

How Equitable Is Public Spending on Health and Education?

Background Paper to WDR 2000/1

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Introduction

This paper contributes to Chapter 2 of WDR 2000/1 – specifically the part of the chapter which will argue that successful poverty reduction is related to public investment in *basic* health and education. Health and education capabilities of the poor are likely related to three aspects of public expenditure: 1/ the aggregate level of public expenditures devoted to social sectors, 2/ the distribution of that level of social expenditure across socio-economic groups, and 3/ the efficiency of that spending. The first point about the impact of *the level* of public social sector expenditures on human capabilities is a debated point, because not all studies have found an empirical link between the two. This leads to the question whether the second and third points, about equity and efficiency in spending, explain why aggregate public social spending may have varied outcomes across countries.

WDR 2000/1 holds a clear view on this. According to the WDR outline paper for Chapter Two [pp.3-4] the report intends to argue:

1. the link between successful poverty reduction and social spending “is not primarily a function of the percent of GDP that is devoted to total spending on health and education, but depends foremost on the intra-sectoral allocation of health and education spending in favour of the primary sectors” [WDR outline paper];
2. “countries with high shares of education spending devoted to primary and secondary levels recorded higher persistence rates through grade four and higher primary and secondary enrollment rates. Infant and child mortality rates are lowest in countries with high shares of health spending devoted to primary (preventive) care” [WDR outline paper]

The first part relates to the widely held belief that public spending on primary level social services is more pro-poor than spending at higher levels – this is basically an equity in public expenditure argument. It says extra expenditures on social sectors will have little antipoverty impact if the intra-sectoral allocation means the poor do not get much of a share. Equity concerns arise in the *finance* of health and education services partly because it is commonly assumed that finance equity may be related to equity in *access* to services which may be related to equity in health and education *capabilities*. This paper focuses on equity in finance though the validity of the links between the other two types of equity are also important areas to consider.

That primary social services are thought to be pro-poor was already present in WDR 1990. But there is a shift of emphasis in the choice of indicator to judge the antipoverty commitments implied in public expenditure allocation, from the common one of “the share of social sector expenditure in GDP” (c.f. UNDP HDRs) to “the share of primary level expenditures in total social expenditures”. This takes the aggregate level of social spending as given, and asks how to spend it most beneficially for the poor. This is important to bear in mind given that a review by the World Bank’s Operations Evaluation Division, found that the aggregate level of social spending per capita *declined* in almost two-thirds of 53 countries adjusting between 1980-93 [Jayarajah, Branson and Sen 1996].

The second bullet cited above is an efficiency argument, in terms of obtaining the greatest health and education outcomes for the least expenditures. This relates to a common concern within the public expenditure literature which attempts to link outcomes to inputs. Some of this indicates that intra-sectoral allocation is a key factor in raising social sector efficiency. It also relates to a still emerging part of the literature which attempts to weigh-off public expenditure choices in terms of service quantity against service quality.

To address the first point about equity, I present benefit incidences of public expenditure in social sectors. The next section of this paper discusses methodology, and the following section analyses the database which I constructed. I address the second point about efficiency through a separate annotated bibliography.

Methods, Data and Measures of the Distribution of Public Spending

Benefits incidence methodology and its limitations

Two methods have been employed to assess welfare issues in public spending. One values the service provided by public spending, using estimated demand functions of individuals (or households) for that service – this is the compensating variation or consumer surplus method. The second method allocates ‘benefits’ on the basis of how much people use the service, and the benefit is set equal to the cost of service provision – this is the benefit incidence method. This paper reports results from the benefits incidence method, even though the compensating variations method is better grounded in microeconomic theory. This is because the relative simplicity of the benefit incidence method has made it more prevalent. Also a main concern in this paper is to compare public spending equity at different levels of service provision, viz. the primary, secondary and tertiary distinction, and whilst experimenting with methodology using data from Ecuador, Younger [1999, p.345] found that for ranking different kinds of public expenditures by their equity impact, the simple rough-and-ready benefit incidence method yields similar results to the more sophisticated methods.

The benefit incidence method takes the average cost or subsidy in the provision of a good or service, and imputes this on the basis of service usage rates to the consumption of households or individuals. This therefore requires public expenditure data to be combined with micro-level data on usage. If households or individuals are then ranked according to some welfare yardstick, usually income or consumption, then a distribution of the benefits obtained by people can be generated in relation to the distribution of income or consumption. In this way, benefits incidences can give a rough measure of the share of public expenditure obtained by a particular portion of the population. The data I present is benefits incidence to quintiles of population, ranked poorest to richest. However it is important to note that in several sources benefits incidences were not reported in terms of quintiles of population, but in terms of quintiles of households. These were adjusted where possible, or excluded from the analysis.

In drawing policy implications from benefits incidences one should bear in mind that the intra-sectoral ordering of spending by equity impact reflects the average incidence of existing expenditures, rather than the marginal incidence of new spending. Thus extra money spent on primary levels should improve equity, *ceteris paribus* – but it may be that additional funds change the beneficiaries and the shares they obtain. The more sophisticated methods based on estimating demand functions allows better simulation exercises of this issue. Similarly, van de Walle [1998, p.366] reminds that “conclusions about the reallocations of public spending from the point of view of social welfare cannot be drawn from concentration curves alone”. Concentration curves focus on inequality, and do not indicate the impact on absolute levels of welfare. In other words, if comparing two types of public spending, say A and B, it may be that A reduces inequality more, whilst B raises absolute levels of welfare more. Importantly, even if public expenditures are found to be distributionally *regressive*, they may still form a large share of the total consumption of the poor.

There are some important limitations to the benefits incidence methodology. Limitations include:

1. the unit cost of providing the service is an imperfect measure of value [Castro-Leal 1999, p.50];
2. benefits are allocated to service users, and at the time of service consumption, but some benefits may accrue to others, such as when education affects general productivity, and some benefits may accrue through time [Seldon and Wasylenko 1992, p.7, p.10];
3. household characteristics vary, implying variations in welfare impact of public spending (e.g. a school is worth more to those with children, than those without);
4. the method focuses on existing beneficiaries, whereas often it is more policy relevant to focus on the marginal beneficiary, for example additional health clinics are likely to be located in poorest areas than existing clinics [Seldon and Wasylenko 1992, 11];
5. variations in service quality are not considered, and instead a ‘flat-cost’ is applied whereas some people may obtain higher quality services at higher costs (this point is returned to in the Malawi case presented below);
6. quantity constraints exist, and so people consume more or less than they really desire; the sizes of benefits incidences are determined both by the supply of services across the income/ expenditure distribution, and also the demand for those services.

Data search

Estimates of the incidence of benefits from public expenditure in the social sectors are not easily obtained because they are contained within a range of different types of reports. I based my search for benefit incidence data on formally published work, some grey literature economics websites, and World Bank working papers and country reports (mostly public expenditure reviews, social sector studies and poverty assessments). All benefits incidences included in my dataset use household level service utilisation data. This excludes for example the benefits incidence estimates for the Philippines by Devarajan and Hossain [1995].

The estimates I obtained from this search are over-whelmingly World Bank ones. Where estimates were quoted for only the poorest/richest quintiles, I attempted to trace the original analysis if it was World Bank sourced, on the basis that a complete distribution must have been calculated somewhere. Initially I began to contact task managers, but since this did not actually yield any new information I dropped the idea after a few countries. Instead more detailed searching through a larger range of World Bank materials, via the ImageBank system, gave some more estimates.

International comparability

The data I present all use the benefits incidence methodology, but differences in application mean that cross-national comparability may be imperfect. A major problem is that often the source does not clearly specify all the choices made in the calculation. Some of the variations may be due to:

1. whether welfare ranking was done by persons or households, given that household sizes differ across the income distribution;
2. whether contributions of households in the form of user fees were included in the costing of a service-unit (i.e. gross public expenditure, or net of cost recovery);
3. whether the costing of a service-unit included capital expenditure, or dealt with just recurrent expenditures;
4. whether only central government expenditures were used, or local government expenditures was also included – this would be important in countries with federal spending structures;
5. whether actual expenditures or budgeted expenditures were used, since often these differ significantly;
6. whether public spending on health insurance was included in the benefit incidence calculations;
7. international inconsistencies in definitions of sub-sectors, such as the number of years which comprise primary schooling; variations across countries in the share obtained by the poorest at a particular service level may be affected by this inconsistency, given our belief that the more basic the service the greater the share obtained by the poorest.

Measures of public spending equity

I calculated three measures of equity in public spending from the basic benefits incidence data:

1. the share of benefits going to the poorest quintile of population or household
2. the ratio between the shares going to the poorest and the richest quintiles
3. concentration indices.

Some useful methodological references for concentration indices are van de Walle [1998], Kakwani et al. [1997], and van Doorslaer and Wagstaff [1993]. The concentration index, similar to the Gini measure of inequality, is one minus twice the integral under the concentration curve (equation 1, in Kakwani et al. 1997, p.88). I used geometry to estimate the area under each concentration curve. This was due to the fact that the benefit incidences I have available are grouped data, i.e. by quintiles, rather than microdata on individuals or households. The method takes straight lines between the four observed

points on the concentration curve, and calculates the resulting area. This seems to be the simplest approximation to the area under the concentration curve, given that we have only four points for that curve and the concentration curve could in principle take many functional forms. Obtaining the concentration index is similar to the Gini – it is the area bounded by the diagonal and the curve expressed as a share of the area under the diagonal, except that since the concentration index can cross the diagonal, areas above the diagonal count as ‘negative areas’. For this reason, where the concentration curve crosses the diagonal – i.e. when benefits are distributed towards the middle quintiles – the concentration index obtained may be around zero (which is the value for equality). My method assumes that there is no variation in benefits within each group. Alternative methods have been proposed in the literature to address this which involves non-linear approximations of the underlying concentration curve (c.f. Van Doorslaer and Wagstaff 1993, p.37 for reference to a Kakwani and Podder method).

Equity in Public Social Spending

Which level of service is most pro-poor?

At the global level the evidence is overwhelming for saying public spending is most pro-poor at basic levels of social sector services. Summary statistics for the three indicators of the distribution of public spending are shown in Table 1 to Table 3 for education spending, and Table 4 to Table 6 for health spending.

- The shares of public spending going to the poorest income/expenditure quintile is greatest at basic levels of services. In education the global mean share is 26 percent of public spending on primary schooling as compared to 5 percent for spending at tertiary levels (Table 1), and in health the corresponding means are 21 percent and 16 percent respectively (Table 4).
- The concentration index is -0.14 on average for public spending on primary schooling – the negative value indicating that poorer quintiles get more than their share in the population – and this compares to $+0.39$ at the tertiary level (Table 2); the corresponding figures for health are -0.02 and $+0.10$ (Table 5).
- On average the poorest quintile get 3.2 times the share obtained by the richest quintile of primary level spending, as compared to 0.2 at the tertiary level (Table 3); the corresponding figures for health spending are 1.7 times, and 0.9 times (Table 6).

Table 1 Poorest Quintile’s Share in Public Education Spending, by Level of Service

	All Levels	Basic Levels	Middle Levels	Tertiary Levels
Mean	19.1	26.1	13.5	5.3
Minimum	5.0	11.0	0.0	0.0
Maximum	34.2	52.0	32.0	18.3
Sample size	44	37	41	36

Table 2 Concentration Indices of Public Education Spending, by Level of Service

	All Levels	Basic Levels	Middle Levels	Tertiary Levels
Mean	0.01	-0.14	0.12	0.39
Minimum	-0.27	-0.44	-0.23	0.04
Maximum	0.30	0.19	0.72	0.76
Sample size	25	34	38	31

Table 3 Poorest Quintile's Share Over Richest Quintile's Share in Public Education Spending, by Levels of Service

	All Levels	Basic Levels	Middle Levels	Tertiary Levels
Mean	1.1	3.2	1.0	0.2
Minimum	0.1	0.4	0.0	0.0
Maximum	4.6	13.0	5.0	0.7
Sample size	43	37	41	36

Table 4 Poorest Quintile's Share in Public Spending on Health, by Level of Service

	All Levels	Lower Levels	Hospital Levels
Mean	22.7	21.3	15.8
Minimum	4.0	7.5	1.0
Maximum	51.2	67.0	35.8
Sample size	31	23	23

Note: Lower levels of care includes primary care, health centres, subcentres, dispensaries, clinics, and polyclinics. Hospital levels includes in-patients, out-patients and overall hospital care.

Table 5 Concentration Indices of Public Spending on Health, by Level of Service

	All Levels	Lower Levels	Hospital Levels
Mean	-0.04	-0.02	0.10
Minimum	-0.41	-0.43	-0.18
Maximum	0.42	0.26	0.50
Sample size	19	20	19

Note: Lower levels of care includes primary care, health centres, subcentres, dispensaries, clinics, and polyclinics. Hospital levels includes in-patients, out-patients and overall hospital care.

Table 6 Poorest Quintile's Share Over Richest Quintile Share's in Public Spending on Health, by Level of Service

	All Levels	Lower Levels	Hospital Levels
Mean	2.2	1.7	0.9
Minimum	0.1	0.2	0.0
Maximum	11.9	9.6	2.7
Sample size	31	23	23

Note: Lower levels of care includes primary care, health centres, subcentres, dispensaries, clinics, and polyclinics. Hospital levels includes in-patients, out-patients and overall hospital care.

Can intra-sectoral reallocation funnel resources to the poor?

In terms of intra-sectoral allocation, the literature makes several distinctions: tertiary vs. primary levels of service, capital vs. current spending, and spending on wages vs. spending on equipment. Obviously there is a right balance between these types of spending, but the common belief is that in most countries the balance is overly-skewed towards the former of each of these categories of spending, and that a reallocation would be beneficial for both equity and social sector efficiency. This section attempts to relate this view to equity, to see if increasingly more focussed intra-sectoral reallocation would act as a funnel for getting public resources to the poor.

The way I have tested this is to construct the following four spending ratios based on the categories mentioned above, and then to correlate them to the three public spending equity indicators (the share to the poorest, concentration index, and poorest-richest ratio):

1. total expenditure on education as % of GNP
2. current and capital expenditure at primary level education as % of total expenditure on education
3. current expenditure at primary level education as % of total expenditure on education
4. current expenditure at primary level education for teaching materials as % of total expenditure on education

The correlation coefficients are shown in Table 7. Sample sizes are small. The results suggest that careful intra-sectoral allocation may act as a funnel for targeting resources to the poor. The share of total education spending in GNP has only a slight correlation to equity indicators, but the ‘share of the cake’ devoted to current spending or spending on teaching materials has a much stronger correlation with public spending equity.

Table 7 Correlation Coefficients of Equity Indicators with Spending Ratios

	Poorest Share	Concentration coefficient	Poorest/ richest ratio
Educ All Levels/ GNP	-0.07	-0.09	-0.14
Primary/ All Levels	0.11	-0.28	0.17
Current Primary/ All Levels	0.28	-0.32	0.29
Primary Teaching Materials/ All Levels	0.29	-0.91	0.29

Trends through time: some outcomes of reforms

Dominican Republic. Changes in intra-sectoral spending patterns in the Dominican Republic in the 1980s meant the poor benefited more from public social spending. The contrast between the poverty impact of trends in overall health spending and trends in overall education spending underscores the importance of knowing intra-sectoral spending patterns before drawing poverty conclusions. This point is emphasised given the common use of trends in social sector spending *levels* as an indicator of country performance. Referring to data shown in Table 8 below, public expenditure on education declined both in real per capita terms and as a share of total government expenditure.

However the share going to the poorest two quintiles increased and the share to the richest quintile declined. In contrast health expenditures rose per capita and as a share of total government expenditure, but this went entirely to middle income quintiles.

Table 8 Dominican Republic – Benefits Incidence in Education and Health

	1980	1984	1987	1989
<i>EDUCATION</i>				
Exp per capita const. 1980 \$US	23	21	18	
Exp as % gov exp	13	16	10	
Benefit share to poorest 40% population	24			50
Benefit share to richest 20% population	33			13
<i>PRIMARY EDUCATION</i>				
Share in educn exp	43		54	
Benefit share to poorest 40% population	32			59
Benefit share to richest 20% population	21			4
<i>HIGHER EDUCATION</i>				
Share in educn exp	22		20	
Benefit share to poorest 40% population	2			32
Benefit share to richest 20% population	76			33
<i>HEALTH</i>				
Exp per capita const. 1980 \$US	12	11	12	
Exp as % gov exp	7	8	6	
Benefit share to poorest 40% population	71	57		57
Benefit share to richest 20% population	12	9		7

Costa Rica. The share of national resources devoted to social sectors has been amongst the highest in developing countries for over 20 years – between 15-18 percent of GDP. Public provision of social services remains high, though in per capita real terms and as a share of total government expenditure social sector spending has declined since 1977 [World Bank 1997, p.67]. In education between 1980-90, real expenditures per student declined by 35 percent at primary level, 25 percent at secondary and 10 percent at tertiary level [World Bank 1997, p.18]. World Bank estimates find that about 22 percent of all social expenditures in 1992 went to basic services in health and education, and another 8 percent to direct antipoverty programmes – the remainder was estimated to be non-priority programmes for poverty [World Bank 1997, p.68].

Distributions for income and benefits incidences exist for four points in time for education (1977-92) and three points in time for in health (1983-92). These distributions are shown as Chart Set 1 and Chart Set 2. They show clearly the pro-poor advantage of primary level spending.

Chart Set 1 Costa Rica 1977-92: Benefits Incidences in Education

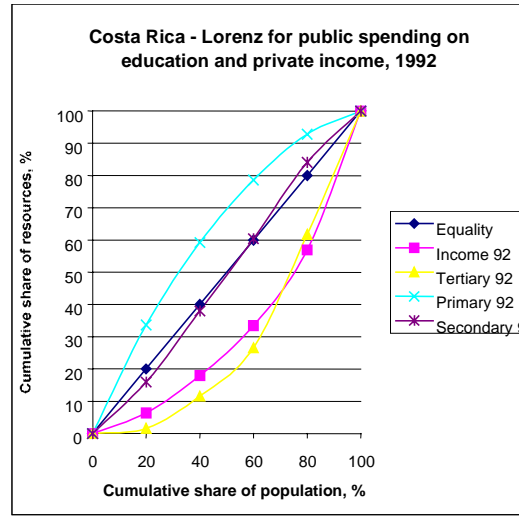
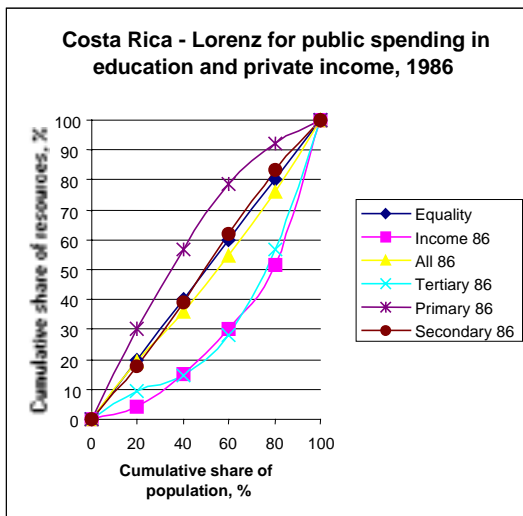
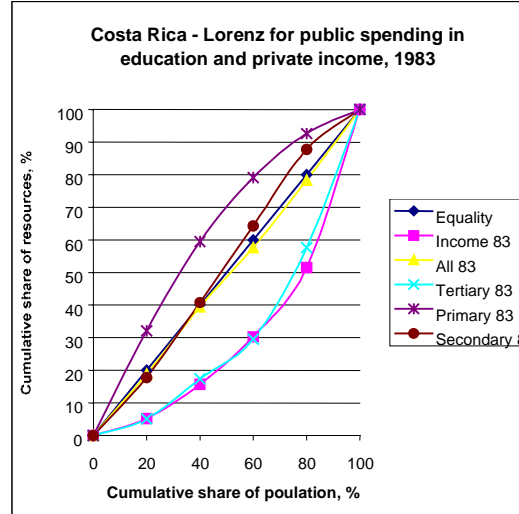
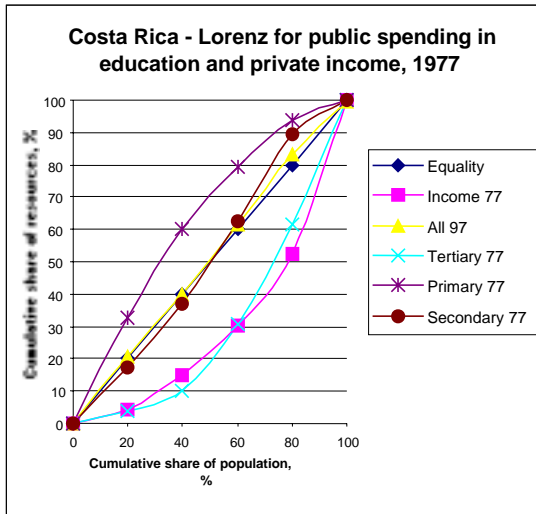
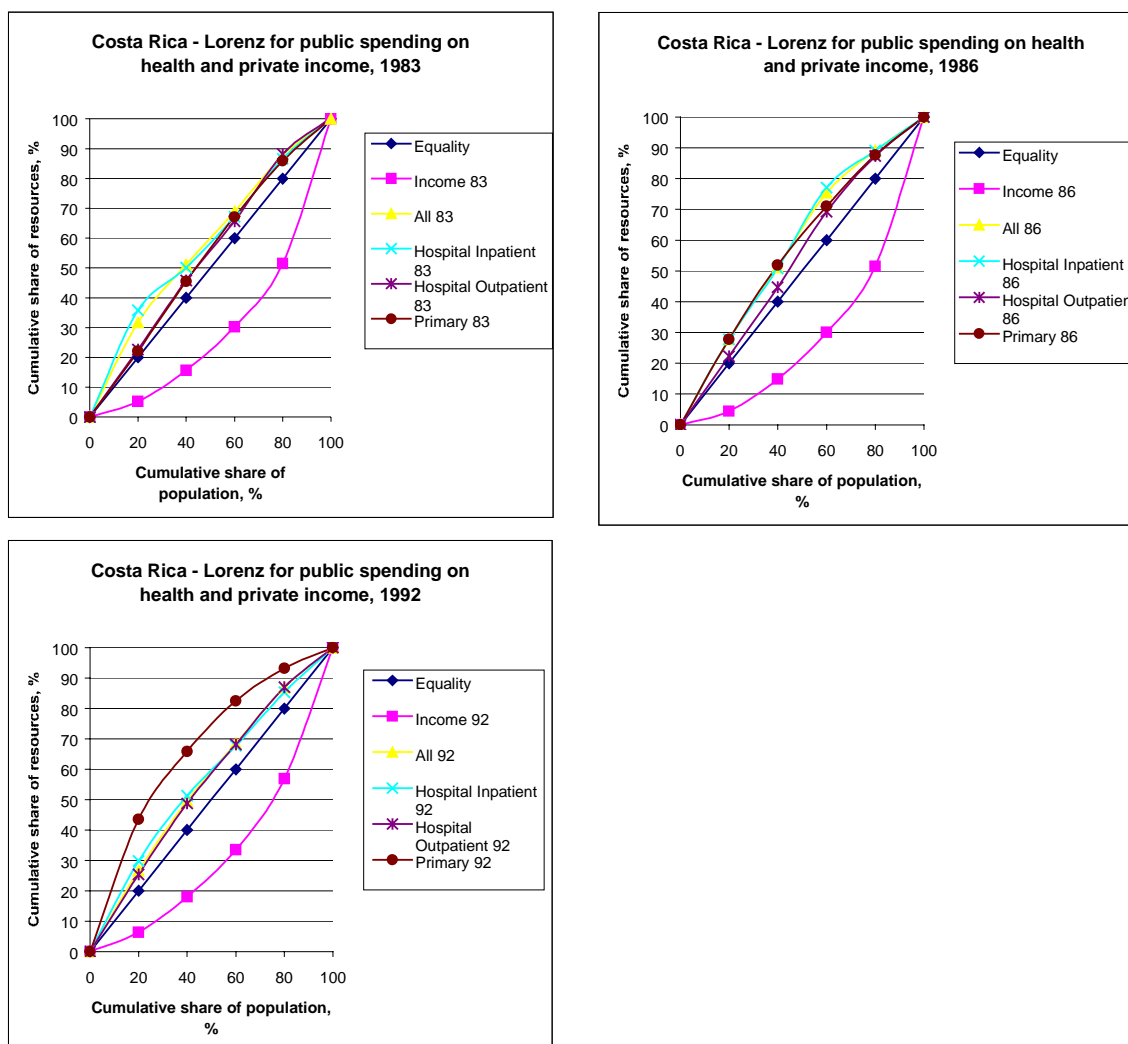


Chart Set 2 Costa Rica 1983-92: Benefits Incidences in Health



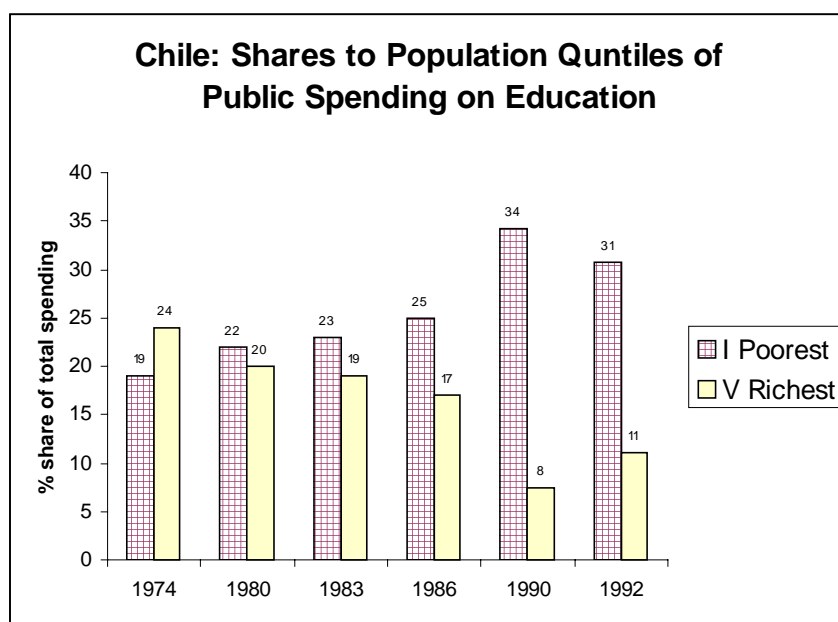
The progressivity of Costa Rica's public spending on health and education are indicated in Table 9, which shows trends between 1977-92. The table reports the Kawani index of progressivity, which is the concentration index for benefit incidence minus the Gini for private income [c.f. van Doorslaer and Wagstaff 1993, p.30]. The Kawani index amounts to twice the area between the Lorenz curve for income and the concentration curve for benefits incidence. If the benefits of public spending are obtained in proportion to income, the benefits concentration curve and Lorenz for income coincide, and the index is zero. Where benefits of public spending are obtained progressively the concentration curve lies inside the Lorenz curve, and the index is negative (similarly regressive benefits distributions lie outside the Lorenz, and the index is positive). Public spending on education – at each of the three levels of service, and overall – was progressive in 1977, after which it declined, and by 1992 tertiary spending was actually slightly regressive. Health spending – overall and in two types of hospital care – remained progressive in 1992 but worse than 1977; notably spending on primary care became more progressive through time.

Table 9 Costa Rica 1977-92: Kakwani Progressivity Index for Public Spending

	Education				Health			
	Overall	Primary	Secondary	Tertiary	Overall	Primary	Hospital Inpatient	Hospital Outpatient
1977	-0.44	-0.68	-0.45	-0.04				
1983	-0.37	-0.64	-0.43	-0.03	-0.55	-0.47	-0.55	-0.48
1986	-0.34	-0.63	-0.41	-0.04	-0.57	-0.55	-0.58	-0.49
1992		-0.60	-0.33	0.05	-0.47	-0.68	-0.48	-0.46

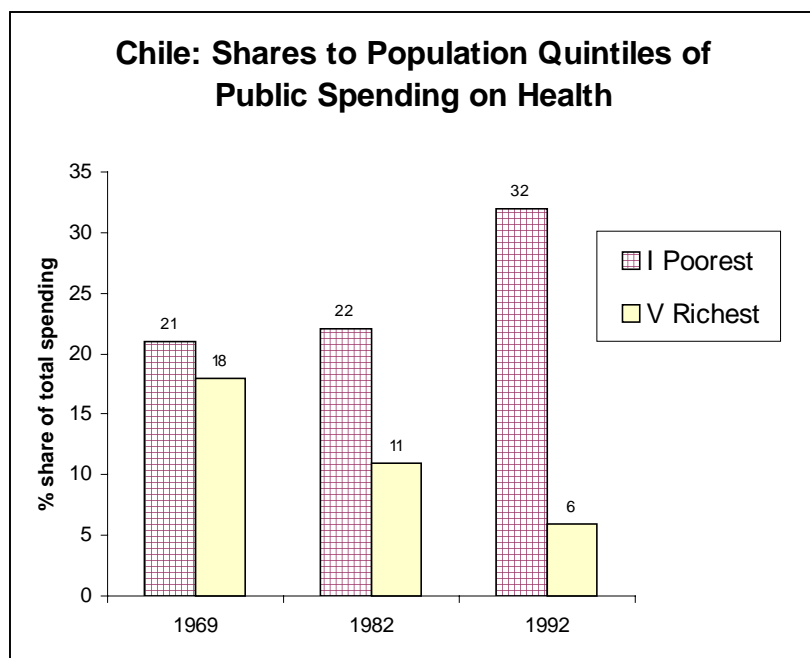
Chile.

Chart Set 3 and Chart Set 4 show the shares of public spending in health and education obtained by the richest and poorest population quintiles, for Chile (because it has a long series).

Chart Set 3: Trends in Education Benefit Shares in Chile, 1974-92

Note: I do not know if the original data refers to household or population quintiles for 1990 and 1992

Chart Set 4 Trends in Health Benefit Shares in Chile, 1969-92



Note: 1992 values are household quintile shares

Malawi. This draws on Castro-Leal [1996], and focuses on a success case in education sector reforms. Over time, Malawi has increased its emphasis on education, and primary education. Compared to 1990, public recurrent spending on education more than tripled in real terms in 1994, and spending on primary schooling increased more than five-fold. Public education recurrent spending increased to 7.5 percent of GDP in 1994 [Castro-Leal 1996, Table 9]. The share of primary in total spending rose from half to three-quarters [Castro-Leal 1996, Table 10]. The government abolished primary school fees, and primary enrolments increased, especially from the poorest regions (see Castro-Leal 1996, Tables 7 & 8, for enrollment rates). This resulted in greater equity in the distribution of public education resources.

Table 10 Malawi – Benefits Incidence of Public Expenditure on Education, 1990/1-94/5 by Population Quintiles

Level	Year	I Poorest	II	II	IV	V Richest	Conc Ratio	Poorest/richest ratio
All	1990/1	10	13	16	24	38	0.26	0.26
All	1994/5	16	19	20	20	25	0.08	0.64
Primary	1990/1	15	18	20	23	24	0.09	0.63
Primary	1994/5	20	23	21	20	16	-0.04	1.25
Secondary	1990/1	7	11	14	28	41	0.33	0.17
Secondary	1994/5	9	10	16	25	39	0.31	0.23
Tertiary	1990/1	3	7	10	19	61	0.51	0.05
Tertiary	1994/5	1	7	13	20	58	0.52	0.02

Source: Castro-Leal [1996] for quintile shares. Inequality indicators are my calculations.

Some remaining problems:

- Quality deterioration with the surge in enrolments (see Castro-Leal 1996, Table 11, for trends in primary level quality indicators)
- Bulk of increased spending has been on salaries – in 1994 salaries comprised 97 percent of primary recurrent spending, whereas in 1990 the figure was 89 percent
- Only 18 percent of children enrolled in primary school complete the full course, and this is lower for the poor and for girls; only one percent of children entering the primary cycle will enter the secondary cycle (see Castro-Leal 1996, Table 5, for age-grade mismatch)

The Malawian example shows that reallocation of public resources towards primary levels must be accompanied by spending which raise quality, like adequate spending on teaching materials. Otherwise greater equity in public spending benefits incidences may not raise education levels of the poor if children do not complete the primary schooling cycle due to low quality schooling. The efficiency costs of this emerge in the fact that one university student in 1994 was 103 times as expensive as one primary student, as compared to 58 in Guinea and 5 in South Africa [Castro-Leal 1996, Table 12]. Extra money on early learning must be allocated towards raising completion and progression rates, as well as access and equity, and this is also an important intra-sectoral spending issue.

Malawi is a case where more public money is being spent on the poor, but much of this is also being used inefficiently. The benefits incidence methodology is limited in this situation because it simply looks at the distribution of the costs (and wastes) of service provision. In Malawi many more poor children entering (but not necessarily completing) low quality primary schooling combine with more public spending on wages at the primary level to give a picture of improving equity of education opportunities, whereas in terms of actual capabilities obtained the picture may not be so equitable.

Discrimination reversal? Race and gender

Discrimination by race, gender, caste, and minority status leads to some sections of the population having less access to publicly provided services. Public expenditure benefit incidences are skewed against such groups since their service utilisation rates are lower than privileged groups. The Bank's poverty assessments contains data to show such biased service utilisation in numerous countries.

In this section I concentrate on the possible role for intra-sectoral reallocation towards primary services in reversing such tendencies of inequity in social services. This policy is different from a commonly suggested response of affirmative action towards discriminated groups. I use Côte d'Ivoire and Guinea for the gender analysis, and South Africa for the race analysis. I did not find the required data yet, but India could be a case in caste discrimination, and several Latin American countries could be cases of minority group discrimination (viz. indigenous populations, c.f. work by Psacharopoulos). The USA is another strong 'race case', and I would imagine analysis to be available for it.

Concentration coefficients summarising the distribution of benefits of public expenditures in Côte d'Ivoire, are shown separately for males and females in Table 11 (based on Demery's benefit incidence calculation). Male-female concentration coefficients for health spending in Guinea are reported in Table 12 based on benefit incidences which I calculated using more basic data. Crouch [1996] reports benefits incidences by race in South Africa, and the concentration coefficients I obtain from these are shown Table 13. In South Africa, the distribution of benefits at the country-level has included different per capita subsidies by racial group as well as by level of schooling. The distributions of each race relies on different utilisation rates, as does the distribution by sexes. Table 11 to Table 13 confirm that primary level spending is the most equitable (except for South Africa where it is nearly the most equitable).

Table 11 Cote d'Ivoire 1995 – Concentration Coefficients for Benefits of Public Expenditure in Education

	All	Female	Male
Education: All	0.17	0.22	0.14
Education: Primary	-0.04	0.01	-0.07
Education: Secondary	0.29	0.35	0.26
Education: Tertiary	0.51	0.73	0.41

Source: Lionel Demery, World Bank, for base data. My calculations of inequality indicators.

Table 12 Guinea 1994 – Concentration Coefficients for Benefits of Public Expenditure in Health

	All	Female	Male
Health: All	0.42	0.43	0.40
Health: Health Centres	0.25	0.27	0.22
Health: Hospital	0.50	0.51	0.48

Table 13 South Africa 1993 – Concentration Coefficients for Benefits of Public Expenditure in Education

	South Africa	African	Coloured	Indian	White
Primary	0.19	0.10	0.27	0.11	0.15
Secondary	0.14	0.16	0.09	0.12	0.01
Tertiary	0.53	0.67	1.00	0.21	0.10
Income	0.58	0.60	0.39	0.34	0.28

Note: The concentration coefficient for ‘coloured tertiary’ is 1 because too few went to tertiary education from that group.

In the male-female comparison, inequity in benefits from education spending in Côte d’Ivoire was greater amongst the female population than in the male population – this was not as true for health in Guinea. This male-female gap narrows substantially at the primary level, and is worst at tertiary level, reflecting the fact that females who continue education tend to be rich. From this, one conclusion may be that for a given level of ‘sex discrimination’ prevailing within a society, as manifested in a given distribution of public resources between males and females, the reallocation to primary level spending would be equity enhancing. This is a gender *untargeted* policy, in contrast to say gender-based affirmative action. In some countries the former may be more practical to implement, and would still have substantial equity effects.

A similar reasoning is applied to the race data for South Africa, where intra-sectoral reallocation towards primary levels is possibly more equity enhancing than affirmative action along racial lines. This is basically asking whether *intra*-racial inequities dominates over *inter*-racial inequities. This is just a rough-and-ready analysis of the policy choice in addressing discrimination. Methods to decompose the Gini, which have been applied in other contexts (e.g. Adams and He on IFPRI Pakistan data), could provide better analysis here.

Rural and urban divergence in spending equity

Table 14 presents spending inequality indicators for different kinds of social spending, for rural and urban populations. There are not many observations but the data seems to suggest urban spending may be slightly more inequitable in education and less inequitable in health, than spending amongst rural populations. Basic spending is most equitable in rural and urban areas.

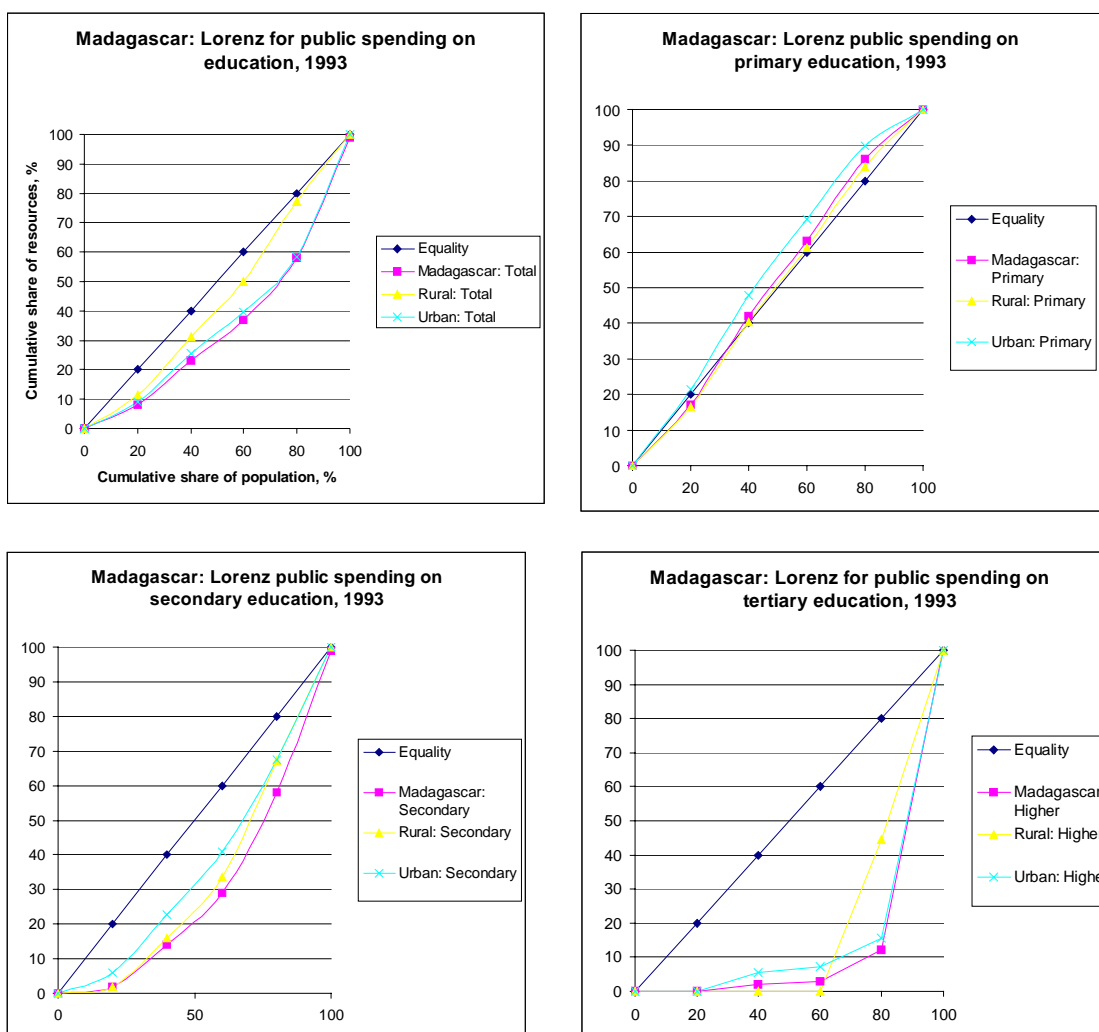
Table 14 Spatial Variation in Public Spending Equity in Health and Education

Country	Sector	Share to Poorest Quintile		Gini		Poorest/ richest ratio	
		Rural	Urban	Rural	Urban	Rural	Urban
Education							
Indonesia	All Levels	17	13	0.07	0.17	0.70	0.43
Madagascar	All Levels	11	9	0.12	0.27	0.50	0.22
Pakistan	All Levels	16	18	0.06	0.02	0.74	0.84
Indonesia	Primary	21	24	-0.04	-0.13	1.31	2.31
Madagascar	Primary	16	22	-0.01	-0.11	1.03	2.10
Pakistan	Primary	18	23	-0.01	-0.11	1.09	1.89
Indonesia	Lower Secondary	7	11	0.28	0.13	0.19	0.46
Indonesia	Upper Secondary	4	5	0.46	0.33	0.07	0.13
Madagascar	Secondary	2	6	0.32	0.25	0.06	0.18
Pakistan	Secondary	14	15	0.13	0.09	0.53	0.64
Indonesia	Tertiary	0	0	0.75	0.67	0.00	0.01
Madagascar	Tertiary	0	0	0.62	0.69	0.00	0.00
Pakistan	Tertiary	12	4	0.31	0.39	0.26	0.07
Health							
Guinea	All Levels	4	8	0.43	0.33	0.08	0.18
Indonesia	All Levels	11	17	0.21	0.07	0.34	0.73
Madagascar	All Levels	13	11	0.12	0.21	0.56	0.32
Guinea females	All Levels	4	6	0.41	0.35	0.07	0.14
Guinea males	All Levels	5	10	0.44	0.30	0.09	0.24
Indonesia	Subcentres	19	31	0.01	-0.15	0.91	2.17
Madagascar	Primary	10	13	0.16	0.21	0.33	0.40
Guinea	Centres	10	8	0.25	0.34	0.26	0.21
Guinea females	Centres	8	12	0.30	0.29	0.18	0.32
Guinea males	Centres	12	3	0.17	0.42	0.43	0.07
Indonesia	Centres	14	26	0.08	-0.16	0.62	2.69
Madagascar	Hospital	18	10	0.07	0.20	1.02	0.29
Indonesia	Hospital Inpatient	6	12	0.40	0.20	0.12	0.37
Indonesia	Hospital Outpatient	8	8	0.32	0.15	0.18	0.33
Guinea males	Hospital	2	12	0.54	0.26	0.03	0.29
Guinea females	Hospital	0	4	0.50	0.37	0.00	0.09
Guinea	Hospital	1	7	0.53	0.32	0.02	0.18

Madagascar.

The Madagascar example is used here to show that the urban distribution of benefits of public spending may differ from the rural distribution, at each level of schooling. Urban areas are more equal at primary and secondary levels, but not tertiary. The causes of this may be to do with the extra costs of school access in rural areas, and their lower quality of service.

Chart Set 5 Madagascar 1993: Rural and Urban Inequity in Public Spending Benefits in Education, by Levels of Schooling



Socialism as an equaliser of opportunities?

Socialist countries have, and transition countries did have, strong and explicit state commitments to universal basic health and education. The positive results for outcome indicators are well acknowledged, with most countries showing far better literacy and life expectancy, for example, than would be expected for their level of development.

The socialist record of these countries is excellent for highlighting the efficiency-equity conundrum in social sectors: these countries basically raised outcome indicators through strongly equitable public supply of primary level services, despite low quality at higher levels of service provision and inefficient service provision. Very important in this was the commitment to providing services in rural areas, even where these areas were very inaccessible (c.f. Mongolian Human Development Report 1997, <http://www.un->

mongolia.mn/undp/order-ind.htm). This remains relevant for low population density and/or poor infrastructure countries such as in sub-Saharan Africa. Transition has altered this situation significantly, as is well documented.

Romania. [World Bank #16462-RO, p.59]. Public spending in education is pro-poor. Poorer populations get a larger share of public spending than their share in the total population. This result is driven by spending on basic education, which amounts to nearly half the total. The distribution of public spending on tertiary level education is pro-rich, but slightly more equal than private consumption. One factor determining benefits equity is that schools in poor areas are badly maintained, with some schools closing completely [p.56]. Low enrolment rates of the poor are related to high out-of-pocket expenses, distance to school and opportunity costs of time. In health Romania is unusual compared to other countries in that government health expenditures are not pro-poor. The share of total government health spending to the poorest is greater than their share in private consumption, but smaller than in their share in total population. A comparison of the relative effectiveness of different government social sector spending in reaching the poorest quintile shows education, and primary education in particular, as best – these results are shown in Table 15.

Table 15 Romania 1994 - Variations in Public Spending Equity Across Programmes

	Spending as % of Private Consumption	% to Poorest Quintile	% to Richest Quintile
Education	18.1	21.6	17.1
<i>Primary Education</i>	11.9	27.0	13.2
<i>Secondary Education</i>	5.4	18.3	17.6
<i>Tertiary Education</i>	0.8	7.8	32.1
Health	9.2	12.0	28.6
<i>Dispensary</i>	1.9	16.2	21.9
<i>Polyclinic</i>	1.5	7.4	32.9
<i>Hospital</i>	5.7	12.5	29.6
Unemployment	6.2	26.3	11.5
Children Allowance	6.4	25.9	15.5
Social Assistance	1.1	18.0	21.7
In-kind	0.2	3.4	45.6

Source: Figures 4.18 and 4.19, pp. 65-6, World Bank Report #16462-RO, 1997

Conclusion

This paper has confirmed an old point about primary level spending being most pro-poor. The point emerged out of debates in the 1980s surrounding the poverty impacts of structural adjustment, and was clearly emphasised at least a decade ago in both the 1990 World Development Report by the World Bank, and the 1990 Human Development Report by UNDP. Has this strong awareness at the level of analysis made a perceptible difference to the benefits actually obtained by the poor? This is one of the issues raised

by Toye and Jackson [1996] in their assessment of the Bank's poverty agenda for the 1990s. The question is also underscored by the Bank's OED internal reviews of its country poverty assessments [World Bank 1996] and public expenditure reviews [World Bank 1998] which find that PAs and PERs on the whole have had very modest impact on actual in-country policy.

Perhaps the dominant point to emerge from this paper is that with such obvious pro-poor benefits to primary social spending, why has public spending persisted in being so anti-poor in so many countries? Crouch [1996, p.132] argues that such results – when combined with evidence on rates of return – indicate a public policy 'free lunch' since intra-sectoral reallocation in health and education would seem to lead to more equity without having to trade-off efficiency. The obvious challenge for WDR 2000/1 would be not only to re-state the pro-poor benefits of primary level spending, but to move the debate forward with practical steps on how this might actually be achieved. Schwartz and Ter-Minassian [1995] suggest that the reason why public expenditure is not more pro-poor, even though it could be potentially, is not so much because of policy design but because of political economy. Reviewing some of the literature on this, the authors point out that both the poor and nonpoor might chose to resist reform where expenditures are regressive in absolute terms but progressive in relative terms, since these are relatively important to the poor even though the nonpoor benefit most in absolute terms. Birdsall and James [1993] suggest intra-sectoral reallocations are possible if policy concentrates government funding on public goods, and encourages the market to fund and produce private goods. They recommend ten political strategies for reallocating government funds in the public sector in a way that maximizes the benefits of targeting, reduces costs, and minimizes resistance to change and the withdrawal of the middle and upper classes' political and tax support.

Bibliography

Ablo, Emmanuel and Ritva Reinikka [1998]. Do Budgets Really Matter? Evidence from Public Spending on Education and Health in Uganda. Policy Research Working Paper 1926, World Bank, Washington DC

Alderman, Harold and Victor Lavy [1996]. "Household Responses to Public Health Services: Cost and Quality Tradeoffs." World Bank Research Observer V11 N1, pp.3-22

Alderman, Harold et al. [1995]. 'Public Schooling Expenditures in Rural Pakistan: Efficiently Targeting Girls and a Lagging Region.' In: Public Spending and the Poor: Theory and Evidence, edited by Dominique van de Walle and Kimberly Nead, published by Johns Hopkins, Baltimore

Baker, Judy L. and Jacques van der Gaag [1993]. 'Equity in Health Care and Health Care Financing: Evidence From Five Developing Countries.' In: Equity in the Finance and

- Delivery of Health Care. An International Perspective. Edited by Eddy Van Doorslaer, Adam Wagstaff and Frans Rutten. Oxford University Press, Oxford
- Behrman, Jere R. and Nancy Birdsall [1988]. "The Equity-Productivity Tradeoff: Public School Resources in Brazil." *European Economic Review* V32 N8, pp.1585-1602
- Birdsall, Nancy [1996]. "Public Spending on Higher Education in Developing Countries: Too Much or Too Little?" *Economics of Education Review* V15 N4 pp.407-19
- Birdsall, Nancy and Estelle James [1993]. 'Efficiency and Equity in Social Spending: How and Why Governments Misbehave.' In: *Including the Poor*, edited by Michael Lipton and Jacques van der Gaag, World Bank, Washington DC
- Boadway, Robin and Maurice Marchand [1995]. "The Use of Public Expenditures for Redistributive Purposes." *Oxford Economic Papers* V47 N1, January 1995, pp. 45-59
- Bruton, Henry J. and Catharine B. Hill [editors, 1996]. *The Evaluation of Public Expenditure in Africa*. Economic Development Institute, World Bank, Washington DC
- Castro-Leal, Florencia [1996]. *Who Benefits from Public Education Spending in Malawi?* World Bank Discussion Paper 350, World Bank, Washington DC
- Castro-Leal, Florencia, and Julia Dayton, Lionel Demery, and Kalpana Mehra [1999]. "Public Social Spending in Africa: Do the Poor Benefit?" *The World Bank Research Observer* V14 N1, pp.49-72
- Crouch, Luis A. [1996]. "Public Education Equity and Efficiency in South Africa: Lessons for Other Countries." *Economics of Education Review* V15 N2, pp.125-137
- Culyer, A.J. and Adam Wagstaff [1993]. "Equity and Equality in Health and Health Care." *Health Economics* Vol. 12 N4, pp. 431-457
- De Geyndt, Willy [1996]. *Social Development and Absolute Poverty in Asia and Latin America*. Technical Paper 328, World Bank, Washington DC
- Demery, Lionel [1996]. *Gender and Public Social Spending: Disaggregating Benefit Incidence*. Unpublished paper available at <http://gender/tools/gp-14.htm>, World Bank, Washington DC
- Demery, Lionel and Lyn Squire [1996]. "Macroeconomic Adjustment and Poverty in Africa: An Emerging Picture." *World Bank Research Observer* V11 N1, February 1996, pp.39-59
- Demery, Lionel and Michael Walton [1998]. *Are Poverty Reduction and Other 21st Century Social Goals Attainable?* World Bank, Washington DC
- Devarajan, Shantayanan and Shaikh I. Hossain [1995]. *The Combined Incidence of Taxes and Public Expenditures in the Philippines*. Policy Research Working Paper 1543, World Bank, Washington DC
- Duraisamy, P., Estelle James, Julia Lane, and Jee-Peng Tan [1997]. *Is There a Quantity-Quality Trade-off as Enrollments Increase? Evidence from Tamil Nadu, India*. Policy Research Working Paper 1768, World Bank, Washington, DC
- Ferroni, Marco and Ravi Kanbur [1990]. *Poverty Conscious Restructuring of Public Expenditures*. Social Dimensions of Adjustment Working Paper 9, World Bank, Washington DC

- Filmer, Deon and Lant Pritchett [1997]. Child Mortality and Public Spending on Health. How Much Does Money Matter? Policy Research Working Paper 1864, World Bank, Washington DC
- Filmer, Deon, and Jeffrey Hammer, and Lant Pritchett [1997]. Health Policy in Poor Countries: Weak Links in the Chain. Policy Research Working Paper 1874, World Bank, Washington DC
- Flood, M. Cristina V. de, M. Marcela Harriague, Leonardo Gasparini, and Benigno Velez [1994]. El Gasto Publico Social y su Impacto Redistributivo. Secretaria de Programacion Economica Proyecto ARG/93/029, Buenos Aires (Joint Library Shelf Location: 4K HV185.G37 1994)
- Gerson, Philip [1998]. Poverty, Income Distribution and Economic Policy in the Philippines. Working Paper WP/98/120, International Monetary Fund, Washington DC
- Gertler, Paul J. and Jeffrey S. Hammer [1997]. Strategies for Pricing Publicly Provided Health Services. Policy Research Working Paper 1762, World Bank, Washington, DC
- Grosh, Margaret E. [1990]. Social Spending in Latin America. The Story of the 1980s. World Bank Discussion Paper 106, World Bank, Washington DC
- Gupta, Sanjeev, and Benedict Clements, and Erwin Tiongson [1998]. "Public Spending on Human Development." Finance and Development, September 1998, pp.10-13
- Hanushek, Eric A [1995]. "Interpreting Recent Research on Schooling in Developing Countries." The World Bank Research Observer V10 N2, pp. 227-46, Aug 1995
- Hossain, Shaikh I. [1996]. Making an Equitable and Efficient Education: The Chinese Experience. Mimeo, revised version of Chapter 1 of China: Social Sector Expenditure Review, 1996, World Bank Washington DC (downloaded from the Web)
- Huther, Jeff, and Sandra Roberts and Anwar Shah [1997]. Public Expenditure Reform Under Adjustment Lending: Lessons from World Bank Experience. World Bank Discussion Paper 382, World Bank, Washington DC
- Jabbar, M.A. and David Colman [1990]. "The Potential Benefits of Reallocation of Government Subsidies in Bangladesh." Journal of International Development V2 N3, pp.380-398
- Jayarajah, Carl and William Branson and Binayak Sen [1996]. Social Dimensions of Adjustment. World Bank Experience 1980-93. Operations Evaluation Study, World Bank, Washington DC
- Kakwani, Nanak and Adam Wagstaff, and Eddy van Doorslaer [1997]. "Socioeconomic Inequalities in Health: Measurement, Computation, and Statistical Inference." Journal of Econometrics V77 N1, pp. 87-103
- Lanjouw, Peter and Martin Ravallion [1998]. Benefit Incidence and the Timing of Program Capture. Policy Research Working Paper 1956, World Bank, Washington, DC
- McAuley, Alastair [1994]. "Poverty and Anti-poverty Policy in a Quasi-developed Society: The Case of Uzbekistan." Communist Economies and Economic Transformation V6 N2, pp.187-201

- Mingat, Alain and Jee-Peng Tan [1998]. *The Mechanics of Progress in Education: Evidence from Cross-country Data*. Policy Research Working Paper 2015, World Bank, Washington DC
- Musgrove, Philip [1996]. *Public and Private Roles in Health: Theory and Financing Patterns*. Discussion Paper 339, World Bank, Washington DC
- Ocampo, Jose Antonio [1998]. "Distribucion del Ingreso, Pobreza y Gasto Social en America Latina." *Revista de la CEPAL*, V65 Agosto, pp.7-14
- Pradhan, Sanjay [1996]. *Evaluating Public Spending. A Framework for Public Expenditure Reviews*. World Bank Discussion Papers 323, Washington DC
- Pradhan, Sanjay and Vinaya Swaroop [1993]. "Public Spending and Adjustment." *Finance and Development*, Sept. 1993, pp.28-31
- Sahn, David E. and Rene Bernier [1993]. *Evidence from Africa on the Intra-sectoral Allocation of Social Sector Expenditures*. Working Paper 45, Cornell Food and Nutrition Program, Cornell University, Ithaca NY
- Schwartz, Gerd and Teresa Ter-Minassian [1995]. *The Distributional Effects of Public Expenditure: Update and Overview*. Working Paper WP/95/84, International Monetary Fund, Washington DC
- Selden, Thomas M. and Michael J. Wasylenko [1992]. *Benefit Incidence Analysis in Developing Countries*. Working Paper 1015, World Bank, Washington DC
- Selden, Thomas M. and Michael J. Wasylenko [1995]. 'Measuring the Distributional Effects of Public Education in Peru.' In: *Public Spending and the Poor: Theory and Evidence*, edited by Dominique van de Walle and Kimberly Nead, published by Johns Hopkins, Baltimore
- Stanton, Bonita [1994]. *Child Health: Equity in the Non-industrialised Countries*. *Social Science and Medicine* V38, N10, pp.1375-1383
- Sudhakar, S. [1995]. "Distribution of Benefits of Public Expenditure in India." *Asian Economic Review: The Journal of the Indian Institute of Economics (India)* V37, pp.491-506, December 1995
- Swaroop, Vinaya [1997]. "Education and Health Care in the Caribbean." *Finance and Development*, June 1997, pp.46-8
- Toye, John and Carl Jackson [1996]. "Public Expenditure Policy and Poverty Reduction. Has the World Bank Got it Right?" *IDS Bulletin* V27 N1, pp.56-66
- van de Walle, Dominique [1995]. *Public Spending and the Poor. What We Know, and What We Need to Know*. Policy Research Working Paper 1476, World Bank, Washington DC
- van de Walle, Dominique [1998]. "Assessing the Welfare Impacts of Public Spending." *World Development*. V26 N3, pp.365-379
- van de Walle, Dominique and Kimberly Nead [1995]. *Public Spending and the Poor. Theory and Evidence*. Johns Hopkins and World Bank, Washington DC
- Van Doorslaer, Eddy and Adam Wagstaff [1993]. 'Equity in the Finance of Health Care: Methods and Findings.' In: *Equity in the Finance and Delivery of Health Care*. An

International Perspective. Edited by Eddy Van Doorslaer, Adam Wagstaff and Frans Rutten. Oxford University Press, Oxford

Van Doorslaer, Eddy et al. [1999]. "The Redistributive Effect of Health Care Finance in Twelve OECD Countries." *Journal of Health Economics* V18 N3, pp. 291-313

Wagstaff, Adam et al. [1999]. "Equity in the Finance of Health Care: Some Further International Comparisons." *Journal of Health Economics* V18 N3, pp. 263-290

World Bank [1988]. *Argentina Social Sectors in Crisis*. World Bank Country Study, Washington DC

World Bank [1996]. *Poverty Assessment: A Progress Review*. Operations Evaluation Department, Report #15881, World Bank, Washington DC

World Bank [1997]. *Costa Rica. Identifying the Social Needs of the Poor: An Update*. Report #15449-CR, World Bank, Washington DC

World Bank [1997]. *Paraguay Public Expenditure Review: The Social Sectors*. Report #10193-PA, World Bank, Washington DC

World Bank [1998]. *Impact of Public Expenditure Reviews: An Evaluation*. Operations Evaluation Department, Report #18573, World Bank, Washington DC

Younger, Stephen D. [1999]. "The Relative Progressivity of Social Services in Ecuador." *Public Finance Review* V27 N3, pp.310-352