11.7	11.7	10.9	13.6	8.8	10.3	8.5	11.1	16.0	10.2
	VI	9.0	4.3	13.4	20.2	12.9	8.3	3.5	13.7	16.7	17.4
	VII	5.6	2.1	10.4	9.6	17.4	5.9	2.6	10.2	10.4	15.0
	VIII	6.8	1.7	12.0	16.1	19.1	5.9	1.4	10.2	14.2	15.4
	IX	5.0	0.7	9.4	10.7	20.3	4.4	0.3	8.6	9.7	19.4
	X	0.5	-	1.2	0.7	2.6	0.5	-	1.2	0.7	2.5
Income per capita	I	27.1	37.4	15.2	10.6	3.0	21.6	29.6	11.4	9.8	2.1
	II	20.8	27.6	15.4	7.1	5.4	15.3	21.1	10.4	3.4	2.6
	III	11.4	12.4	11.1	9.6	7.8	14.7	18.0	12.1	8.6	5.6
	IV	10.1	9.4	10.3	12.3	10.0	9.9	11.0	9.1	7.5	7.2
	V	9.6	6.8	13.1	15.3	11.8	10.3	9.7	11.0	11.9	10.2
	VI	6.5	3.8	8.4	12.5	10.9	9.2	5.2	13.3	17.2	16.0
	VII	5.4	1.1	9.1	12.9	16.4	5.7	2.7	8.1	12.3	11.4
	VIII	6.0	1.5	11.4	12.4	19.1	7.1	1.9	13.1	15.3	20.6
	IX	2.9	-	5.5	6.8	14.0	5.3	0.7	9.1	12.9	20.3
	X	0.2	-	0.6	0.3	1.5	0.8	-	2.3	1.2	4.0

Data: ENIGH 2000, ENN 1999, 1er Informe de Gobierno, Vicente Fox 2001.

Table A.7
Distribution of PROGRESA (scholarships), PROCAMPO, and the residential electricity subsidy in 2000

	Deciles	Total income			Income per capita		
		PROGRESA scholarships	PROCAMPO transfers	Electricity subsidy	PROGRESA scholarships	PROCAMPO transfers	Electricity subsidy
Households	I	26.0	14.2	4.3	30.6	19.0	4.8
	II	24.6	12.9	6.6	24.3	13.5	7.0
	III	16.7	10.8	7.6	17.0	16.3	8.1
	IV	13.6	11.2	8.5	10.6	8.3	9.0
	V	6.6	10.3	9.4	6.1	5.8	9.4
	VI	6.0	10.3	10.4	5.0	3.7	10.1
	VII	3.1	6.2	11.0	3.7	6.7	11.6
	VIII	2.0	8.0	12.3	1.6	4.1	11.9
	IX	1.2	4.1	12.7	0.9	8.1	12.7
	X	0.2	11.9	17.3	0.2	14.4	15.5
Population	I	59.4	15.7	5.2	44.0	14.6	2.9
	II	18.5	14.8	7.0	26.5	10.8	4.8
	III	10.9	8.9	7.9	12.7	11.4	6.2
	IV	5.2	12.3	8.8	6.7	13.1	7.9
	V	3.5	9.0	9.5	5.2	8.7	8.7
	VI	1.0	9.9	10.4	2.8	5.7	9.5
	VII	0.8	6.4	11.3	0.7	5.4	11.1
	VIII	0.3	7.6	11.3	1.1	4.3	13.0
	IX	0.3	3.5	12.1	0.0	10.9	15.2
	X	0.0	11.9	16.5	0.3	15.0	20.7

Data: ENIGH 2000, 1er Informe de Gobierno, Vicente Fox 2001; Compania Federal de Electricidad (electricity tariffs).

Table A.8
Concentration Coefficients

		dh yt	dp yt	dh ypc	dp ypc
Gini	**Income**	**0.4940**	**0.4748**	**0.4387**	**0.5234**
	Spending	**0.4779**	**0.4585**	**0.4288**	**0.5131**
All programs		0.0529	0.0230	-0.0771	0.0431
Total Education		0.0548	0.0233	-0.1529	-0.0324
Total Health		0.0604	0.0323	0.0050	0.1314
Pensioners (ISSSTE)		0.5460	0.5243	0.4841	0.5545
Pensioners (IMSS)		0.5098	0.4804	0.3801	0.4954
Active workers (ISSSTE)		0.5145	0.4891	0.3310	0.4495
Health (ISSSTE)		0.3597	0.3265	0.2902	0.4281
Tertiary education		0.4415	0.4121	0.3045	0.4227
Electricity Subsidy		0.1913	0.1629	0.1639	0.2775
Health (IMSS)		0.1737	0.1472	0.1191	0.2540
Active workers (IMSS)		0.2998	0.2720	0.1102	0.2388
Milk subsidy (LICONSA)		0.2210	0.1834	0.1213	0.2344
Upper secondary education		0.2026	0.1693	-0.0094	0.1186
Tortilla subsidy (FIDELIST)		0.0305	-0.0064	-0.0822	0.0420
Agricultural support (PROCAMPO)		-0.1113	-0.1368	-0.1470	-0.0560
School breakfasts (DIF)		-0.0749	-0.1105	-0.2079	-0.0874
Lower secondary education		-0.0248	-0.0557	-0.2518	-0.1234
Primary education		-0.1459	-0.1784	-0.3788	-0.2638
Health uninsured (SSA)		-0.3540	-0.3827	-0.4028	-0.3015
PROGRESA food transfers		-0.5062	-0.5361	-0.6117	-0.5198
PROGRESA scholarships		-0.5014	-0.7308	-0.5356	-0.6566

Data: ENIGH 2000, ENN 1999, 1er Informe de Gobierno, Vicente Fox 2001.

Table A.9
Redistributive Impact of Public Spending and Taxes on Income

	Deciles	Total income			Per Capita Income		
		Before taxes and transfers	After taxes	After taxes and transfers	Before taxes and transfers	After taxes	After taxes and transfers
Households	I	1.3	1.5	2.1	1.8	2.1	3.1
	II	2.3	2.5	3.1	3.0	3.3	4.0
	III	3.2	3.5	3.9	3.9	4.2	4.7
	IV	4.2	4.4	4.9	4.7	5.0	5.4
	V	5.2	5.5	5.9	6.1	6.3	6.6
	VI	6.6	6.9	7.2	7.4	7.6	8.0
	VII	8.3	8.6	8.8	8.7	8.9	9.1
	VIII	10.7	10.9	11.0	11.0	11.2	11.1
	IX	15.8	15.9	15.7	15.0	14.8	14.3
	X	42.4	40.3	37.4	38.6	36.5	33.7
	Gini	**0.5154**	**0.4940**	**0.4543**	**0.4629**	**0.4387**	**0.3923**
Population	I	1.6	1.8	2.5	1.0	1.2	1.9
	II	2.7	2.8	3.4	2.0	2.2	2.8
	III	3.5	3.7	4.2	2.9	3.1	3.6
	IV	4.5	4.7	5.2	3.8	4.1	4.5
	V	5.2	5.5	5.9	4.9	5.1	5.5
	VI	6.9	7.1	7.5	6.3	6.5	6.9
	VII	8.7	9.0	9.1	8.0	8.3	8.5
	VIII	10.3	10.5	10.5	10.5	10.8	10.9
	IX	15.3	15.3	15.1	15.6	15.7	15.4
	X	41.3	39.5	36.6	45.0	43.0	40.0
	Gini	**0.4936**	**0.4748**	**0.4341**	**0.5431**	**0.5234**	**0.4802**

Data: Distribution of tax burdens is taken from SHCP (2002), where it is based on ENIGH 2000. Transfers include all public expenditure programs reported in table 3.1. Tables in ANNEX. Autonomous household income adjusted for consistency with National Accounts.