Enrolment and gender parity after free primary education in Kenya: looks like pro-poor pro-poor private schools in Nairobi's informal settlements have a point to make!

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Abstract
This paper examines enrolment and gender parity for children attending pro-poor private schools from Nairobi's poor urban settlements of Korogocho and Viwandani. The results suggest that boys are about 9 percent more likely to enrol in pro-poor private schools than the girls in the informal settlements. Double orphans are 29 percent less likely to enrol in pro-poor pro-poor private schools than the non orphans. Although the Gender Parity Index (GPI) of between 1.02 and 1.09 is in favour of girls in both public and pro-poor private schools, the GPI value in the later is within the acceptable range of between 0.97 and 1.03. With up to 58.6 percent of the pupils in these informal settlements, pro-poor private schools have a large constituency and complementary role in the provision of primary education the two informal settlements. They therefore need to be recognized and registered by the Ministry of Education, planned for and supported fully through structured quality assurance programmes.

Key words: *Enrolment, gender parity index, pro-poor private schools, poor urban neighbourhoods, Nairobi, Kenya*

Background
Private schooling in Kenya has its roots in the independent schools that sprung up as early as 1910 in Nyanza and from the 1920s in Central Province to protest the education provided by the colonial administration. The colonial education was stratified into European, Asian and African in that order of superiority, with the later emphasizing technical and vocational skills at the expense of an academic component. The Africans also resented missionary education which they felt taught and espoused aspects against their culture. The African independent schools movement grew stronger and stronger and by the time of the state of emergency in 1952, there were about 400 independent schools (Eshiwani, 1993; Ssekamwa and Lugumba, 2001). From this foundation set in the pre-independence era, private education in Kenya has grown immensely with primary school institutions now standing at 2283 nationally in 2006 (Central Bureau of Statistics, 2007; Republic of Kenya, 2007). National enrolment in these private schools now stands at 363086 in 2005 (Central Bureau of Statistics, 2007; Republic of Kenya, 2007). Throughout this paper, we shall refer to public schools as those funded by the Central

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Government and to pro-poor private schools as those not receiving similar funding from the Central Government. Pro-poor private schools in the informal settlements of Nairobi will further refer to those called non formal schools and centres as well as community schools not receiving funding from the Central Government. Table 1 shows the number of schools in Kenya, Nairobi province and the two informal settlements of Korogocho and Viwandani.

Table 1. Number of schools by type

Location	Year	Public	Private	Total
National	2006	17946	2283	20229
Nairobi Province	2006	195	331*	195
Korogocho	2007	1	29*	30
Viwandani	2007	2	24*	26

Source: (Central Bureau of Statistics, 2007), City Council of Nairobi Education Department, APHRC

**=includes both private and non formal schools*

Free Primary Education (FPE) was implemented in Kenya in January 2003 (Ministry of Education, 2005b). It was hoped that through FPE, the abolition of direct school levies and fees would significantly reduce the burden on poor households in financing primary education. Since FPE was implemented through public primary schools, pupils enrolled in pro-poor private schools in Nairobi's poor informal settlements never really benefited. With inadequate public schools in the informal settlements, majority of prospective pupils who missed out on admission into these schools ended up in these pro-poor private schools where they were required to pay school levies. There is evidence to suggest that there are few public schools in the informal settlements in Kenya and elsewhere (Tooley, 2005; Tooley and Dixon, 2005; Tooley et al., 2005; Tooley and Nixon, 2005). If FPE was also meant to make the burden of financing primary education lighter for poor households, then did it achieve this goal for Nairobi's informal settlements? This paper examines the proportion of pupils attending pro-poor private schools and attempts to explore whether the socio-economic status of households, orphanhood and gender in the two informal settlements have any effect on enrolment in public or pro-poor private schools. We largely focus on pupils from the informal settlements which are considered the poorest of the urban population in Nairobi.

Methodology

The study was conducted in Nairobi's slum (Korogocho and Viwandani) and non slum sites (Jericho and Harambee). Viwandani is located within the industrial area on the southern part of the city while the other three in Nairobi's Eastlands area. The study used the longitudinal framework of the Nairobi Urban Health Demographic Surveillance System (NUHDSS) to identify children and youth aged 5-19 years in 2005 regardless of whether or not they were in school in the four defined geographical areas. There were 13882 children within this age range in the four study sites in 2005. Table 1 summarises the distribution of the census by site.

Table 1. Census of children and youth aged 5-19 years in 2005

Site	Site description	Children & youth aged 5-19 yrs	Number & % of girls
Korogocho	Slum	7698	4016 (52.2%)
Viwandani	Slum	3892	1974 (50.7%)
Jericho	Non Slum	1564	788 (50.4%)
Harambee	Non slum	728	362 (49.7%)
Total		13882	Slum=5990 (51.7%)

We then use retrospective schooling history data from 2000 to 2005 for these children and youth to compute primary school enrolment rates. For those aged 5, 6, 7, 8, and 9 years in 2005, only information for one (2005), two (2004 and 2005), three (2003 to 2005), four (2002 to 2005) and five (2001 to 2005) years was collected starting in 2005 respectively. For children aged 10 to 19 years, information for six years (2000-2005) was collected.

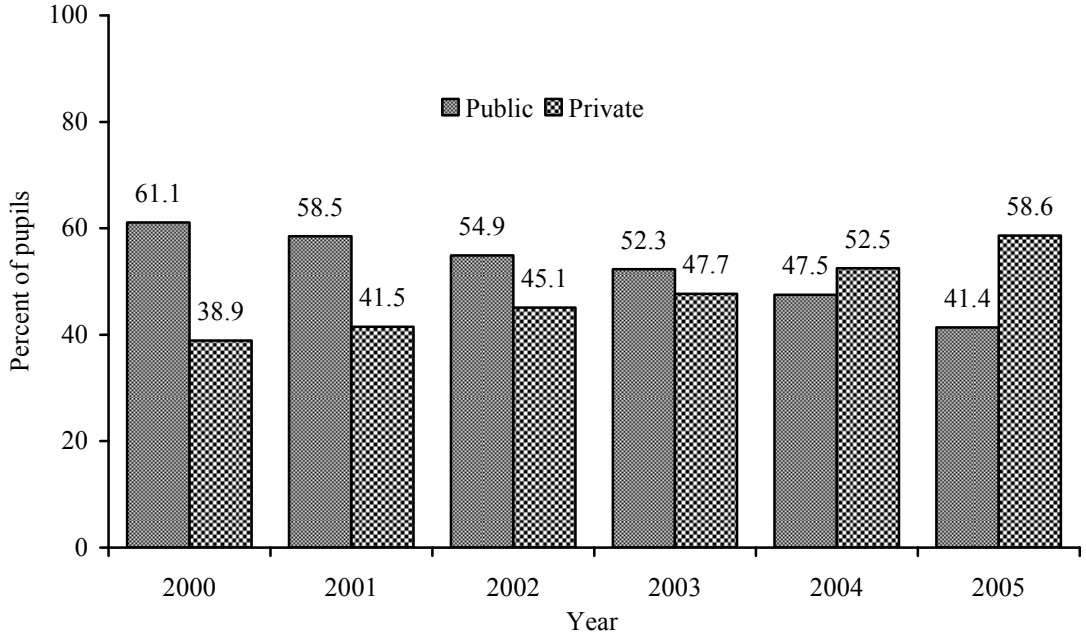
Data were collected on a range of issues in modular form. Five questionnaires, each addressing a specific theme were used in the process of data collection. The first modular questionnaire upon which the current analysis is based collected information on each child's schooling history. The questionnaire had two main sections: school participation for the current year (2005), and school participation for the previous years (2000-2004). The section on school participation for 2005 collected information on schooling status of the child, the name of the school the child was attending, grade, location of the school and whether the child had changed schools or dropped out of school in the current year. It also probed on the reasons for changing schools and dropping out of school, where applicable. The section on school participation for previous years (2000-2004) collected similar information. Each of the remaining questionnaires to specific household members had an item on the current school attendance status of each child among other questions. This was valuable for counter checking information gathered through the schooling history questionnaire. School attendance is updated every school term (there are three such school terms in a year with each lasting approximately 100 days) while the rest of the information is updated annually.

Results

Enrolment in pro-poor private schools within the informal settlements

As of August 2007, there were a total of 56 schools within the Nairobi Urban Health Demographic Surveillance Area (NUHDSA) in the two informal settlements of Korogocho and Viwandani. These two settlements are only served by four public primary schools with two in each settlement, although only three of these are within the boundaries of the NUHDSA (two in Viwandani and one in Korogocho). The rest of the schools within the NUHDSA are privately run by individual entrepreneurs, religious, charitable and non governmental organizations, and children's homes, among others. Our results suggest that up to 58.6% of the pupils from the two informal settlements were enrolled in pro-poor private schools in 2005. The three public schools within the NUHDSA are large units with one of the five-streamed schools enrolling up to 2143 pupils. Cumulatively, the public schools enrolled up to 41.4% of the pupils in the NUHDSA in 2005.

Figure 1. Percent of enrolled pupils within schools in the informal settlements



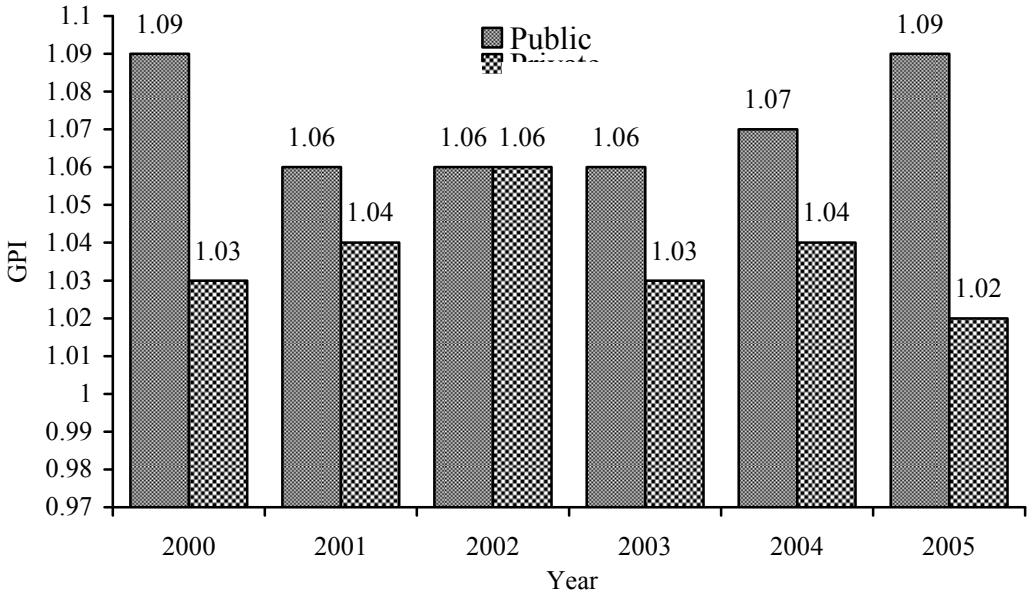
What we see in figure 1 may not really be a decrease in the enrolment in public primary schools over the years but perhaps the effect of the huge demand for primary education created by the introduction of FPE. Evidence on enrolment in the public schools indicates that enrolment went up after FPE in 2003 and stretched the schools' absorption capacity beyond limit to the extent that those missing new admission places in these schools ended up in the pro-poor private schools which now enrol majority of these pupils.

Gender parity index within the informal settlements

The Gender Parity Index (GPI) assesses gender differences and is the ratio of the number of enrolled girls to enrolled boys by level of education based on the GER in order to standardise the effects of the population structure of the appropriate age groups. A GPI of

1 represents 100 girls for every 100 boys in school. If this GPI is between 0-1, then there is a disparity in favour of boys while a value greater than 1 indicates a disparity in favour of girls. It is sometimes considered that a GPI of between 0.97 and 1.03 indicates that gender parity has been attained (The EFA Global Monitoring Report Team, 2003; United Nations, 2003). Although the GPI is in favour of girls in both public and pro-poor private schools for all the years except 2002, the values in the pro-poor private schools are largely within the acceptable range of 0.97 and 1.03 for all the years with the exception of 2002. Figure 2 shows the GPI values for both public and pro-poor private schools in the two informal settlements.

Figure 2. Gender parity index of enrolled pupils within schools in the informal settlements



Factors affecting choice of school

In order to understand the factors that may affect the decision of a household to enrol their children in either private or government schools, we used logistic regression to model the probability of a child attending a private school. We used the orphan status, gender and household wealth as the explanatory variables. The model was fitted in the context of generalized estimating equations (GEE) in order to model the probability of attending private school over years and to account for the association among the attendance of the same child over the years. We fitted three separate models; the fist one for all the children in both the slum and non-slum settlements; the second model for only the children in the slum settlements; and the third model for the children in the non-slum settlements.

The wealth index was generated using factor analysis. This is a proxy measure of socioeconomic status. It was generated using household possessions and access to amenities in a similar manner as that generated through the Demographic and Health Surveys (DHS). Each set of durable items owned or amenities accessed signify a different

dimension. Ownership of a bicycle, motorcycle, or private car shows the means of transport privately available to the household. Ownership of a radio or television is a measure of access to mass media; telephone ownership measures access to an efficient means of communication. Cupboard and refrigerator ownership indicates the capacity for hygienic storage of foods and utensils; lantern or electricity indicates a source of lighting. Ownership of these items, in turn, has a bearing on household's access to information and social services such as education and health. In addition to ownership of assets, the index includes the main source of drinking water for the household, type of toilet facility (if any), and main material of the floor. We also took into account three types of orphans; those who have lost their paternal and maternal parents as well as those who have lost both parents. Table 3 shows the results of the logistic regression.

Table 3. Coefficients of logistic regression for children attending pro-poor private schools in the informal and formal settlements

	Model 1- informal & non-informal settlements		Model 2- informal settlements		Model 3- Formal settlements	
	OR	95% CI	OR	95% CI	OR	95% CI
Household wealth(Ref = Poorest)						
Second poorest	0.939	[0.835, 1.056]	0.939	[0.835, 1.056]	2.503**	[1.657, 3.779]
Middle	0.639**	[0.567, 0.720]	0.605**	[0.514, 0.713]	1.703*	[1.123, 2.583]
Second richest	0.667**	[0.593, 0.751]	0.671**	[0.594, 0.759]	2.425**	[1.614, 3.643]
Richest 20%	0.377**	[0.289, 0.492]	0.618**	[0.547, 0.699]	4.061**	[2.755, 5.985]
Orphan Status(Ref = Non-orphans)						
Two parent orphan	0.704*	[0.557, 0.891]	0.710*	[0.556, 0.908]	0.757	[0.314, 1.824]
Maternal Orphan	0.717*	[0.543, 0.947]	0.719*	[0.535, 0.965]	0.664	[0.288, 1.527]
Paternal orphan	0.785**	[0.696, 0.884]	0.808**	[0.714, 0.915]	0.641	[0.368, 1.115]
Sex (Ref=females)						
Males	1.124*	[1.041, 1.214]	1.090*	[1.005, 1.182]	1.419*	[1.119, 1.800]
Residence(Re f= Non-slum)						
Slum	1.264	[0.960, 1.665]	-	-	-	-

** p<0.001 *p<0.05

Model 1 (slum and non slum)

In both the slums and non-slums, wealth, orphanhood and gender are key determinants of enrolment in pro-poor private schools. Children from the middle and the second richest groups are between 33 and 36 percent less likely to enrol in pro-poor private schools compared to the poorest group, while children from the richest 20 percent households have about 62 percent lower odds of attending pro-poor private schools. This trend suggests that wealthier households are more likely to enrol their children in public schools. The poorest two quintiles are not significantly different from each other when it comes to enrolling their children in pro-poor private schools. While all types of orphans reduce the children's chances of enrolling in pro-poor private schools by between 21 and 30 percent, double orphans have the least odds of enrolling in pro-poor private schools at

30 percent. On gender, male pupils are more likely to enrol in pro-poor private schools than girls by up to 12 per cent. There is no significant difference between the two informal settlements in relation enrolment in pro-poor private schools.

Model 2 (informal settlements)
Similar trends are evident when we consider children in the informal settlements only. Wealthier households are less likely to enrol their children in pro-poor private schools compared to the poorest households. All types of orphans are also less likely to enrol in pro-poor private schools, with double orphans exhibiting the lowest odds at 29 percent. Although the male pupils are more likely to enrol in pro-poor private schools within the informal settlements, the difference in odds is much smaller than when we consider all the children in the other two models, and this relationship is almost not significant.

Model 3 (formal settlements)
The trends in the formal settlements model are a little different from the other two. Enrolment in pro-poor private schools among these children is much more sensitive to wealth with households in the second poorest quintile being quite different from those in the poorest. They are about two and half times more likely to enrol in pro-poor private schools. Generally, there is a clear reversal of the trends as compared to the informal settlements where children from wealthier households are more likely to attend pro-poor private schools compared to children from the poorest households. The results also suggest that the households from the wealthiest quintiles in the formal settlements are slightly over 4 times more likely to enrol their children in private schools than those from the poorest quintiles. It is worth noting that private schools in the formal settlements are strikingly different from the pro-poor private schools in the urban poor informal settlements. It is interesting to note that in the formal settlements, orphan status does not seem to matter and in fact does not affect the choice of private against public schools but gender does. Males in the formal settlements are more likely to be enrolled in private schools, a trend that is consistent with the poor urban informal settlements as well.

Discussion
Our data suggest that up to 58.6 percent of the children in the two slums attend pro-poor private schools. One could argue that majority of these pupils ended up in these pro-poor private schools after missing out on places in the public schools or because of their parents'/guardians' preference or even because these schools are the closest and therefore easily accessible for younger pupils. The demand for primary education in Nairobi's informal settlements may have outstripped places in public schools serving these settlements after the launch of FPE in 2003. This demand had to find space in the pro-poor private schools within the informal settlements partly explaining this large proportion of pupils enrolled in pro-poor private schools.

Although poorly endowed in terms of professional teachers, physical facilities and learning materials, some of these pro-poor private schools compete quite well with public schools in the national Kenya Certificate of Primary Education (KCPE) examination. For instance, the leading candidate at Jobenpha Community School in Viwandani slum scored 427 marks out of a possible 500 in the 2006 KCPE examination and was part of

the league of top performers in this examination countrywide. Jobenpha which is located just metres away from the Nairobi-Mombasa railway line in Viwandani and operating in makeshift structures with limited instructional materials and trained staff could still produce one of the best candidates in the country. Indeed, recent studies in Africa and India have shown that raw mean scores of primary level children, were highest in private recognised (registered) schools followed by private unrecognised (unregistered) and government schools achieving the lowest scores (Tooley and Dixon, 2006; Tooley et al., 2005).

Research evidence now abounds that suggests that enrolment in school is driven by a host of factors including household wealth status, characteristics and income, child characteristics such as gender, orphan status, among other determinants. For instance, Rose and Al-Samarrai (2001) found that increasing a household's wealth index by one unit in Ethiopia increases a boy's chances of attending school by 16 percent, whereas a girl's chances are increased by 41 percent. An almost similar study by Tembon and Al-Samarrai (1999) also found that while this effect may be insignificant for boys in Guinea, the chances are increased by 9 percent for girls. These results also indicate that poverty in a family is likely to have a more detrimental effect on the decision to enrol a girl in school than a boy. While using internationally comparable household data sets (Demographic and Health Surveys) to investigate how gender and wealth interact to generate within-country inequalities in educational enrolment and attainment in 44 countries, Filmer (2005) found that girls are at a great educational disadvantage in particular regions such as South Asia and North, Western, and Central Africa. In particular, this study found that in countries where there is a large female disadvantage in enrolment, wealth interacts with gender to exacerbate the gap in educational outcomes.

A more recent study focusing on Kenya has also found that child characteristics, parental education and other household characteristics, quality and cost of schooling are important determinants of the demand for education services with girls being more affected by policy changes in education than boys (Kabubo-Mariara and Mwabu, 2007). While estimating wealth effects on enrolment in India, Filmer and Pritchett (1998) found that on average, a child from a wealthy household in the top 20 percent was 31 percent more likely to be enrolled in school than a child from a poor household in the bottom 40 percent. Our results have gone further to show that not only are the wealthier likely to enrol in school, they are also more likely to access publicly funded primary education than poorer households in the poor urban informal settlements of Nairobi.

Although the introduction of free primary schooling in Uganda reduced inequalities in attendance related to gender, income, and region (Deininger, 2003), our results now suggest the same introduction of free primary schooling in Kenya did not reduce attendance inequalities in gender within public schools for the two informal settlements of Korogocho and Viwandani because the GPI values in these settlements' public schools are largely in favour of girls. Interestingly, this happens in the urban poor informal settlements where one would perhaps expect to find more boys in school than girls given the preference of boys in poor households. Much as the introduction of FPE in Kenya has had a huge positive impact on enrolment countrywide, this may have increased the

inequalities in access to public schools in favour of wealthier households in the poor urban informal settlements of Nairobi.

Our results suggest that household wealth is a key factor in choosing the type of school to enrol in the urban poor informal settlements of Nairobi. Although the male pupils are more likely to enrol in pro-poor private schools within the informal settlements, wealthier households are less likely to enrol their children in pro-poor private schools compared to the poorest households. Our results also suggest that although the GPI is almost within the acceptable range for the pro-poor private schools, boys are more likely to enrol in these schools by up to 9 percent than girls in the informal settlements. The Ministry of Education (2005a) also shows that Nairobi Province had GPI values of between 1.14 and 1.17 in favour of girls for the period 2000-2004. This is in contrast for instance, to the rural and largely semi arid North Eastern province with GPI values of between 0.57 and 0.72 hugely in favour of boys.

These GPI values in favour of girls in the two slum sites could probably be an indication of the changing emphasis in educating girls among urban poor households in informal settlements. Korogocho is next to the city's Dandora garbage dump site which is a constant lure to boys attracted by the prospects of selling scrap metal and other 'valuables' from this site. It is possible that some boys in Korogocho who find schooling 'unattractive' could easily be heading for this dumpsite and this may partly explain their low participation compared to girls attending school in the slum. Rose (2003) suggests that community schools are successful in improving access to schooling, and especially for girls. Our results reinforce this view as up to 58.6 percent of the children in the two slums attended pro-poor private schools in 2005 with GPI values in favour of girls.

Policy implications

With wealthier households in the informal settlements being more likely to enrol their children in public schools where there is FPE, alternative ways of targeting poorer households in these and other settlements with subsidies in the provision of social services need to be sought. An assumption that the poor will always benefit from such interventions such as FPE in Kenya may not be true if the channels of that subsidy are the limited public schools and there is a 'scramble' for them. Currently, pupils in these pro-poor private schools are paying up to eight US dollars per month for tuition which is free in all public schools. It is also now evident that pro-poor private schools in these informal settlements have a large constituency and the Ministry of education might find it urgent in ensuring that the quality of education in these schools is raised. Their lack of professionally trained teachers, learning and teaching materials as well as physical facilities might be key areas to address.

Conclusions

Household wealth, the gender of the child and type of orphan status are key factors that drive enrolment choices between public and pro-poor private schools in Nairobi's informal and formal settlements.

Acknowledgement

We acknowledge the generous financial grant from the William and Flora Hewlett Foundation that enabled this three-year longitudinal study to be carried out. We are also grateful to the City Council of Nairobi Education Department for supplying the statistics we required as well as the communities in Korogocho, Viwandani, Jericho and Harambee for supporting this research this far.

References

Central Bureau of Statistics (2007): *Economic survey 2007*. Central Bureau of Statistics. Nairobi.

Deininger, K. (2003): Does cost of schooling affect enrollment by the poor? Universal primary education in Uganda *Economics of Education Review* **22**, 291-305.

Eshiwani, G. S. (1993): *Education in Kenya since independence*. East African Educational Publishers. Nairobi.

Filmer, D. (2005): Gender and wealth disparities in schooling: evidence from 44 countries. *International Journal of Educational Research* **43,** 351-369.

Filmer, D., and Pritchett, L. (1998): *Estimating wealth effects without expenditure data -- or tears: an application to educational enrollments in states of India*. The World Bank Development Research Group Povertv and Human Resources Washington.

Kabubo-Mariara, J., and Mwabu, D. K. (2007): Determinants of school enrolment and education attainment: empirical evidence from Kenya *The South African Journal of Economics* **75**, 572-593.

Ministry of Education (2005a): *Education statistical booklet 1999-2004*. Ministry of Education. Nairobi.

Ministry of Education (2005b): *Kenya education sector support programme 2005-2010: delivering a quality education and training to all Kenyans*. Ministry of Education Science and Technology. Nairobi.

Republic of Kenya (2007): *Education sector report 2007*. Ministry of Finance. Nairobi.

Rose, P. (2003): *Can gender equality in education be attained? evidence from Ethiopia. Paper commissioned for the EFA Global Monitoring Report 2003/4, The Leap to Equality.*

Rose, P., and Al-Samarrai, S. (2001): Household constraints on schooling by gender: empirical evidence from Ethiopia *Comparative Education Review,* **45** 36-63.

Ssekamwa, J. C., and Lugumba, S. M. E. (2001): *A history of education in East Africa*. Fountain Publishers. Kampala.

Tembon, M., and Al-Samarrai, S. (1999): *Who gets primary schooling and why? evidence of gender inequalities within families in Guinea* University of Sussex. Brighton.

The EFA Global Monitoring Report Team (2003): *Global monitoring report 2003/4: gender and equality for all, the leap to equality*. UNESCO Publishing. Paris.

Tooley, J. (2005): *Is private education good for the poor?: working paper from a study in Sub-Saharan Africa and India*. E.G. West Centre. Newcastle.

Tooley, J., and Dixon, P. (2005): *Private education is good for the poor: A study of pro-poor private schools serving the poor in low-income countries*. Cato Institute. Washington DC.

Tooley, J., and Dixon, P. (2006): 'De facto' privatisation of education and the poor: implications of a study from sub-Saharan Africa and India. *Compare* **36** 443-462.

Tooley, J., Dixon, P., and Olaniyan, O. (2005): Private and public schooling in low-income areas of Lagos state, Nigeria: a census and comparative survey. *International Journal of Educational Research* **43**, 125-146.

Tooley, J., and Nixon, P. (2005): *Private education is good for the poor: A Study of Pro-poor private schools Serving the Poor in Low-Income Countries*. CATO Institute. Washington, DC.

United Nations (2003): *Indicators for monitoring the millennium development goals: definitions, rationale, concepts and sources*. United Nations. New York.