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SUMMARY

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. In order to sustain and build-on these gains the paper suggests cutting back on the informal 'contributions' that are widely prevalent in primary school and improving the allocation of secondary school funding. Furthermore, the focus of policy reform, particularly at primary, should shift towards raising the quality of education. Finally the paper argues that careful advance planning and piloting of the reform in selected areas are useful strategies that other countries considering abolishing primary school fees could take to cope with the associated surge in enrolments.

Key words – Sub-Saharan Africa, Malawi, education, public expenditure, inequality

1.   *Introduction*

Countries in Sub-Saharan Africa have been exploring ways of improving their education systems in order to achieve their commitment to achieve the Education For All (EFA) goals. Ensuring children have access to and complete free, compulsory and good quality primary education is a target receiving considerable attention from governments and the international aid community alike (World Education Forum 2000). Increasing primary school access is also seen as an important poverty reduction strategy and is often a cornerstone of poverty alleviation plans. Increasingly, countries in the region (e.g. Lesotho, Kenya, Tanzania and Zambia in the 2000s) are abolishing primary school fees as a key strategy to achieve the goal, though the majority of African countries continue to have fees in primary.

The School Fee Abolition Initiative, launched by the World Bank and UNICEF in 2005, aims to disseminate lessons from the experience of countries that have abolished fees and provides context-specific advice to countries that are seeking to do so. The experience of Malawi, as one of the early fee-abolishing countries in Africa, is therefore highly relevant, for countries such as Burundi, Democratic Republic of Congo and Haiti who have committed to removing primary school fees in the near future (SFAI 2006).

Malawi began implementing a policy of free primary schooling in the early 1990s. The policy was part of a shift in education policy away from post-primary education towards primary. This focus on primary was advocated primarily for equity reasons. In 1991/2 school fees were abolished in Standard 1 of primary school with the intention that this

cohort of students would be the first cohort to receive fee-free primary education and subsequent cohorts would follow. In addition to this government programme a United States Agency for International Development's (USAID's) project provided funding for the waiving of fees for all girls in Standards 2 to 8 who had not repeated. The reduction in fees led to some limited success in improving access to primary education (see Al-Samarrai 2005; Kadzamira *et al* 2004; Rose 2002 and Kadzamira and Rose 2001).

After the first multi-party elections, held in 1994, the new government announced the abolition of all primary school fees effective from the 1994/95 school year[1]. This policy shift was a cornerstone of the "new Malawi" and symbolized a sharp departure from the elitist policies associated with the previous regime. This paper assesses the impact this major policy change, combined with increased government spending on education, has had on improving access to schooling for the poor.[2] 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 expenditures) 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 expenditures 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 expenditure of education over time. Section 5 combines information on enrolment and education expenditure to analyse the incidence of public education expenditure. The last section offers some conclusions.

2.   *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 expenditures 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 expenditure 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 analysis[3]. 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.[4] 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.[5] 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 (see Table 4). [6]

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.

3.   *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[7] were completely abolished in the 1994/95 school year. This led to surge in primary enrolment – from 1.9 million students in 1993/94 to 2.9 million in 1999/00. Table 1 illustrates the change in enrolment for different households between 1990/91 and 1997/98.

[TABLE 1 HERE]

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.[8] 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.[9] 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. However these differences were not statistically significant at conventional levels.

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).[10] 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 .[11]

[TABLE 2 HERE]

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).[12]

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.

[TABLE 3 HERE]

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 DEC students (MOE 1997). Unfortunately, neither household survey contained 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 large.[13] This finding is likely to be driven by two main factors. Firstly, fewer girls than boys complete primary schooling and this difference is exacerbated by household poverty (see for example Table 2). A recent study showed that drop-out in primary school was slightly higher for girls and that almost two thirds of female drop-outs, as compared to only 45 per cent of boys, cited direct or opportunity cost-related factors (Malawi NSO and ORC Macro 2003). Clearly, with fewer poor girls completing primary school fewer can be expected to register for secondary schooling. Secondly, the direct and indirect costs faced by households in sending children to school increase with age and level of education. For poor rural families in Malawi these reasons are likely to account for the large gender gaps in secondary enrolment rates shown in Table 3.

4.   *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 expenditures) 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 expenditures for public education expenditure in 1997/98 have been calculated from Ministry of Education expenditure data which can be compared with unit expenditure data for 1990/91 from Castro-Leal (1996). [14] Figure 1 shows the unit expenditure on primary education in each region over time in constant 1997/98 prices.[15] 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.[16] Primary unit expenditures in the North during the nineties have been persistently higher than other regions and this gap appears to have widened during the nineties. Despite higher enrolments in the North, unit expenditures are higher because of lower pupil teacher ratios and the dominance of teachers' salaries in government spending on education. Combining unit expenditure information with regional enrolment data the Northern region has, over the nineties, had the highest level of per pupil spending and enrolment at the primary level.[17] 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 HERE]

The same patterns and trends to those observed at the primary level are also seen at secondary. Again in the context of rising enrolments the unit expenditure 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 expenditures in the North are significantly higher than the other two regions. Second, the unit expenditure data for secondary education in 1997/98 do not include DECs although the unit expenditures for 1990/91 do. Since unit expenditures for DECs are much lower than for conventional secondary schools (MOE (1997)), and enrolment in DECs account for more than half of all secondary enrolment, the unit expenditures for 1997/98 are likely to overestimate the overall unit expenditure of secondary education (i.e. the unit expenditure 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).[18] 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.[19] The next section attempts to

12

explore the distribution of public education expenditure across different income groups in a more systematic way.

5. *Incidence Analysis*

Previous sections have outlined the trends in enrolment and unit expenditures 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.[20] 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.[21] However, the complete results, including university education, as well as the gender disaggregated incidence analysis are reported in Appendix Table 1.

[TABLE 4 HERE]

Table 4 shows the incidence of primary and secondary public education expenditure in Malawi for 1997/98.[22] District and divisional unit expenditure 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. [23]

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.[24] 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 schooling enrolment shown in Table 3 is in private schools and private 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 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 expenditures 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 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).[25] However, the incidence analysis presented for 1990/91 does not take account of geographical differences in the unit expenditure of education and instead a national average unit expenditure at each level of education is used. (Castro-Leal 1996).[26] The interpretation of the incidence analysis is very different when a national average unit expenditure is used instead of district or divisional expenditure data. With a national unit expenditure the incidence analysis only shows each quintiles share of total enrolment in the population since the unit expenditure cancels out in the calculation of the share of the total education subsidy going to each quintile.[27]

[TABLE 5 HERE]

Table 5 reports estimates for 1997/98 that use a national average unit expenditure at each level, in order to compare with the 1990/91 results. [28] 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 expenditures for primary and division unit expenditures for secondary) does not differ much from that in Table 5 using national unit expenditures. [29]

[FIGURE 2 HERE]

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. 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. The findings show that the abolition of fees has resulted in a pro-poor shift of government primary education spending.

Turning to secondary education, Table 5 also shows that during the nineties even secondary education expenditure has shifted towards the poor.[30] 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. The shift from richer to poorer groups 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 and so this shift cannot be confirmed. Despite these gains, secondary spending remains skewed towards the rich.

6.   *Conclusions*

This paper has shown that the education reforms undertaken in Malawi 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 expenditures 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.

Three policy messages emerge from this paper. 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.

The third policy lesson relates to implementing school fee abolition in other countries. The experience of Malawi shows that an enrolment surge is highly likely following this type of major reform. In order to ease the transition pains of such a major change, other countries could consider two approaches. One approach is to pilot school fee abolition in selected areas prior to introducing it nationwide as Ghana did prior to the country-wide abolition in 2005. Another approach is that a lag of around two years takes place between deciding to abolish fees and implementing the policy. This time lag would allow for resource mobilization, teacher training, classroom construction and awareness raising – Kenya and Tanzania are two examples of this approach in recent years.

Notes

[1]   While official fees were abolished, parents were required to pay for school uniforms.

[2]   The impact that the abolition of fees has had on education outcomes and how the policy was financed is described in detail in Kadzamira et al (2004).

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

[4]   For a detailed description of the cleaning exercise see NEC (2000).

[5]   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. The incidence analysis using the NEC welfare indicator measured as consumption per adult equivalent is available from the authors on request.

[6]   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.

[7]   Primary school fees in 1993/94 were between 0.66 and 1.5 US dollars per child per month in 1995 constant prices (Rose 2002).

[8]   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).

[9]   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.

[10]   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.

[11]   Regional enrolment rates are available from the authors on request.

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

[13]   Similar to primary, secondary enrolment rates are highest in the North but there are also 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. These results are available from the authors on request.

[14] Castro-Leal provides unit expenditures of primary education for 1990/91 in constant 1994/95 prices. These unit expenditures 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 expenditure of primary education). However, deflators are not necessary for the incidence analysis outlined in the next section.

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

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

[17] Regional enrolment rates are available from the authors on request.

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

[19] 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.

[20] The methodology for carrying out the incidence analysis is available from the authors on request. 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.

[21] 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 not reported in the paper but is available from the authors on request.

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

[23] The difference in the proportion of the government primary education subsidy accruing to the poorest and richest quintiles shown in Table 4 is statistically significant at the 5 per cent level using conventional 2-tailed tests.

[24] The difference in the proportion of the government secondary education subsidy accruing to the poorest and richest quintiles shown in Table 4 is statistically significant at the 5 per cent level using conventional 2-tailed tests.

[25] Wide variations are also evident across districts for unit expenditures at primary and across divisions for unit expenditures at secondary.

[26] See Appendix B, Castro-Leal 1996.

[27] For example, if the subsidy going to each primary student is the same (i.e. a national unit expenditure is used) the share of public primary education going to the first quintile is defined as:

total primary enrolment in first quintile*unit expenditure/ total primary enrolment in population*unit expenditure

This simplifies to: total primary enrolment in first quintile/total primary enrolment in population.

[28] National average unit expenditures in 1997/98 are MK 335.66 for primary and MK 3,189.10 for secondary.

[29] 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).

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

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

	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

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)

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

	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

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)

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

| | Consumption per adult equivalent quintile | | | | | |
	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

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)

Table 4: Incidence of Public education expenditure in Malawi (using district unit expenditures) and school-age population shares, 1997/98

| | Education spending benefiting: | | | | |
	Poorest 20% of population	2nd quintile	3rd quintile	4th quintile	Richest 20% of 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

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 5: Incidence of public education expenditure by level and quintile 1990/91 and 1997/98

| Country | Education spending benefiting: | | | | |
	Poorest 20% of population	2nd quintile	3rd quintile	4th quintile	Richest 20% of population
1997/98					
Primary	24	22	20	19	16
Secondary	17	18	21	20	23
1990/91					
Primary	15	18	20	23	24
Secondary	7	11	14	28	41

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

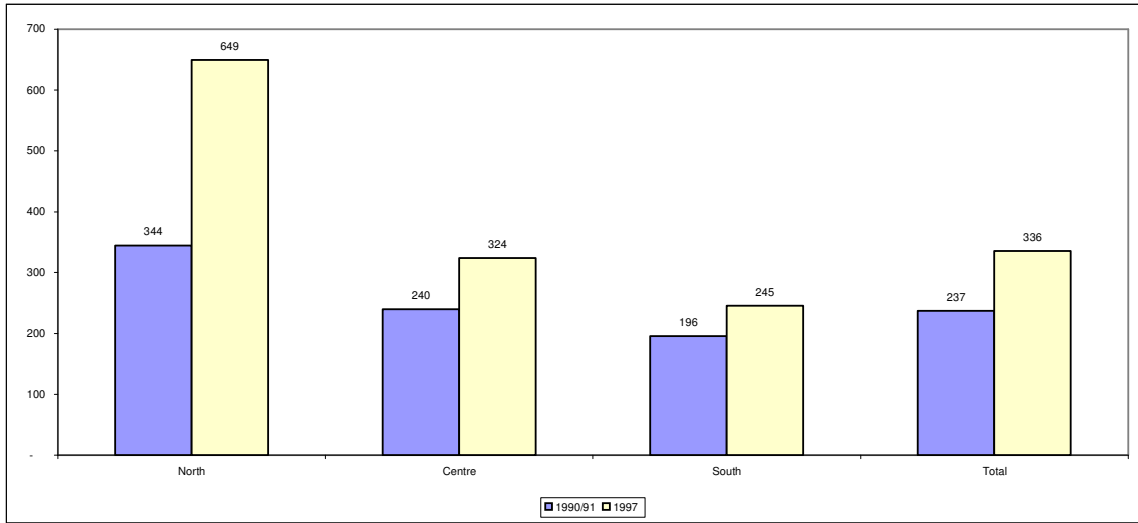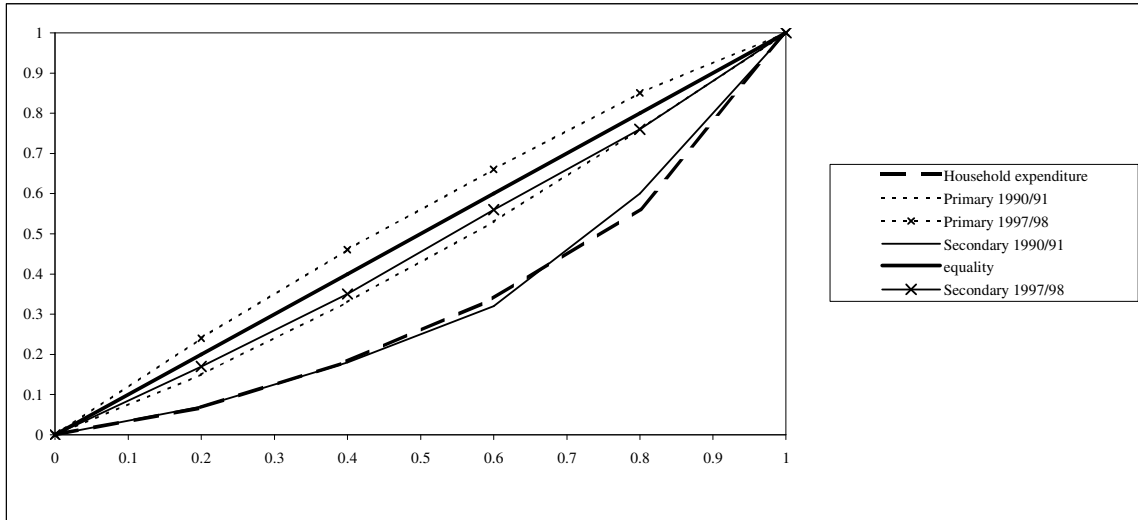Figure 1: Primary Recurrent Education Spending per Student in constant 1997/98 Kwacha

Figure 2: Concentration curves for public education spending 1990/91 and 1997/98

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

Quintile	Female				Male				Total		
	Subsidy (Mkwacha 000)	Per capita	Row %	Col %	Subsidy (Mkwacha 000)	Per capita	Row %	Col %	Subsidy (Mkwacha 000)	Per capita	Col %
Std I-IV											
1	76,454	48.6	47%	25%	86,909	53.6	53%	27%	163,363	83.6	26%
2	71,644	44.6	49%	23%	73,683	45.0	51%	23%	145,327	74.4	23%
3	58,477	35.9	49%	19%	60,815	36.4	51%	19%	119,291	61.0	19%
4	56,350	34.2	52%	18%	52,157	31.3	48%	16%	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	-				-				-		
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	-				-				-		
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%

Source: Calculations from IHS (1997/98)