The Changing Distribution of Public Education Expenditure in Malawi

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Abstract

In 1994, the newly elected Government in Malawi abolished primary school fees. Using household survey data from 1990/91 and 1997/98 this paper assesses the impact this major policy change, combined with increased Government spending on education, has had on access to schooling by the poor. This paper shows that enrolment rates have increased dramatically over the 1990s, at both the primary and secondary levels, and that crucially these gains have been greatest for the poor. Marginal incidence analysis also shows that the distribution of public education expenditure has shifted towards the poor during the nineties. However, dropout rates at primary remain high and the gains in access and unit costs have been uneven across regional and gender lines. In order to build-on these gains in access, the paper argues that Malawi needs to redress existing inequities in public education expenditure and implement measures that raises the quality of education.

Authors' Affiliation and Sponsorship

Samer Al-Samarrai

Research Fellow, Institute of Development Studies, University of Sussex E-mail: S.M.Al-Samarrai@ids.ac.uk

Hassan Zaman

Senior Economist, AFTP1, The World Bank E-mail: hzaman@worldbank.org

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Samer Al-Samarrai

Research Fellow, Institute of Development Studies, University of Sussex E-mail: S.M.Al-Samarrai@ids.ac.uk

Hassan Zaman

Senior Economist, AFTP1, The World Bank E-mail: hzaman@worldbank.org

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Introduction

In 1994, the newly elected government in Malawi abolished primary school fees in order to improve access to schooling for the poor. This paper assesses the impact this major policy change, combined with increased government spending on education, has had on access to schooling by the poor. The specific questions that are addressed are as follows: (i) How have enrolments changed in Malawi in the 1990s and to what extent are there differences by socio-economic group and gender and (ii) To what extent has the distribution of public education resources become more or less equitable in Malawi during the 1990s?

This paper uses the now-standard benefit incidence methodology (Meerman 1979; Demery 1998) to examine the distributional impact of public spending. In the case of education spending, this methodology entails combining data on public spending per student (unit costs) with household consumption and enrolment data derived from a household survey. This methodology has its limitations (Van de Walle 1998). In particular, incidence analysis measures the average benefits of public spending accruing to different groups and potentially is not a good predictor of the benefit accruing to different population groups of a marginal increase in public expenditure. The methodology equates unit costs with an individual's welfare from the services consumed and does not, for example, take account of quality differences in the services provided. Also, incidence analysis can only be used for public spending on private goods where individual utilisation rates can be measured. This paper recognises these limitations and partly addresses them by first exploring the incidence of public education expenditure where utilisation rates are easily measurable. Second, average incidence analysis is presented for two time periods in order to gain some understanding of the marginal benefits arising from changes in public spending (see Lanjouw and Ravallion 1999 on estimating marginal incidence using cross-sectional survey data).

This paper uses the 1997/98 Integrated Household Survey data for the education incidence analysis and compares this with similar analysis carried out in Malawi using 1990/91 household survey data (Castro-Leal 1996). The next section details some data issues while section 3 looks at enrolment trends over the nineties in Malawi and identifies those groups in Malawi that have benefited the most from the abolition of fees in 1994/95. Section 4 looks at trends in the unit cost of education over time. Section 5 combines information on enrolment and the costs of education to analyse the incidence of public education expenditure. The last section offers some conclusions.

1. Data

Education incidence analysis consists of computing the public education subsidy going to different income/consumption groups in a country. This requires information on enrolment by income group and information on public unit costs of education at each level. Household surveys generally provide information on the enrolment status of individuals in each household as well as providing the data necessary to compute an

income/consumption measure. Public unit cost data are collated from government expenditure sources.

The Household Expenditure and Small-Scale Economic Activities (HESSEA) data set was used for the 1990/91 incidence analysis¹. The Malawi Integrated Household Survey (IHS) for 1997/98 is used to compute the incidence of public education expenditure for the later period. After data cleaning a nationally representative sample of 6,586 households was used for the 1997/98 incidence analysis.² In order to compare the incidence of public education expenditure between the two periods it is essential that the consumption aggregate for both periods is computed in the same way. In the 1990/91 study household expenditure per adult equivalent is used as the consumption aggregate and, in this paper, we compute the consumption aggregate for 1997/98 in the same way.³ In both periods the consumption aggregate is used to divide the population into quintiles and these quintiles are used to analyse how enrolment rates and the distribution of public expenditure differ across socio-economic groups. It should be noted that the consumption quintiles aggregate individuals, rather than households, into consumption quintiles. Therefore the share of the primary and secondary school age populations decreases as one moves from the lowest to the highest quintile, because poorer households tend to have more children than richer households.

Sample weights, based on the proportion of all households in each district surveyed, are used in generating the reported statistics for both periods. Therefore all the statistics reported in this paper capture a nationally representative picture for Malawi.

¹ The methodology for producing the income/consumption aggregate is reported in Malawi Human Resources and Poverty: Profile and Priorities for Action (World Bank 1996).

 $^{^{2}}$ For a detailed description of the cleaning exercise see NEC (2000).

³ A detailed description of how the consumption aggregate was constructed from the IHS data is available from the authors on request. The National Economic Council also produced a welfare indicator from the IHS. The two welfare indicators differ primarily because the measure used in this paper does not include durables and imputes rental values differently. Appendix 3 Table 4 details the incidence analysis using the NEC welfare indicator measured as consumption per adult equivalent.

⁴ Lanjouw and Ravallion (1999) provide a method for analysing the marginal changes in the incidence of public expenditure on different income groups. However, the method relies on each quintile having the same population eligible to participate (in our case to participate in primary or secondary education). Since the number of individuals in each quintile eligible for primary and secondary schooling is not the same across quintiles this approach is not pursued. Demery *et al* 1996 provide an alternative way of exploring changes in the incidence of public expenditure over time. Unfortunately, it was not possible to utilise this method because we did not have the required data for 1990/91.

2. How has enrolment changed in the 1990s?

Primary enrolment

The abolition of primary school fees in Malawi has been a key factor in the expansion of primary school enrolment since the mid-nineties. Primary school fees began to be waived in 1991/92 for new entrants into Standard 1 and by 1993/94 school fees were not paid by students in the first three standards of primary. In 1992/93 non-repeating girls were also exempted from school fees in Standards 2-8 (Kadzamira and Rose 2001). Primary school fees were completely abolished in the 1994/95 school year and this led to substantial increases in primary school enrolment.⁵ Table 1 illustrates the change in enrolment for different households between 1990/91 and 1997/98.

	Consumption per adult equivalent quintile							
	Poorest 20%	2nd	3rd	4th	Richest 20% Total population			
Primary Gross Enrolment Rates								
1997/98								
Total	117	121	119	125	120	120		
Male	125	132	121	133	129	128		
Female	109	111	118	118	112	113		
1990/91								
Total	58	76	86	97	110	81		
Male	65	83	88	104	113	86		
Female	51	69	83	89	106	75		
Primary Net Enrolment Rates								
1997/98								
Total	76	76	75	79	80	77		
Male	77	76	74	76	80	76		
Female	74	77	77	81	81	78		
1990/91								
Total	33	48	55	62	75	51		
Male	34	50	52	66	76	52		
Female	31	45	57	61	75	50		

Table 1: Primary gross and net enrolment by quintiles and gender over time

Notes: The official starting age for primary school in Malawi is six and the primary level lasts for eight years.

The gross enrolment rate is defined as total enrolment in primary (both public and private) divided by the primary school age population (6-13) The net enrolment rate is defined as the total number of 6-13 year olds enrolled in primary (both public and private) divided by the primary school age population (6-13)

Sources:1990/91 data from Castro-Leal 1996, 1997/98 data authors' calculations from IHS (1997/98)

⁵ Primary school fees in 1993/94 were between 10 and 22 Kwacha in 1995 constant prices (Rose 2002).

In 1990/91 the primary gross enrolment rate for the richest quintile was almost double that of the poorest quintile. By 1997/98 this gap in enrolment had been virtually eliminated.⁶ Therefore, increases in gross enrolment rates over this period have primarily benefited the poorer groups in Malawi. By 1997/98 enrolment rates were well over 100 per cent for all income quintiles although the gender gap in enrolments, across socio-economic quintiles persisted.⁷ Table 1 also shows the average net primary enrolment rate has increased from 51 per cent in 1990/91 to 77 per cent in 1997/98. In 1997/98 the female net enrolment rate was higher than the male rate for the richer quintiles but remained below the male rate in the poorest quintile.

The large difference between net and gross rates is due to the large proportion of primary school students who are not of primary school going age. This, in turn, is primarily due to the prevalence of late starting in the primary school system. A study carried out in 1997 found that, in rural areas, the mean age of Standard 1 pupils was 7.2 for girls and 7.5 for boys (Kadzamira and Chibwana (2000)).⁸ The geographic pattern of primary enrolment in Malawi shows that while enrolment rates tend to be highest in the Northern region, the largest increases in enrolment between 1990/91 and 1997/98 were concentrated in the rural areas of the South and Central regions of Malawi (see Appendix 1 Table 1).

	Co	Consumption per adult equivalent quintile						
	Poorest 20%	2nd	3rd	4th	Richest 20%	Total population		
Std I-IV								
1997/98	166	161	158	151	151	158		
1990/91	82	104	116	123	142	108		
Std V-VIII								
1997/98	67	77	78	95	84	79		
1990/91	32	45	48	68	77	50		

Table 2: Gross Enrolment Rates in Std I-IV and Std V-VIII for 1990/91 and 1997/98

Notes : The official starting age for primary school in Malawi is six and the primary level lasts for eight years.

The gross enrolment rate for Std I-IV is total enrolment in these grades divided by the Std I-IV school age population (6-9)

The gross enrolment rate is Std V-VIII is total enrolment in these grades divided by Std V-VIII school age population (10-13)

Sources: 1990/91 data from Castro Leal (1996), 1997/98 data authors' calculations from IHS (1997/98)

⁶ The IHS survey reports whether each member of the household aged five or above has been in school in the last 12 months. This information is combined with information on which class the child was in to produce the enrolment rates reported in this paper. Only respondents who answered both questions are included and therefore children below the age of five who are in school have not been included in the enrolment rates (approximately 0.4% of those who answered question on which class they were in).

⁷ A gross enrolment ratio of over one hundred per cent implies that there are children outside of the official primary school age range enrolled in primary school.

⁸ It should also be noted that a small proportion of children also begin primary school at earlier ages. For example, in 1997/98 2 per cent of those enrolled in the IHS survey were aged five.

Table 2 shows the gross enrolment rates for the first four years and last four years of primary. Our initial hypothesis was that the largest enrolment changes between 1990/91 and 1997/98 would have occurred in the first four standards since by 1997/98 only the first four years of primary include children who began primary school in response to the abolition of fees. However, Table 2 shows that increases in the gross enrolment rate between the two periods is similar for both Standards 1-4 and Standards 5-8. This may be explained by two factors. Firstly, partial abolition of school fees began in 1991 and therefore the effects of this will be reflected in the enrolment rates for the later standards of primary. Furthermore when fees were completely abolished in 1994/95 there was substantial re-entry into higher standards of primary school as well as Standard I.

Table 2 also shows a striking drop in enrolment between Standards 1-4 and Standards 5-8. In both years the average enrolment rate in the second half of primary school is approximately 50 per cent of the enrolment rate in the first half. In 1990/91, a period of relatively stable enrolment, this reflects substantial drop-out in the first four years of primary. The difference in 1997/98 may partly be caused by increased levels of enrolment in the first four standards due to the abolition of fees, but is also likely to be due to high drop-out rates. This is supported by the fact that Ministry of Education statistics suggest that primary school drop-out was still extremely high in 1997 (MOE 1997).⁹

The main reasons for drop-out can be grouped into demand and supply side factors. On the demand side a recent study showed that the costs of schooling (both the direct and indirect costs of schooling), illness of family members, and lack of interest in school were commonly cited reasons for primary school drop-out (Kadzamira and Chibwana 2000). On the supply side, a survey of over eight hundred households suggests that the main constraints to quality education are insufficient teachers and teaching materials, poor sanitation, poor teaching and inadequate classrooms (Tsoka 2000). In order to cope with the large increases in enrolment during 1994/95 the government recruited approximately 18,000 untrained primary school teachers. Due to the high number of unqualified teachers, the student: qualified teacher ratio in 1997 was approximately 120:1 in primary schools (MOE 1997), with obvious adverse implications for the quality of education.

Secondary Enrolment

Secondary gross and net enrolment rates by income quintile and over time are shown in Table 3. The difference in enrolment rates at the secondary level between quintiles is much more marked than the differences at primary. Secondary enrolment has also seen remarkable increases over this period and again poorer groups within Malawi have increased their enrolment rates more than the richer groups. In 1990/91 the gross enrolment ratio for the richest 20 per cent of the population was over seven times the gross enrolment ratio of the poorest 20 per cent of the population. By 1997/98 this was reduced to a factor of 2.5.

⁹ For example, in the first standard of primary the drop-out rate was 28 per cent in 1997 (MOE 1997).

	Co					
	Poorest 20%	2nd	3rd	4th	Richest 20%	Total population
Secondary Gross Enrolment Rates						
1997/98						
Total	19	24	31	31	50	30
Male	22	27	41	32	55	34
Female	15	21	20	30	45	25
1990/91						
Total	4	4	8	16	29	10
Male	6	6	12	20	41	14
Female	1	3	3	13	20	7
Secondary Net Enrolment Rates						
1997/98						
Total	4.6	5.7	6.5	8.6	13.9	7.4
Male	5.4	5.9	8.6	8.0	13.5	7.9
Female	3.6	5.5	4.3	9.2	14.4	6.9
1990/91						
Total	0.3	1.0	1.7	2.7	8.3	2.2
Male	0.2	0.4	3.0	2.4	10.4	2.5
Female	0.4	1.5	1.4	3.0	6.5	2.0

Table 3: Secondary gross and net enrolment ratios by quintiles and gender over time

Notes: Secondary enrolment rates reported here included MCDE enrolment.

The official starting age for secondary school in Malawi is 14 and the secondary level lasts for four years.

The secondary gross enrolment rate is total enrolment in secondary (both public and private) divided by the secondary school age population 14-17) The secondary net enrolment rate is the total number of 14-17 year olds enrolled (both public and private) divided by the secondary school age population 14-17)

Sources: 1990/91 data from Castro Leal (1996), 1997/98 data authors' calculations from IHS (1997/98)

Increases in access to secondary schooling over this period came about largely through a rapid expansion in the Malawi College of Distance Education (MCDE) and their Distance Education Centres (DECs). Government funding of DECs is limited to paying teachers salaries which results in fees being substantially higher in DECs compared to Conventional Secondary Schools (CSS). While CSS places doubled over this period (from 31,495 in 1990/91 to 70,858 in 1997), places at DECs quadrupled (from 28,220 to 108,846) making DECs the largest provider of secondary schooling opportunities by this time (MOE 1997). However, the quality of DEC schools was inferior to their CSS counterparts as reflected in the Form IV examinations. In 1997, 36 per cent of CSS students that sat the Malawi School Certificate passed compared to only 8 per cent of Unfortunately, neither household survey contained DEC students (MOE 1997). information that would allow secondary enrolment in each quintile to be broken down by type of school (i.e. DECs and CSSs). However, selection procedures for CSS are based on performance on the primary school leaving exam. It is likely that performance on this examination is correlated with socio-economic status which suggests that secondary school students in the richer quintiles are more likely to be attending CSS than secondary students in the poorer quintiles.

Net enrolment rates in secondary, also shown in Table 3, are substantially lower than gross enrolment rates because of over-age enrolment in primary carrying over to higher levels of the education system. Table 3 also shows that girls from poorer households are very unlikely to be in secondary school and the difference between girls' enrolment rates between richer and poorer households is very large. Appendix 1 Table 2 shows the gross and net enrolment rates by region and area of residence for 1997/98. Similar to primary, secondary enrolment rates are highest in the North. A striking result shown in this table is that there are very large differences in terms of enrolment in urban and rural areas; the average gross enrolment ratio for urban areas is 91 per cent compared to only 21 per cent for rural areas.¹⁰

3. Has public education expenditure become more equitable during the 1990's?

As discussed earlier incidence analysis can be used to assess the extent that education expenditures are distributed equitably. A key building block for this analysis is to calculate the per student subsidies (unit costs) by geographical region and level of education.

As a share of the total government budget, education spending rose from 13 percent in 1994/95 (3.5 percent of GDP) to 20 percent in 1997/98 (4.7 percent of GDP). The share of recurrent resources going to primary has risen from approximately 50 percent in 1993/94 to around 60 percent in 1999/00 (World Bank 2001). Unit costs for public education expenditure in 1997/98 have been calculated from Ministry of Education expenditure data which can be compared with unit cost data for 1990/91 from Castro-Leal (1996). ¹¹ Figure 1 shows the unit cost of primary education in each region over time in constant 1997/98 prices.¹² It is striking to note that even though gross enrolments doubled during this period (see previous section) the per pupil spending on primary education in real terms has also increased over the decade as a whole.¹³ Primary unit costs in the North during the nineties have been persistently higher than other regions and this gap appears to have widened during the nineties. Combining this unit cost

¹⁰ It should be remembered that urban is defined in the survey as the four main cities in Malawi (Lilongwe, Blantyre, Mzuzu and Zomba).

¹¹ Castro-Leal provides unit costs of primary education for 1990/91 in constant 1994/95 prices. These unit costs are inflated to 1997/98 prices using the GDP deflator between these years of 2.8. This general deflator may not be appropriate if it differs widely from trends in the real wages of teachers (the main component of the unit cost of primary education). However, deflators are not necessary for the incidence analysis outlined in the next section.

¹² Higher pupil teacher ratios in the lower standards suggest that unit costs of primary education may increase by Standard (see MOE 1997). However, it was not possible to break down primary unit costs by Standard.

 ¹³ Primary unit costs fluctuated during the nineties and experienced a sharp decline in 1994/95 when fees were abolished. However, unit costs began to recover after this time (see Kadzamira and Chibwana 2000).

information with the data presented on enrolment in the previous section it is clear that the Northern region has, over the nineties, had the highest level of per pupil spending and enrolment (see Appendix Table 1) at the primary level. By contrast the Southern region has had the lowest levels of primary per pupil spending and also the lowest enrolment rates of the three regions.



Figure 1: Primary Recurrent Education Spending per Student in constant 1997/98 Kwacha

The same patterns and trends to those observed at the primary level are also seen at secondary (See Appendix 1 Figure 1). Again in the context of rising enrolments the unit cost appears to have increased suggesting that real expenditure on conventional secondary education has been rising over the nineties. However, there are two caveats to this. First there are sharp regional variations; unit costs in the North are significantly higher than the other two regions. Second, the unit cost data for secondary education in 1997/98 do not include DECs although the unit costs for 1990/91 do. Since unit costs for DECs are much lower than for conventional secondary enrolment, the unit costs for 1997/98 are likely to overestimate the overall unit cost of secondary education (i.e. the unit cost including DECs). In 1999 DECs were to be converted into community day secondary schools (CDSS) and government per pupil expenditures in DECs were planned to rise to similar levels as conventional secondary schools. However, a set of minimum requirements for the conversion of DECs into community day secondary schools has led to some delay.

This section has shown that there are large differences in per pupil expenditures across the three regions in Malawi. Furthermore a poverty profile using the Malawi IHS suggests that the incidence of poverty is highest in the Southern region and lowest in the Northern region (NEC 2000).¹⁴ Therefore, this simple analysis suggests that public per pupil expenditure is skewed in favour of the richer groups in Malawi. However, the regional averages presented in this section mask wide disparities within regions of the incidence of poverty as well as per pupil expenditures.¹⁵ The next section attempts to explore the distribution of public education expenditure across different income groups in a more systematic way.

4. Incidence Analysis

Previous sections have outlined the trends in enrolment and unit costs for the education system in Malawi. In this section these data are combined to assess the incidence of public education expenditure by socio-economic group.¹⁶ The results reported in this section are limited to primary and secondary education as the IHS sample used for 1997/98 only included 15 individuals currently attending university.¹⁷ However, the complete results, including university education, as well as the gender disaggregated incidence analysis are reported in Appendix three.

¹⁴ However, differences in the incidence of poverty across regions was not statistically significant in this report (NEC 2000).

¹⁵ Within regions the largest per pupil expenditures are generally recorded in urban areas. For example, the primary per pupil expenditure in Lilongwe urban (Central region) is MK 677 compared to MK 285 in Lilongwe rural.

¹⁶ The methodology for carrying out the incidence analysis is outlined in Appendix 2. Our welfare measure is household expenditure per adult equivalent. We use this measure to construct the quintiles reported throughout this paper. Castro-Leal *et al* (1999) point out that incidence analysis is sensitive to the measure of welfare used. Table 3 of Appendix 3 reports the incidence analysis for another common measure of welfare, household expenditure per capita.

¹⁷ Due to the small sample of university students as well as the fact that there was no information on other parts of the education system (e.g. teacher training) the incidence analysis of total education expenditure is also only reported in Appendix 3.

Education spending benefiting:							
	Poorest 20%				Richest		
	of				20% of		
	population	2nd quintile	3rd quintile	4th quintile	population		
Incidence analysis							
Primary	25	23	19	18	14		
Secondary	18	19	22	20	21		
School-age population shares							
Primary	24	22	20	18	16		
Secondary	24	21	20	19	16		

 Table 4: Incidence of Public Education Expenditure in Malawi (using district unit costs) and School-Age Population Shares, 1997/98

Notes: All education data for 1997/98 refers to primary, secondary and university public education spending only.

The population share for primary (secondary) shows the proportion of the primary (secondary) school age population in each quintile.

Source: Author's calculations from IHS (1997/98)

Table 4 shows the incidence of primary and secondary public education expenditure in Malawi for 1997/98.¹⁸ District and divisional unit cost data are used in the incidence analysis to allow for the geographic distribution of public education expenditure. As Table 4 shows the poorest 20 per cent of the population contains a greater proportion of the primary school age population than the richest income quintile. Even after taking this into account, primary education expenditures are found to be pro-poor as the proportion of education subsidy going to the poorest quintile is greater than the share of the primary school age population in that quintile.

On the other hand, the incidence of public secondary education expenditure is skewed in favour of the richer quintiles especially when the share of secondary school age population is taken into account. For instance, the poorest quintile contains 24 per cent of the secondary school population but only receives 18 percent of the secondary school subsidy, while the richest quintile receives 21 percent of the subsidy even though it only has 16 percent of the school age population. This is primarily due to the large differences in secondary enrolment rates across quintiles (see Table 3). However, it is interesting to note that the overall distribution of public secondary education expenditure is far more equitable than the secondary enrolment rates shown in Table 3. This is partly due to higher levels of enrolment in private secondary schools for richer groups. Approximately 8 per cent of secondary school enrolment is much higher for richer income groups. For example, approximately 36 per cent of secondary school students in the richest quintile attended private secondary school in 1997/98. Private secondary schooling does not receive a public school subsidy and therefore the total public subsidy going to richer

¹⁸ Throughout this section only enrolment in government schools is used to calculate the incidence of public education expenditure.

groups is smaller than if these groups had sent their children to government secondary school.

As discussed earlier it was not possible to discern from the IHS whether secondary school students were attending DECs or conventional secondary schools. Therefore unit costs for conventional secondary schools are used for all students in the incidence analysis shown in this section. If poorer income groups are over-represented at DECs this will imply that the distribution of public secondary education, shown in Table 4, is likely to be more equitable than is actually the case. Combining this with information on the different school age populations in each quintile strongly suggests that secondary education spending is not pro-poor. Furthermore, there are important gender differences in the incidence of secondary education expenditure: the proportion of the overall subsidy going to the poorest 20 per cent of the female population is lower than the share of the male subsidy going to the same quintile (see Appendix 3 Table 1). This reflects the fact that there are large gender gaps in the gross enrolment ratio at the secondary level (see Table 3).

How has the incidence of public education expenditure changed over the nineties? Section 4 of this paper has shown that government per pupil expenditure varies considerably across the different regions of Malawi and similar findings were also reported for 1990/91 (Castro-Leal 1996).¹⁹ However, the incidence analysis presented for 1990/91 does not take account of geographical differences in the unit cost of education and instead a national average unit cost at each level of education is used. (Castro-Leal 1996).²⁰ The interpretation of the incidence analysis is very different when a national average unit cost is used instead of district or divisional cost data. With a national unit cost the incidence analysis only shows each quintiles share of total enrolment in the population since the unit cost cancels out in the calculation of the share of the total education subsidy going to each quintile.²¹

¹⁹ Wide variations are also evident across districts for unit costs at primary and across divisions for unit costs at secondary.

²⁰ See Appendix B, Castro-Leal 1996.

For example, if the subsidy going to each primary student is the same (i.e. a national unit cost is used) the share of public primary education going to the first quintile is defined as: total primary enrolment in first quintile*unit cost/ total primary enrolment in population*unit cost This simplifies to: total primary enrolment in first quintile/total primary enrolment in population.

Education spending benefiting:						
Poorest 20%				Richest		
of				20% of		
population	2nd quintile	3rd quintile	4th quintile	population		
24	22	20	19	16		
17	18	21	20	23		
15	18	20	23	24		
7	11	14	28	41		
	Education sp Poorest 20% of population 24 17 15 7	Education spending benefitinPoorest 20% of population2nd quintile2422 1718151518 11	Education spending benefiting:Poorest 20% ofpopulation2nd quintile3rd quintile24222017182115182071114	Education spending benefiting:Poorest 20% ofpopulation2nd quintile3rd quintile4th quintile2422201917182120151820237111428		

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Notes: All education data for 1997/98 refers to primary, secondary and university public education spending only. All education data for 1990/91 also includes other tertiary education (primary teacher education, technical training)

Source: 1997/98 Malawi data - Authors' calculations from IHS 1997/98 and MOE (1998), All other data taken from Castro-Leal 1996, Table 14 pp. 24 and Table A.8 pp. 42

In order to compare with the 1990/91 results, Table 5 reports estimates for 1997/98 that use a national average unit cost at each level. ²² Figure 2 presents the results reported in Table 5 graphically showing concentration curves for the distribution of public primary and secondary education expenditure for both years. Despite the above-mentioned regional disparities, the 1997/98 incidence analysis in Table 4 (using district unit costs for primary and division unit costs for secondary) does not differ much from that in Table 5 using national unit costs. ²³

²² National average unit costs in 1997/98 are MK 335.66 for primary and MK 3,189.10 for secondary. Appendix 3 Table 2 provides the full incidence analysis for 1997/98.

²³ This is partly due to the distribution of poverty discussed in Section 4. For a fuller discussion of the geographical incidence of poverty in Malawi (see NEC 2000).



Figure 2: Concentration Curves for Public Education Spending 1990/91 and 1997/98

In 1997/98 the poorest 20 per cent of the population received 24 per cent of primary education expenditure compared to 15 per cent in 1990/91.²⁴ In contrast the richest 20 per cent of the population received 16 per cent in 1997/98 compared to 24 per cent in 1990/91. This represents a very large redistribution of public primary education expenditure towards the poor during the nineties.

Turning to secondary education, Table 5 also shows that during the nineties even secondary education expenditure has shifted towards the poor.²⁵ In 1997/98 the poorest 20 per cent of the population received 17 per cent of the secondary education subsidy compared to seven per cent in 1990/91.²⁶ However, despite these gains, secondary spending remains skewed towards the rich.

²⁴ The figures reported for 1997/98 in Table 6 show a much more marked shift in public expenditure to the lower quintiles than the estimates reported in Castro-Leal (1996) for 1994/95.

²⁵ Since national unit costs are used in Table 6, and these cancel out in the computation of the incidence analysis, the differing unit costs between DECs and conventional secondary schools does not pose a problem.

 ²⁶ This shift in the distribution from richer to poorer groups in Malawi may partly reflect a movement out of the government school system for richer groups. Unfortunately, no data is available on private secondary school enrolment by quintile for 1990/91.

5. Conclusions

This paper has shown that the education reforms undertaken in 1994 have clearly been pro-poor. Enrolment rates have dramatically increased during the 1990s at both the primary and secondary levels and these gains have been greatest for the poorer socio-economic groups. Comparing the 1997/98 incidence analysis with findings from 1990/91 shows that the distribution of public education expenditure has shifted towards the poor during the nineties. During the expansion in the education system real unit costs at the primary and secondary levels increased, implying large increases in real public education expenditure. These increases appear to have been captured disproportionately by the poorer income groups in Malawi.

On the other hand, this paper shows that a smaller proportion of poor pupils reach the last four standards of primary. Therefore, although great gains have been made in access to primary school for poorer socio-economic groups it is unlikely that the gains to these groups in terms of primary school *completion* will be as great. Similarly, great gains in secondary school access have come about through the expansion of DECs which have been shown to be of poorer quality compared to conventional secondary schools.

The policy options that emerge from this paper are essentially two-fold. First, this paper shows that the 'first-generation' reforms of abolishing fees at primary and expanding the provision of secondary education have clearly been pro-poor reforms. However, these measures can be strengthened by cutting back on informal fees and contributions that are widely prevalent in primary schools (Rose 2002) and by improving secondary school funding, particularly for DEC's. The second policy message that emerges from this paper is that the focus ought to now shift towards improving the quality of primary and secondary education. Key measures would be greater financing of teaching and learning materials, greater community involvement in school management, strengthening the curriculum, restructuring the examination system and improving teacher training (World Bank 2001). These 'second generation' reforms are also arguably more complex than those that fuelled the expansion in enrolments, but are clearly essential if the early gains in pro-poor access are to be sustained in Malawi.

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Appendix 1

	Rural	Urban	Total
1997/98			
South	118	117	118
Centre	119	121	120
North	132	130	132
Total	120	119	120
1990/91			
South	70	114	75
Centre	74	112	78
North	117	129	118
Total	77	115	81

Table 1: Primary gross enrolment ratios over time and location

Notes and Sources: Urban areas are defined as the four main urban districts in Malawi (Blantyre, Zomba, Lilongwe and Mzuzu)

Source:1990/91 data from Castro-Leal 1996, 1997/98 data from IHS (1997/98)

	Rural	Urban	Total
1997/98			
South	21	80	29
Centre	19	112	28
North	36	94	40
Total	21	91	30
1990/91			
South	5	43	10
Centre	5	37	9
North	13	32	15
Total	6	39	10

Table 2: Secondary gross enrolment ratios over time and location

Notes and Sources: Urban areas are defined as the four main urban districts in Malawi (Blantyre, Zomba, Lilongwe and Mzuzu)

Source:1990/91 data from Castro-Leal 1996, 1997/98 data from IHS (1997/98)



Figure 1: Secondary Education Spending per Student in constant 1997/98 Kwacha

Appendix 2: Incidence Analysis Methodology

The incidence analysis requires information on enrolment by consumption quintile and information on unit costs of education at each level. A unit cost of schooling (depending on location and level of schooling) is assigned to each individual currently in school. These are then summed over the whole population for each level of education to obtain the total education subsidy at each level. The share of this subsidy going to each consumption quintile is then calculated by summing up over each quintile the education subsidy for each level.

Enrolment rates

The enrolment rates are calculated from the IHS 1997/98 and the results have been reported in Section three of the main text. Unfortunately the survey did not provide information on whether a government secondary school student was attending DEC or conventional secondary school.

Unit costs

The school year in Malawi runs from January to December. We used 1997 enrolment information (latest year available) published by the Ministry of Education to calculate unit costs. The unit costs were calculated by dividing total government education expenditure by total enrolments at each level an at each location. At the primary level it was possible to calculate unit costs by district and for secondary by division. Each individual was assigned the unit cost according to the level of education they were attending as well as the district of residence.

Data on the government education expenditure has been obtained from the Ministry of Education's actual expenditures for 1996/97 and 1997/98. Data for education expenditure in 1997 was calculated by using a weighted average of expenditure on these two years so that the expenditure information would be consistent with the enrolment data.²⁷ Due to the lack of information in the survey on the type of government secondary school attended, conventional secondary unit costs were used throughout the analysis. This is likely to overestimate the subsidy to secondary school.

²⁷ The 1997/98 budget year in Malawi ran for 15 months. A monthly figure for expenditure was calculated for this budget year and then multiplied by 12 to obtain a yearly expenditure estimate. Two thirds of 1997/98 education expenditure was added to one third of 1996/97 (inflated by 16% to adjust for inflation) expenditure to obtain an estimate for 1997 expenditures.

Appendix 3: Supplementary Tables on Incidence Analysis

		Fem	ale			Ma	le			Total	
	Subsidy				Subsidy				Subsidy		
	(Mkwach	Per			(Mkwach	Per			(Mkwach	Per	
Quintile	a 000)	capita	Row %	Col %	a 000)	capita	Row %	Col %	a 000)	capita	Col %
Std I IV											
1	76 454	18.6	17%	25%	86 000	53.6	53%	27%	163 363	83.6	26%
1	70,434	40.0	4770	23%	73 683	45 0	51%	27%	145 327	74 A	20%
2	58 477	35.9	49%	19%	60.815	36.4	51%	19%	119,327	61.0	19%
3 4	56 350	34.2		19%	52 157	31.3	48%	15%	108 508	55.5	17%
5	43 929	26.2	49%	14%	45 635	26.8	51%	14%	89 563	45.9	14%
Std V-VII		20.2	4770	1470		20.0	5170	1470	-	73.7	1470
1	31,863	20.3	43%	23%	42,107	26.0	57%	25%	73,970	37.9	24%
2	31,430	19.6	45%	23%	37,701	23.0	55%	22%	69,131	35.4	23%
3	27 284	16.7	48%	20%	29 535	17.7	52%	17%	56 820	29.1	19%
4	26,146	15.9	42%	19%	36 303	21.8	58%	21%	62 449	32.0	20%
5	19,738	11.8	45%	14%	23,893	14.0	55%	14%	43.631	22.3	14%
Primary	-	11.0	10 / 0	11/0	-	1.110	0070	11/0	-	22.0	11/0
1	108.317	68.9	46%	24%	129.016	79.6	54%	26%	237.333	121	25%
2	103.074	64.1	48%	23%	111.384	68.0	52%	23%	214,458	110	23%
3	85.761	52.6	49%	19%	90.350	54.0	51%	18%	176.111	90	19%
4	82,496	50.1	48%	19%	88,460	53.1	52%	18%	170.956	87	18%
5	63,666	37.9	48%	14%	69,528	40.9	52%	14%	133,194	68	14%
Secondary	-				-				-		
1	50.972	32.4	37%	17%	86.288	53.2	63%	19%	137.260	70.24	18%
2	55,968	34.8	39%	19%	87,601	53.5	61%	19%	143,569	73.498	19%
3	52,870	32.4	33%	18%	109,366	65.4	67%	24%	162,235	83.026	22%
4	70,982	43.1	48%	24%	77,712	46.6	52%	17%	148,694	76.083	20%
5	69,977	41.7	44%	23%	90,423	53.2	56%	20%	160,400	82.161	21%
University	-				-				-		
1	12,931	8.2	-	20%	25,862	16.0	-	21%	38,793	19.851	20%
2	-	0.0	-	0%	-	0.0	-	0%	-	0	0%
3	7,851	4.8	19%	12%	33,112	19.8	81%	26%	40,963	20.963	22%
4	26,647	16.2	40%	42%	40,455	24.3	60%	32%	67,102	34.335	35%
5	16,626	9.9	38%	26%	26,647	15.7	62%	21%	43,273	22.165	23%
All education	-				-				-		
1	172,220	109.5	42%	21%	241,166	148.8	58%	23%	413,386	211.54	22%
2	159,042	98.9	44%	20%	198,984	121.5	56%	19%	358,027	183.29	19%
3	146,481	89.8	39%	18%	232,828	139.2	61%	22%	379,310	194.12	20%
4	180,125	109.4	47%	22%	206,627	123.9	53%	19%	386,753	197.89	21%
5	150,269	89.6	45%	19%	186,597	109.7	55%	18%	336,867	172.55	18%

Table 1: Incidence of Public Education Expenditure using Household Expenditure per adult equivalent to calculate quintiles and district/division unit cost data

				Ma	le	Total					
	Subsidy				Subsidy				Subsidy		
	(Mkwach	Per			(Mkwach	Per			(Mkwach	Per	
Quintile	a 000)	capita	Row %	Col %	a 000)	capita	Row %	Col %	a 000)	capita	Col %
Std I-IV											
1	74 234	47.2	48%	24%	79.069	48.8	52%	25%	153 303	78.4	25%
2	67,269	41.8	49%	22%	70,110	42.8	51%	22%	137,380	70.3	22%
3	57.894	35.5	48%	19%	61.965	37.1	52%	20%	119.858	61.3	19%
4	57.883	35.1	52%	19%	53,385	32.0	48%	17%	111.268	56.9	18%
5	47,457	28.3	50%	16%	47,880	28.2	50%	15%	95,336	48.8	15%
Std V-VII	-				-				-		
1	26,678	17.0	44%	21%	34,279	21.1	56%	22%	60,957	31.2	22%
2	28,279	17.6	46%	22%	32,596	19.9	54%	21%	60,875	31.2	21%
3	26,997	16.6	48%	21%	29,634	17.7	52%	19%	56,632	29.0	20%
4	26,258	15.9	43%	21%	34,131	20.5	57%	22%	60,389	30.9	21%
5	19,722	11.8	45%	15%	24,593	14.5	55%	16%	44,315	22.7	16%
Primary	-				-				-		
1	100,912	64.2	47%	23%	113,347	69.9	53%	24%	214,260	110	24%
2	95,548	59.4	48%	22%	102,706	62.7	52%	22%	198,254	101	22%
3	84,891	52.1	48%	20%	91,599	54.8	52%	20%	176,490	90	20%
4	84,140	51.1	49%	19%	87,516	52.5	51%	19%	171,657	88	19%
5	67,178	40.0	48%	16%	72,473	42.6	52%	15%	139,651	72	16%
Secondary	-				-				-		
1	49,026	31.2	37%	16%	83,790	51.7	63%	18%	132,816	67.966	17%
2	55,261	34.4	39%	18%	86,016	52.5	61%	19%	141,277	72.325	18%
3	54,240	33.3	33%	17%	111,217	66.5	67%	24%	165,457	84.674	21%
4	76,449	46.4	49%	25%	79,817	47.9	51%	17%	156,266	79.957	20%
5	76,637	45.7	43%	25%	100,524	59.1	57%	22%	177,161	90.746	23%
University	-				-				-		
1	12,931	8.2	-	20%	25,862	16.0	-	21%	38,793	19.851	20%
2	-	0.0	-	0%	-	0.0	-	0%	-	0	0%
3	7,851	4.8	19%	12%	33,112	19.8	81%	26%	40,963	20.963	22%
4	26,647	16.2	40%	42%	40,455	24.3	60%	32%	67,102	34.335	35%
5	16,626	9.9	38%	26%	26,647	15.7	62%	21%	43,273	22.165	23%
All education	-				-				-		
1	162,869	103.6	42%	20%	223,000	137.6	58%	21%	385,869	197.46	21%
2	150,809	93.8	44%	19%	188,722	115.2	56%	18%	339,531	173.82	18%
3	146,982	90.1	38%	18%	235,928	141.1	62%	22%	382,910	195.96	21%
4	187,236	113.7	47%	23%	207,788	124.6	53%	20%	395,025	202.12	21%
5	160,441	95.6	45%	20%	199,644	117.4	55%	19%	360,085	184.44	19%

Table 2: Incider	nce of Public	Education	Expenditure	using	Household	Expenditure	per
adult equivalent	to calculate c	uintiles and	l national ave	rage ui	nit cost data		

				Ma	le	Total					
	Subsidy				Subsidy				Subsidy		
	(Mkwach	Per			(Mkwach	Per			(Mkwach	Per	
Quintile	a 000)	capita	Row %	Col %	a 000)	capita	Row %	Col %	a 000)	capita	Col %
3tu 1-1 v	76 541	177	480/	2504	82 501	50.2	5204	2604	150.042	Q1 /	2504
1	66 284	47.7	4070	2370	72 045	12.4	52%	20%	139,042	70.0	2370
2	62 705	20.2	4070	2270	72,043 65 457	43.4 20.6	5104	2370	136,429	70.9 66 1	2270
1	53 725	39.2	4970 50%	18%	54 048	32.5	50%	17%	107 772	55.2	17%
4	<i>16 1</i> 00	32.8 28.2	51%	15%	15 148	26.0	10%	1//0	01 647	16 Q	17/0
Std V_VII	-0,,-,-,-,-,-,-,-,-,-,-,-,-,-,-,-,-,-	20.2	5170	1570		20.7	4 970	1470	51,047	40.7	1570
1	25 162	157	42%	18%	35 468	21.6	58%	21%	60 631	31.0	20%
2	30 077	18.6	45%	22%	36 034	21.0	55%	21%	66 111	33.8	20%
3	29 121	17.9	48%	21%	31 997	19.4	52%	19%	61 117	31.3	20%
4	26,803	16.4	43%	21%	35 982	21.6	57%	21%	62 784	32.2	20%
5	25,005	15.3	45%	19%	30,058	17.9	54%	18%	55 356	28.3	18%
Primary	-	15.5	4070	1 7 /0	-	17.9	5470	10/0	-	20.5	1070
1	101.703	63.3	46%	23%	117,969	71.8	54%	24%	219.672	112	24%
2	96.461	59.7	47%	22%	108,080	65.1	53%	22%	204,541	105	22%
3	92.826	57.1	49%	21%	97.454	59.0	51%	20%	190.279	97	20%
4	80.527	49.2	47%	18%	90.029	54.1	53%	18%	170.557	87	18%
5	71,797	43.5	49%	16%	75.206	44.8	51%	15%	147.003	75	16%
Secondary	-				-				-		
1	42.671	26.6	39%	14%	66.736	40.6	61%	15%	109.407	55.993	15%
2	42.315	26.2	33%	14%	86.837	52.3	67%	19%	129,152	66.113	17%
3	60.860	37.4	38%	20%	98,726	59.8	62%	22%	159,586	81.645	21%
4	76,990	47.0	48%	26%	83,676	50.3	52%	19%	160,666	82.286	21%
5	77,933	47.2	40%	26%	115,415	68.8	60%	26%	193,347	98.969	26%
University	-				-				-		
1	-	0.0	0%	0%	12,931	7.9	100%	10%	12,931	6.6179	7%
2	12,931	8.0	50%	20%	12,931	7.8	50%	10%	25,862	13.239	14%
3	7,851	4.8	38%	12%	12,931	7.8	62%	10%	20,782	10.632	11%
4	26,647	16.3	31%	42%	60,637	36.4	69%	48%	87,284	44.703	46%
5	16,626	10.1	38%	26%	26,647	15.9	62%	21%	43,273	22.15	23%
All education	-				-				-		
1	144,374	89.9	42%	18%	197,637	120.2	58%	19%	342,011	175.04	18%
2	151,707	93.9	42%	19%	207,847	125.2	58%	19%	359,555	184.06	19%
3	161,537	99.4	44%	20%	209,110	126.6	56%	20%	370,647	189.63	20%
4	184,165	112.4	44%	23%	234,342	140.7	56%	22%	418,507	214.34	22%
5	166,355	100.8	43%	21%	217,267	129.4	57%	20%	383,623	196.37	20%

Table	3:	Incidence	of Public	Education	Expenditure	using	Household	Expenditure	per
capita	to to	calculate q	uintiles an	d district/di	ivision unit co	ost data	ı		

				Ma	le	Total					
	Subsidy				Subsidy				Subsidy		
	(Mkwach	Per			(Mkwach	Per			(Mkwach	Per	
Quintile	a 000)	capita	Row %	Col %	a 000)	capita	Row %	Col %	a 000)	capita	Col %
Std I-IV											
1	76.332	48.4	47%	25%	84.484	52.0	53%	26%	160.816	82.3	26%
2	68,523	42.4	49%	22%	71,954	43.6	51%	23%	140,477	71.9	22%
3	61,923	38.1	49%	20%	64,325	38.8	51%	20%	126,248	64.6	20%
4	55,570	33.6	51%	18%	53,655	32.0	49%	17%	109,225	55.9	17%
5	44,506	26.7	50%	15%	44,781	26.5	50%	14%	89,288	45.7	14%
Std V-VII	-				-				-		
1	29,230	18.5	43%	21%	38,135	23.5	57%	22%	67,365	34.5	22%
2	30,513	18.9	45%	22%	37,178	22.5	55%	22%	67,691	34.7	22%
3	29,084	17.9	47%	21%	32,551	19.6	53%	19%	61,635	31.5	20%
4	25,317	15.3	43%	19%	34,109	20.4	57%	20%	59,426	30.4	19%
5	22,316	13.4	45%	16%	27,565	16.3	55%	16%	49,881	25.5	16%
Primary	-				-				-		
1	105,562	66.9	46%	24%	122,619	75.5	54%	25%	228,181	117	24%
2	99,036	61.3	48%	22%	109,132	66.1	52%	22%	208,168	107	22%
3	91,007	56.0	48%	21%	96,876	58.4	52%	20%	187,883	96	20%
4	80,887	49.0	48%	18%	87,764	52.4	52%	18%	168,651	86	18%
5	66,823	40.1	48%	15%	72,346	42.8	52%	15%	139,169	71	15%
Secondary	-				-				-		
1	37,209	23.6	33%	12%	76,431	47.1	67%	17%	113,640	58.132	15%
2	54,410	33.7	38%	18%	88,728	53.7	62%	20%	143,138	73.287	19%
3	60,728	37.3	43%	20%	81,803	49.3	57%	18%	142,531	72.936	19%
4	55,235	33.4	38%	18%	89,158	53.2	62%	20%	144,393	73.956	19%
5	93,187	56.0	45%	31%	115,269	68.2	55%	26%	208,456	106.7	28%
University	-				-				-		
1	12,931	8.2	-	20%	12,931	8.0	-	10%	25,862	13.23	14%
2	-	0.0	0%	0%	12,931	7.8	100%	10%	12,931	6.6207	7%
3	7,851	4.8	28%	12%	20,182	12.2	72%	16%	28,032	14.345	15%
4	7,851	4.8	16%	12%	40,455	24.1	84%	32%	48,306	24.742	25%
5	35,422	21.3	47%	55%	39,578	23.4	53%	31%	75,000	38.39	39%
All education	-				-				-		
1	155,702	98.7	42%	19%	211,981	130.6	58%	20%	367,683	188.09	20%
2	153,446	94.9	42%	19%	210,791	127.6	58%	20%	364,237	186.49	19%
3	159,586	98.1	45%	20%	198,861	119.9	55%	19%	358,447	183.42	19%
4	143,973	87.2	40%	18%	217,377	129.7	60%	20%	361,350	185.08	19%
5	195,432	117.4	46%	24%	227,193	134.5	54%	21%	422,625	216.33	23%

Table 4: Incidence of Public Education Expenditure using NEC consumption per adult equivalent to calculate quintiles and district/division unit cost data