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Do poverty dynamics explain the shift to an informal private schooling system in the wake of free public primary education in Nairobi slums?

Moses Oketch[a]*, Maurice Mutisya[b] and Jackline Sagwe[bc]

[a]Institute of Education, University of London, London, UK; [b]African Population and Health Research Center, Nairobi, Kenya; [c]University of Nairobi, Nairobi, Kenya

With the introduction of free primary education (FPE) in Kenya in 2003, it was expected that the burden on poor households in financing primary education would be reduced substantially. This in turn would increase enrolment in public schools and lead to universal primary education. However, studies have shown that a considerable proportion of households in urban slums continue to enrol their children in pro-poor fee charging informal schools. The reasons presented in the available literature to explain this phenomenon of why poor slum-residing households bypass free public education are varied and some are simply speculative. In this paper, we hypothesise that poverty dynamics can partly explain households' decisions on the type of school in which to enrol their children. The analysis is based on longitudinal data collected by the African Population and Health Research Centre (APHRC) using urban demographic surveillance in two slums of Nairobi, Kenya. The data covers the period between 2005 and 2009 with a sample of 6965 pupils spread across 3763 households. Logistic regression methods are applied. The findings reveal that moving in and out of poverty can affect the type of schooling decision a household makes, with one quarter of those moving out of poverty shifting schools. The findings demonstrate that there is both willingness and ability to pay by the slum residents that is driving the utilisation of the private schools. The decisions are not random occurrences, but seem systematic and rational – parents want quality and affordability and a good number of those whose economic situation improved do not seem to believe the public schools, even under FPE, offers quality. The policy implication to be drawn from these findings is that the private schools for the poor should not simply be dismissed as 'informal schools' because it seems they have some features which are attracting parents to choose them and leave the state system. Free primary education policy is being 'rejected' by a good number of parents in the slums and this needs further investigation, as 'excess' demand as suggested in some research papers does not seem to be the only explanation.

Keywords: informal schools; slum; poverty dynamics; free primary education; Nairobi; Kenya

Introduction

Achieving universal basic education of good quality is one of the Millennium Development Goals (MDGs) linked to the fight against poverty, better maternal and child health, and gender empowerment. It is this faith in the power of good quality education in human develop-

ment that has galvanised the international community and national governments around the world, and particularly in sub-Saharan Africa, to commit to the idea of universal access to basic education. Overall enrolment trends by appropriate age (Net Enrolment Ratio: NER) in sub-Saharan Africa region grew from less than 60% in 1999 to over 75% in 2009 as a result of this commitment. This is an impressive record of improvement, even though sub-Saharan Africa still lags behind the world NER, which in 1999 was about 85% and a decade later stood at about 90%. Clearly, sub-Saharan Africa continues to lag behind all the other regions of the world, but it is also the region that has made the greatest improvement over the period between 1999 and 2009 (UNESCO-UIS 2011, Figure 1). Many countries in the region have made this gain by introducing policies for universal access to basic education and committing greater resources to education. For example, governments' education spending allocation as a percent of Gross Domestic Product (GDP) in sub-Saharan Africa in 2009 was 2.3%, which was higher than the world allocation of 1.7% (UNESCO-UIS 2011, Figure 33). Kenya is one such country that has prioritised the implementation of free universal basic education.

Kenya introduced a free primary education (FPE) programme in January 2003 in order to universalise access to primary education as part of the campaign pledge made by the incoming government of President Kibaki, and as the nation's commitment to the Millennium Development Goals. As stated by Oketch and Somerset (2010, 1), 'the initiative had a straightforward, but ambitious purpose: to make primary schooling accessible to all young Kenyans of appropriate age, wherever they lived and whatever their family circumstances'. The FPE programme had an immediate impact on enrolment, with over 1 million children reported to have joined public schools in the first year of its introduction. However, in spite of these gains, there are still many poor children who are either paying for education in non-state private schools, usually referred to in the literature as 'private schools for the poor' (Tooley and Stanfield 2008), and others who are shifting from state schools, which they had joined when FPE programme was first introduced, back into private schools (Oketch et al. 2010a, 2010b). This is a growing phenomenon on which little systematic and empirical analytical evidence is available and yet it has become one of the conundrums of
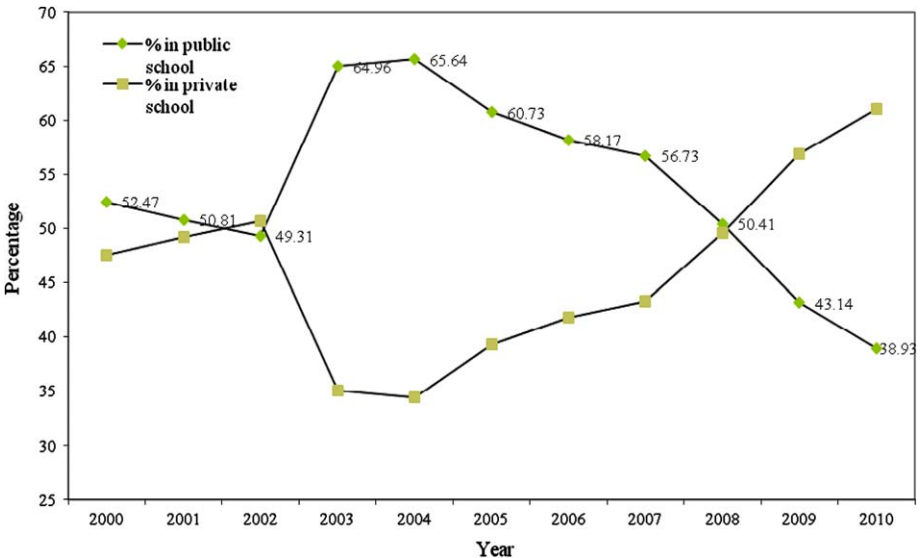

Figure 1.   Trends in school enrolment 2000–2010: slums.
Source: APHRC, DSS database for Korogocho and Viwandani slums in Nairobi, Kenya.

the numerous universal primary education policies across several countries in sub-Saharan Africa. Why parents – poor parents in this case – opt to take their children outside the state system (Dearden, Ryan, and Sibieta 2010) is complex and less understood. It was expected that FPE type of programmes would remove the burden on poor households financing primary education and thus encourage participation in state universal education. To the contrary, it has now been widely accepted that a fee-paying private (or non-state) education sector, albeit one charging very low fees, has 'mushroomed' in developing countries to meet the educational needs of the poor for a number of inconclusive reasons (Adelabu and Rose 2004; Baurer, Brust, and Hibbert 2002; Rose 2002; Tooley 2004; Watkins 2004; Oketch et al. 2010a). Tooley and Stanfield (2008), in their study of parents of the Kibera slum in Nairobi, Kenya, noted that since the introduction of FPE in 2003, government schools were now characterised by congestion and perceived lack of commitment by teachers and this was driving the rise of these private schools for the poor.

A study by the African Population and Health Research Centre (APHRC) found that nearly 43% of the children in the two slums of Korogocho and Viwandani where the centre has been running an urban demographic surveillance system (DSS) were enrolled in 'private schools for the poor' in 2000. By 2002, one year before the introduction of FPE, approximately 50% were in low fees private schools for the poor. In 2003, FPE was introduced in Kenya. The response to the policy in 2003 was very positive with enrolment in public schools rising to approximately 65% and that in the private schools declining to 35% among the residents of these two slum sites. This meant that there was massive shift into public schools following the policy (Tooley 2008). The trend continued in 2004, but from 2005, the shift from public back into private schools began to emerge in the APHRC DSS data. The trend has continued each year, so that by 2010 approximately 61% of the pupils in the two slums were now enrolled in private schools (see Figure 1). This trend presents one of the dilemmas of universal primary education policy in Kenya. It raises the question – why are the poor shifting back from state schools which are supposedly free, back into what are known as 'private schools for the poor' where they have to pay fees?

This trend also presents several policy concerns: Firstly, the Kenya government largely relies on taxes to finance FPE and education now accounts for about 7% of GDP expenditure and yet poor parents living in the slums continue to send their children to private schools, and some are shifting from public schools back into the private schools. Secondly, the slum is not homogenous and it appears that the movement from one type of school into another type of school could be explained by several factors, among them perceptions of quality, willingness and ability to pay for the low cost private schools and availability of such low cost schools. Using cross-sectional data, Ngware et al. (2009) found that household characteristics mattered in determining the type of school in which parents residing in the Korogocho and Viwandani slums of Nairobi enrolled their children. 'Wealthy' slum households were enrolling them in state schools whereas the poor slum households were enrolling them in private schools. Oketch et al (2010) also explored this phenomenon and argued that it was a case of excess demand, rather than differentiated demand, that was driving the utilisation of the private schools for the poor, and that the poor had been 'crowded out' of the state schools in the slums due to limited supply. The argument Oketch et al. advance is that the policy was announced for public schools but for the slum residents there were inadequate public schools to meet the needs of the pupils from poorer households.

Others such as Oketch and Somerset (2010) argue that school choice is likely to be influenced by school quality. Some of the indicators of school quality include: pupil-teacher ratio (PTR), class size, numbers of qualified and dedicated teachers, standards of discipline, regular tests and assessments, performance in national exams, and facilities such as comput-

ers, a swimming pool, music and library facilities. Naturally, parents would want to enrol their children in a school they perceive as having trained teachers, which is demonstrated by the schools' performance in the Kenya Certificate of Primary Education (KCPE) taken to mark the end of the primary cycle and used for selection and allocation of very limited secondary school places. Kenya does not yet have capacity for universal secondary education, so the competition for secondary places is fierce and entirely based on a pupil's performance in KCPE. Some parents further assess how the school will cater for the child's safety and social and emotional needs, its curriculum, literacy and numeracy programmes, and also the school location (Cook 2002).

None of these seem to explain the phenomenon witnessed in the slums. Public schools have better trained teachers, have no direct fees, have better buildings and facilities that would possibly offer better emotional environments for learning, and yet this group of very poor parents bypass the government schools and opt to pay fees in the private schools with inferior quality benchmarks. It is this conundrum that this paper aims to explore further by hypothesising that the trends in the shifts from public into private schools witnessed in the two slums of Korogocho and Viwandani, and the 'mushrooming' of private schools for the poor in several countries across sub-Saharan Africa that have universal access policies, can partly be explained by poverty dynamics. Because slums are not homogenous and are fluid and vulnerable, households move in and out of poverty frequently. For instance, within a given short period of time, a household can move up the scale to a better and positive economic outlook, or slide downward to a negative economic outlook. The concern for this paper is, does this movement influence the schooling decisions that households make and might this be the explanation for the shifts in schooling – from public into private and from one private to another private school – as shown in Figure 1? While Ngware et al. (2009) have attempted to assess how household characteristics influence where parents in the slums send their children to school, their analysis uses cross-sectional data that does not give the full picture of the poverty dynamics influence. Such a picture can only emerge where there is more than one data point, and this is what this paper aims to contribute to this complex phenomenon of the utilisation of private schools by the poor.

Literature from diverse fields, including anthropology, economics and development studies, has examined aspects of household and individual poverty dynamics (Attwood 1979; Bane and Ellwood 1986; Barrett et al. 2001; Bird and Shinkeya 2003; Lawson, McKay, and Okidi 2003; Christiaensen and Subbarao 2005; Davis 2006; Moser and Felton 2007; Quisumbing 2007). However little is known about the effects of poverty dynamics on school choice in the context of a country such as Kenya. It is this gap in the literature that this paper aims to make its contribution. The rest of the paper presents a summary of the literature pertinent to the theme of the paper. This is followed by presentation on data and methods. Results and interpretation is presented next, and finally the conclusion closes the paper.

Making schooling decisions

Avenstrup, Liang and Nellemann (2004) argue that poor parents are willing to invest their children's time in education if they think they will gain something useful from their investment. However, they need to be convinced that their children will have access to good quality education, with relevant knowledge and skills taught well in a conducive learning environment. If they are not convinced that their children are getting an appropriate education, they lose confidence in the system and pull their children out. School enrolment of the children is also influenced by the parents' characteristics and socio-economic status of the households (Sabot 1992; Waite, DeTray, and Rindfuss 1983). Parents' decisions to send their

children to school is also influenced by a number of factors reflecting on parents' capacity to educate their children, costs of schooling, benefits from schooling, social status of the parents, and societal norms, among others (Burney 1995).

The three post-independence governments in Kenya (the Kenyatta era, 1963–1978; the Moi era, 1979–2002; and the Kibaki era, 2003–present) have prioritised education (Oketch and Rolleston 2007; Oketch and Somerset 2010; Somerset 2007; Abagi 1999). Tangible achievements have been made in this regard, and one of these landmark achievements has been the provision of free primary education and subsequent increases to enrolments, especially after 2003 (Sifuna and Sawamura 2008). Sifuna and Sawamura further argue that beyond the euphoria over the alleged success of the free primary education initiative and the increased enrolments, there has been little policy attention to issues of equitable access, relevance, quality, and outcomes of primary school education. While FPE has led to improved school participation, a large proportion of pupils from poor households still use low- fee private schools and are therefore excluded from the free universal primary education which is only available in government schools (Oketch et al. 2010a). Some parents choose to send their children to private schools because they explicitly support certain values, such as religion (Sander 2001); others because private schools have better facilities, such as libraries and laboratories, or lower transportation costs. But there is a shift to the use of private schooling in the face of FPE that is less understood and seems to contradict many of the known reasons for the utilisation of private education. The debate still goes on about why poor parents, who according to Figure 1 above initially responded positively to the policy, have now reversed the trend and use private education a level greater than before the policy was introduced in 2003.

Some writers such as Anand, Mizala and Repetto (2009) argue that the fundamental theory behind school choice is that private schools are more efficient than public schools; therefore, giving parents the option of sending their children to private schools creates a competitive market that improves the quality of both private and public schools. However, most schools in the informal settlements are private and often attract unqualified and unpaid or under-paid teachers or volunteers who often leave once better opportunities become available, leading to high teacher turnover (Ngware et al. 2009). So, this argument about choice is not convincing in this case; and such schools do not see themselves as being in competition with the public schools.

Others have argued that household schooling decisions are explained by the interaction of social, cultural and economic factors working through power relations within the household (Al-Samarrai and Peasgood 1998). Others have placed poverty as being central in the kinds of decisions that household make, including schooling decisions. Poverty is widely acknowledged as a multidimensional phenomenon, more complex than just a level of income, consumption or expenditure below some minimum level. Conceptualising poverty as material deprivation by studying the distribution of a welfare indicator permits investigation regarding the magnitude of the problem, and allows comparisons over time (Hulme and Shepherd 2003). Not surprisingly therefore, the analysis of poverty dynamics has featured prominently in recent development economics research (e.g., Bane and Ellwood 1986; Jenkins 1998; Layte and Whelan 2003). The argument advanced is that the identification of the socio-economic characteristics of individuals and households that move in and out of poverty, and how this movement affects the types of decisions they make, is critical to the design of effective poverty-alleviating policies such as FPE.

Looking at the same households over time provides a better understanding of the conditions that keep people in poverty and those that move them out, allowing the identification of patterns to assist policy targeting (Sen 2003; Barrett et al. 2006). It is argued that households with access to various forms of assets are better able to provide for their children's basic needs

as well as to make investments in future generations through healthcare, education and training (Aryeetey 2004; Filmer 2002; Gutierrez 2002; Thomas, and Knezek 2002). Conversely, households lacking assets are more vulnerable to the negative child outcomes, including low levels or lack of schooling at all, and are associated with living in poverty (McKernan, Ratcliffe, and Nam 2007).

Others have gone further to argue that asset ownership has differential effects on child schooling in developing countries (Dar et al. 2002). Chowa, Ansong, and Masa (2009) argue that the term 'child schooling' includes both the decision to attend school, which is often termed school attendance, and the time allocated for schooling, which often involves decisions of whether a child should attend school or engage in activities that benefit family economics. Research evidence has shown existence of a positive association between asset ownership and school enrollment, attendance and completion (Filmer and Pritchett 2001; Montgomery et al. 2005; Montgomery and Hewett 2005). Ssewamala and Curley (2005) found that a family's ownership of assets measured by savings had a positive effect on children's school attendance.

On the basis of this literature, this paper argues that the slum is not a homogenous context. There are poor and less poor households in the slums, although the living conditions in the slums can generally be classified as poor. It is assumed that over time, because of the risks associated with slum residency, households move in and out of poverty frequently. This movement may be due to loss of assets, selling of assets to meet basic consumption needs such as food, and that in such circumstances, households move up and down a poverty scale frequently. Because of this unstable economic nature of slum households, poverty dynamics (that is, moving in and out of poverty) can determine the type of schooling decisions that households make.

Data and methods

The study uses longitudinal household data from the Education Research Program (ERP) carried out by the African Population and Health Research Center (APHRC). APHRC runs an urban demographic surveillance system (DSS) which routinely follows a population in defined geographical areas of the Korogocho and Viwandani slums in Nairobi to monitor vital demographic events such as deaths, births, and migration. ERP is a nested study within the APHRC urban DSS with particular focus on education data and assessing how the slum residents have responded to Kenya government FPE policy. ERP was first implemented in 2005 and it collects data on schooling for individuals aged between 5 and 19 years in each household covered by the APHRC DSS. Each year, there are subsequent updates (prospective follow-ups) and this has been going on since 2005. The individual upper age increases each year by one year and new individuals reaching the age of five within a household and in-migration into the study sites are also incorporated. The data is collected at household level, with the head of the household or the guardian/parent of the child being the respondent. Since the education project is nested within a demographic surveillance system, household amenities and characteristics information which are routinely collected by the DSS form part of the ERP data. As part of the schooling information, data on changes in school attended by those in a household and type of school (private or public) are collected. Since the objective of this paper is to determine whether poverty dynamics explain the shift to informal private schooling system in the wake of free public primary education in Nairobi slums, data on school transfers and household information are used.

The study adopts a longitudinal analysis, and individuals' entry year into the education project is used as the base year which determines school transfers (outcome) and changes in the wealth index, which is the main explanatory variable.

School transfers

Using 2005 as the entry year, individuals' school transfers are monitored. This also happens for individuals who entered the study after 2005. Therefore the base year for each individual on which to determine schooling transfers is $n+1$ year, where n is the year in which the individual entered the study site. For instance, for the individual who entered the DSS system in 2006, the base year would be 2006 and 2007 would be the year in which to first consider if a transfer has taken place. The transfers are categorised into three main categories: (1) no transfer that has taken place during the year, (2) transfer has taken place into public school, and (3) transfer has taken place into a private school.

Changes in wealth index

Household amenities and characteristics data were used to calculate a household wealth index using the principle component analysis (PCA). PCA helps collate multi-dimensional (orthogonal) data into a single representative score (Filmer and Pritchett 2001). The variables included in the PCA model were based on amenities and asset ownership of the household. These included source of drinking water, main type of toilet facility available, main material used on the roof, type of floor or wall of the dwelling unit, main type of cooking fuel, main source of lighting and whether household owns the dwelling unit they are occupying. Assets were captured by asking whether a household owns any of the following: car, motorcycle, bicycle, refrigerator, television, radio, sewing machine, electric iron box, fan, electric/gas cooker, and kerosene lamp. The PCA score was categorised into three levels, with the first level representing the poorest 33.3%, the second the middle 33.3%, and the third the least poor 33.3%. The household wealth index was calculated for all households included in the study each year independently. Changes in the household wealth index were captured as either negative, none or positive. For households that dropped in their wealth ranking from one year to the next, this change was marked as negative, and if there was a gain in wealth ranking, this was marked as a positive – and for those who did not see any change in their wealth raking in two or more year points, it was marked as no change. Similar to the coding in the school transfers, a base year (entry year) is used in which to measure if there are changes in household poverty ranking between the years.

Study participants

This study uses a longitudinal dataset collected in the period 2005–2009 involving 3763 households and 6965 individuals aged between 6 to 13+ years. The inclusion criteria to this study were that the participant had to be a resident in one of the study sites, in a household with individuals aged between 5 and 13+ years, and in primary-level schooling located within Korogocho and Viwandani slums. For the purposes of monitoring schooling transfers, individuals had to have at least consecutive data on two time points.

Variables and measurements

The included variables in this research analysis are dichotomous dependent variables: type of school and change of school. Independent variables are poverty dynamics, household head characteristics, child characteristics and area of residence.

Dependent variables:
- Change of school: Change of school is measured by overall change in school and transfer to private school.

Independent variables:
- Household wealth index: Changes in household wealth level over time used as a proxy to measure poverty dynamics.
- Area of residence: This was coded as either: (1) Korogocho or (2) Viwandani.
- Household head characteristics: Age, gender and level of education. Level of education is coded as: '1' = no education, '2' = primary education, '3' = secondary education, '4' = tertiary (post secondary education).
- Individual characteristics: Age, gender, grade and level, schooling year.

Analytical strategy

The outcome of interest is changes in school. This is measured as overall changes in schooling irrespective of the type of change, or no change. The outcome variable of interest is therefore dichotomous dependent. Therefore, we fit a logistic regression, a generalised linear model that extends linear regressions to non-continuous outcomes using logit link functions and a Maximum Likelihood estimator (Aldrich and Nelson 1984). The logit model takes the form below:

$$Pr(y_j = 1|x_j) = \frac{1}{1 + exp(-\alpha_0 - \beta_i x_j)}$$

where x_j are the explanatory variables and α_0 and β_i are unknown parameters to be estimated. The βj are estimated using maximum likelihood. Once the coefficients are exponentiated they give odds ratios. The beta coefficients βj are interpreted as the increase in log-odds of being into category j versus the base category resulting from a one-unit increase in the *ith* covariate, holding the other covariates constant. Since the data is clustered at individual level (violating the assumption of independent observation), a multilevel logit model was first fitted in order to determine whether there is significant variation within and between individuals. The final logit model involved clustering individual to adjust for estimated standard errors. Different models were fitted in order to isolate the effect of changes in household wealth index on school transfers controlling for other characteristics. The first involved determining the effect of changes in wealth index on overall schooling transfers. The second involved changes to private informal schools versus either no change and/or changes to public school. Third and lastly we compared changes to private informal school versus changes to public schools.

Results

Table 1 shows the distribution of change of school, wealth status and study sites. The majority of the overall transfers (827 pupils) occurred between 2006 and 2007. Sixty-eight per cent of the pupils who transferred in 2006 reside in Korogocho compared to 31% in Viwandani. 51% of those who changed school in 2006–2007 remained in the same wealth quintile. Among the households that experienced positive change in their wealth status only 25.4% changed their childrens' school. In the same period 31.75% transferred from private to private schools.

Changes in the wealth index over time show that half of the households remained in the same ranking and nearly equal proportions of households either changed positively (better off than the previous year/s) or negatively (become poorer). The results also show that

Table 1. Background characteristics of school transfers by schooling year.

Year	2005/2006	2006/2007	2007/2008	2008/2009
No. of pupils transferred	539	827	194	177
Household wealth index				
Poorest	202 (37.76)	249 (32.94)	75 (41.44)	50 (34.01)
Middle	187 (34.95)	251 (33.2)	55 (30.39)	50 (34.01)
Least poor	146 (27.29)	256 (33.86)	51 (28.18)	47 (31.97)
Pupil gender				
Female	271 (50.65)	360 (47.62)	89 (49.17)	74 (50.34)
Male	264 (49.35)	396 (52.38)	92 (50.83)	73 (49.66)
Study site				
Korogocho	414 (77.38)	519 (68.65)	141 (77.9)	111 (75.51)
Viwandani	121 (22.62)	237 (31.35)	40 (22.1)	36 (24.49)
Mean age in years	10.66 (2.71)	11.45 (2.51)	11.5 (2.49)	11.51 (1.94)
Changes in HH wealth index				
None	284 (53.08)	392 (51.85)	100 (55.25)	64 (43.54)
Negative	109 (20.37)	172 (22.75)	42 (23.2)	50 (34.01)
Positive	142 (26.54)	192 (25.4)	39 (21.55)	33 (22.45)
Type of school transfer				
Public to private	138 (25.79)	169 (22.35)	60 (33.15)	73 (49.66)
Private to public	173 (32.34)	131 (17.33)	89 (49.17)	44 (29.93)
Public to another public	75 (14.02)	216 (28.57)	11 (6.08)	6 (4.08)
Private to another private	149 (27.85)	240 (31.75)	21 (11.6)	24 (16.33)

Note: % in parenthesis.

there is high movement from public to private and private to private schools. There are also notable changes from private to public schooling, especially between 2007 and 2008. It should be noted here that the analysis only included data where transfer had taken place. Households that did not see any transfers are not included in the school transfers results.

Table 2 shows the reasons cited by those who changed schools. Three-quarters of the changes were either due to cheap costs of schooling or quality. Forty-nine per cent cited school performance as a motivator to change from one school to another and 26% cited

Table 2. Reasons for changing school.

	Number	%
School cheaper, provides free primary	363	26.04
Teachers/school perform well, more disciplined	686	49.21
School buildings/facilities of good quality	28	2.01
School is near or easily accessible,	91	6.53
School did not have level/grade for children	38	2.73
School closed or school on strike	10	0.72
Other school factors	2	0.14
Physical or mental disability	5	0.36
Expelled from previous school	4	0.29
Friends/neighborhood/peer influence	39	2.8
Relocation of family	30	2.15
Other household factors, e.g., death	74	5.31
Don't know/missing	24	1.72

Note: Also see Oketch et al. (2010).

free primary education or cheaper schooling as the reason for shifting from one school or type of school to another.

Table 3 shows logistic regression to assess the effect of change in wealth level on overall school change. We first fitted a multi-level logistic regression and found an insignificant intra-class correlation. Therefore we utilised logistic regression clustering individual observations. The dependent variable is change of school regardless of the type of school change while the independent variables are change in household wealth, time and household characteristics. Three different models were fitted with one as the main predictor (change in household wealth), a second model controlled for time, whereas the third model controlled for time and other household characteristics (Table 3). In Model 1 of Table 3, the odds of changing school decreases with increase in wealth, although this is insignificant. The odds of changing school significantly decrease over time (Model 2, Table 3). Model 3 of Table 3 indicates the effect of changes in wealth on overall change in school controlling for time, household head's education, gender, age, household size and resident type. The odds of changing school increase with increased level of parental education. The results further indicate that there are differences between the two slum sites. For example, in Model 3 pupils from Viwandani have significantly higher odds of changing school compared with their counterparts in Korogocho.

We secondly fitted a logistic model using shifts to private informal school versus no change and/or changes to other school type (public) as an outcome. The results are tabulated in Table 4. There is no significant difference on the effect of changes in household wealth index when comparing Models 3 and 6 of Tables 3 and 4 respectively. Model 4 shows that an increase in household wealth increases the odds of shifting to private informal school among the slum pupils, although this is not statistically significant. This is also the case after controlling for time and household characteristics. However, the odds of shifting to a private school significantly decreases over time (Model 5 and 6), indicating stability in the schools' enrollments.

The age of the child and household head significantly decreased the odds of shifting to private informal school (Model 6). That is, the older the child, the less likely that a transfer

Table 3. Odds ratio from logistic regression models on overall school change (n = 15597; clusters = 6965).

Variable	Model 1		Model 2		Model 3	
	Odds	CI	Odds	CI	Odds	CI
WICH: Negative	1.09	[0.96; 1.24]	1.12	[0.99; 1.28]	1.05	[0.92; 1.20]
Positive	1.03	[0.91; 1.17]	1.04	[0.92; 1.19]	1.01	[0.89; 1.16]
Year: 2006/2007			1.73***	[1.54; 1.95]	1.80**	[1.60; 2.02]
2007/2008			0.44***	[0.38; 0.52]	0.45 **	[0.38; 0.54]
2008/2009			0.32 ***	[0.27; 0.38]	0.33 **	[0.27; 0.39]
HHE: Primary					0.84*	[0.71; 1.00]
Secondary or higher					0.93	[0.76; 1.14]
Not known					1.04	[0.74; 1.48]
Site: Viwandani					0.56 ***	[0.49; 0.65]
Child age					0.97**	[0.94; 0.99]
Child sex: Male					1.11*	[0.99; 1.25]
HH sex: Male					0.96	[0.81; 1.14]
HH size					1.02	[1.00; 1.04]
HH age					1.00*	[0.99; 1.00]

Notes: *** Significant at 1%; ** significant at 5% and * significant at 1%; WICH = wealth index change; HH = household; HHE = household head education.

Table 4. Odds ratio from logistic regression models on shift to private informal school only (n = 15597; clusters = 6965).

	Model 4		Model 5		Model 6	
	Odds	CI	Odds	CI	Odds	CI
WICH: Negative	1.00	[0.84; 1.19]	1.02	[0.85; 1.22]	0.96	[0.81; 1.15]
Positive	1.01	[0.85; 1.19]	1.01	[0.85; 1.20]	0.99	[0.84; 1.18]
Year: 2006/2007			1.68***	[1.44; 1.96]	1.75***	[1.50; 2.04]
2007/2008			0.38***	[0.30; 0.49]	0.39***	[0.31; 0.51]
2008/2009			0.41***	[0.33; 0.52]	0.42***	[0.34; 0.54]
HHE: Primary					1.08	[0.88; 1.33]
Secondary or higher					1.16	[0.90; 1.49]
Not known					1.22	[0.81; 1.83]
Site: Viwandani					0.59***	[0.50; 0.69]
Child age					0.95***	[0.93; 0.98]
Child sex: Male					1.11	[0.97; 1.28]
HH sex: Male					0.85	[0.69; 1.04]
HH size					1.01	[0.98; 1.04]
HH age					0.99**	[0.99; 1.00]

Notes: *** Significant at 1%; ** significant at 5% and * significant at 1%; WICH = wealth index change; HH = household; HHE = household head education.

will occur (decreases by 5%). The odds of shifting to private schools increases with household head level of education although it is not statistically significant. Household gender odds ratio of 0.85 indicates that households with a female head were 15% less likely to transfer their children into private informal schools when compared with male-headed households.

The last results (Table 5) are only restricted to individuals who changed school and comparison is made between those who changed into private informal schools against those who changed into public schools. There is an insignificant effect in change of household wealth index on school transfer into private informal schools (Models 7–9). The direction of

Table 5. Odds ratio from logistic regression models on shift to private informal schools Vs public only school (n = 1737; clusters = 1309).

	Model 7		Model 8		Model 9	
	Odds	CI	Odds	CI	Odds	CI
WICH: Negative	0.84	[0.66; 1.08]	0.81	[0.63; 1.04]	0.85	[0.66; 1.09]
Positive	0.94	[0.74; 1.20]	0.93	[0.73; 1.18]	0.95	[0.74; 1.21]
Year: 2006/2007			1.01	[0.82; 1.25]	1.01	[0.82; 1.26]
2007/2008			0.69**	[0.48; 0.99]	0.70**	[0.49; 1.00]
2008/2009			1.71***	[1.16; 2.51]	1.74***	[1.18; 2.56]
HHE: Primary					1.57***	[1.22; 2.01]
Secondary or higher					1.49**	[1.10; 2.04]
Not known					1.36	[0.77; 2.4]
Site: Viwandani					0.99	[0.80; 1.24]
Child age					0.97	[0.93; 1.01]
Child sex: Male					1.03	[0.85; 1.24]
HH sex: Male					0.81	[0.61; 1.06]
HH size					0.97	[0.94; 1.01]
HH age					1.00	[0.99; 1.01]

Notes: *** Significant at 1%; ** significant at 5% and * significant at 1%; WICH = wealth index change; HH = household; HHE = household head education.

the odds ratio for change in wealth index remains the same as seen in Table 3 and 4. Unlike in the overall change and into private informal schools versus results shown in Table 3 and 4 respectively, the effect of household head education becomes significant only when considering changes into either private informal or public schools. Model 9 shows that parents who have either primary or at least secondary education (secondary and higher) are more likely to transfer their children into private informal schools when compared to those with no education. The odds increase significantly by 57% and 49% respectively. The significant effect of child and household age observed in Model 6 of Table 4 ceases, in which the older the child, the less likely s/he would transfer to informal private school.

Interpretation and conclusion

This paper began by seeking to analyse the role that poverty dynamics might have in explaining the shifts in schooling experienced in the slums following Kenya's implementation of FPE in 2003. The paper builds on previous studies, notably Ngware at al. (2009) which analysed the role of household characteristics on schooling types, and Oketch et al. (2010a), which argued that the utilisation of private schooling in the slums was driven by excess demand. The findings in this paper reveal that asset ownership (or what is categorised here as household wealth) is an important factor in the schooling decisions that households make. This conforms to earlier studies such as Filmer and Pritchett (2001) and Montgomery and Hewett (2005), who in other contexts had come to similar conclusions. One quarter of those whose household wealth improved shifted school. There is greater utilisation of private schooling across the sites. Viwandani, which is less poor and more stable economically of the two slums, saw fewer shifts. This paper is driven by data as the study did not set out to explore this phenomenon per se, but the authors got curious by the patterns of schooling that were emerging following the nested ERP study that was aiming to assess how slum households had responded to Kenya government FPE policy. So there are likely to be some limitations but there is a clear narrative emerging, some of it pointing to the tested conventional reasons why parents choose private schools. The findings in this paper also provide further insights to complement those that have been presented in earlier papers.

The study findings indicates that overall, most school transfers occurred in 2006–2007, two to three years into the Kenya free primary education policy, which does imply that parents had by this time experienced FPE and could make a judgment about the education under FPE and the one their children had previously received. Excitement about FPE may have been replaced with sensible thinking and scrutiny even by parents who were deemed as poor and living in the slums, whom might have been expected to be pleased to have been given an offer of free education.

Contrary to arguments about the FPE conundrum in the face of the utilisation of private schools by the poor, it seems from the analysis of data used for this paper that poor slum parents are willing and have the ability to pay for these low-cost private schools. Indeed, one can argue that there is an element of choice at play here, although a very complex one, but the decision processes seem to be rational because parents evaluate costs and consider quality (perceived) in moving their children from public schools where FPE is in operation. Parents who had assets seem to have been able to make decisions that were congruent with the desire for future better educational outcome for their children. This resonates with the work of others such as Aryeetey (2004) and Filmer (2005) among others, who have argued that asset ownership is a crucial determinant of investment decisions, including those decisions affecting schooling.

The results of the overall school change has revealed that:

- The odds of changing school decreases with increase in household wealth, although it is not statistically significant.
- The odds of changing school significantly decreased over time - indicating that parents had internalised FPE and had now made up their minds about what kind of school they preferred to send their children to.
- The odds of changing school increase with increased level of parental education.
- Poorer slums have frequent school transfers compared to less poor slums
- Results of the shift to private informal schools only indicate the following:
  - An increase in household wealth increases the odds of shifting to private informal school ('private schools for the poor') although this is not statistically significant.
  - The odds of shifting to a private school significantly decreases with increased level of household head education.
  - Older children in higher grades are less likely to shift schools.

These findings indicate a complex process of schooling decision making even among the poor slum residents. It appears that wealth level of a household gives the household room to make decisions that favour shifting schools. As the dust has settled in FPE, it is clear that the trend is reversing and something is not right with the policy reaching the very poor slum residents. Parents cite affordability and quality as reasons for changing schools and it seems they have passed the verdict that FPE does not offer the kind of education they would like their children to experience. It is odd to claim success of FPE when over 60% of poor slum population has opted out of the programme, when initially, they did indeed positively respond to the policy.

Acknowledgements

Notes on contributors
Dr Moses Oketch is Reader at the Institute of Education, University of London. Between 2008 and 2011 he was affiliated with African Population and Health Research Center (APHRC) as Senior Research Scientist and Head of the Education Research Program, first as Sabbatical Fellow, and later, on leave from his University. His areas of research interest include economics of education, education policy analysis, impact evaluation, schooling decisions including access, quality, livelihood, learning outcomes and the inter-linkages between education and economic development. He has published extensively on these areas.

Mr Maurice Mutisya is Data Analyst, Education Research Program at the African Population and Health Research Center (APHRC). He holds a BSc (Mathematics and Computer Science) from Jomo Kenyatta University of Agriculture and Technology (JKUAT) and a Master of Science degree in the field of Population-based Field Epidemiology from the University of Witwatersrand (Johannesburg, South Africa).

Ms Jackline Sagwe is the Head of Business Intelligence and Research at the Kenya Institute of Management and a PhD student at the University of Nairobi, School of Mathematics. She holds an Msc Statistics and a BEd (Maths and Economics) with First Class Honours from the University of Nairobi.

References
Abagi, O. 1999. Education for the next millennium. In *Kenya's strategic policies for the twenty-first century: Macroeconomic and sectoral choices*, ed. P. Kimunya, M. Wagacha, and O. Okwach, 197–230. Nairobi: Institute of Policy Analysis and Research.

Adelabu, M., and P. Rose. 2004. Non-state provision of basic education in Nigeria. In *Nigeria: Study of non-state providers of basic services*, ed. G. Larbi, M. Adelabu, P. Rose, D. Jawara, O. Nwaorgu, and S. Vyas. Birmingham: DfID.

Al-Samarrai, S., and T. Peasgood. 1998. Educational attainments and household characteristics in Tanzania. *Economics of Education Review* 17, no. 4: 395–417.

Aldrich, J.H., and F.D. Nelson. 1984. *Linear probability, logit, and probit models*. Newbury Park, CA: Sage.

Anand, P., A. Mizala, and A. Repetto. 2008. Using school scholarships to estimate the effect of private education on the academic achievement of low income students in Chile. Working Paper, Center for Applied Economics, 220. http://www.webmanager.cl/prontus_cea/cea_2006/site/asocfile/ASOC-FILE120060522101824.pdf.

Aryeetey, E. 2004. Household asset choice among the rural poor in Ghana. Paper presented at the 'Understanding Poverty in Ghana' workshop at the Institute of Statistical, Social and Economic Research, July 18–20, University of Ghana, Legon.

Attwood, D.W. 1979. Why some of the poor get richer: Economic change and mobility in rural West India. *Current Anthropology* 20, no. 3: 495–516.

Avenstrup, R., X. Liang, and S. Nellemann., 2004. Kenya, Lesotho, Malawi and Uganda: Universal primary education and poverty reduction reducing poverty, sustaining growth. Paper presented at the 'What works, what doesn't, and why. A global exchange for scaling up success, scaling up poverty reduction: A global learning process' Conference, May 25–27, in Shanghai.

Bane, M.J., and D.T. Ellwood. 1986. Slipping into and out of poverty: The dynamics of spells. *Journal of Human Resources* 21: 1–23.

Barrett, C., P.P. Marenya, J. McPeak, B. Minten, F. Murithi, W. Oluoch-Kosura, F. Place, J.C. Randrianarisoa, J. Rasambainarivo, and J. Wangila. 2006. Welfare dynamics in rural Kenya and Madagascar. *Journal of Development Studies* 42, no. 2: 248–77.

Barrett, C., T. Reardon, and P. Webb. 2001. Nonfarm income diversification and household livelihood strategies in rural Africa: Concepts, dynamics, and policy implications. *Food Policy* 26: 315–31.

Baurer, A., F. Brust, and J. Hybbert. 2002. Entrepreneurship: A case study in African enterprise growth, expanding private education in Kenya: Mary Okelo and Makini schools. *Chazen Web Journal of International Business* Fall.

Bird, K., and I. Shinkeya. 2003. Multiple shocks and downward mobility: Learning from the life histories of rural Ugandans. CPRC working paper 36, Chronic Poverty Research Centre, Manchester, UK.

Burney, N.A. 1995. Determinants of child school enrolment: Evidence from LDCs using choice-theoretic approach. *International Journal of Social Economics* 22, no. 1: 24–40.

Chowa, G., D. Ansong, and R. Masa. 2009. Asset and child well-being in developing countries: A research review. CSD Working Papers No. 09-38.

Christiaensen, L., and K. Subbarao. 2005. Towards an understanding of household vulnerability in rural Kenya. *Journal of African Economies* 14, no. 4: 520–58.

Cook, B. 2002. Inclusive attitudes, strengths, and weaknesses of pre-service general educators enrolled in a curriculum infusion teacher preparation program. *Teacher Education and Special Education* 25, no. 3: 262–77.

Dar, A., N. Blunch, B. Kim, and M. Sasaki. 2002. *Participation of children in schooling and labor activities: A review of empirical studies. Social Protection Discussion Paper Series No. 0221*. Washington, DC: World Bank.

Davis, P. 2006. Poverty in time: Exploring poverty dynamics from life history interviews in Bangladesh. Manchester, CPRC Working Paper 69. Available at: www.chronicpoverty.org/pdfs/69Davis.pdf.

Dearden, L., C. Ryan, and L. Sibieta. 2010. What determines private school choice? A Comparison between the UK and Australia. IFS Working Paper 10/22.

Filmer, D. 2002. Fever and its treatment among the more and less poor in Sub-Saharan Africa. *Health Policy and Planning* 20, no. 6: 337–46.

Filmer, D., and L. Pritchett. 2001. Estimating wealth effects without expenditure data – or tears: An application to educational enrollment in states of India. *Demography* 38, no. 1: 115–32.

Gutierrez, M.J. 2002. Nutritional status of children in Bolivia: Does land ownership matter? Unpublished master's thesis, The Heller School of Social Policy, Brandeis University, Waltham, Massachusetts.

Hulme, D., and A. Shepherd. 2003. Conceptualizing chronic poverty. *World Development* 31, no. 3: 403–24.

Jenkins, S. 1998. Modelling household income dynamics. Institute for Social and Economic Research, University of Essex.

Lawson, D., A. McKay, and J. Okidi. 2003. Poverty persistence and transitions in Uganda: A combined qualitative and quantitative analysis. CPRC Working Paper 38, Chronic Poverty Research Centre, Manchester, UK.

Layte, R., and C.T. Whelan. 2003. Moving in and out of poverty: The impact of welfare regimes on poverty dynamics in the EU. *European Societies* 5, no. 2: 167–91.

McKernan, S.M., C. Ratcliffe, and Y. Nam. 2007. *The effects of welfare and IDA program rules on the asset holding of low-income families*. Washington, DC: Urban Institute.

Montgomery, M., and P. Hewett. 2005. *Poverty and children's schooling in urban and rural Senegal. Policy Research Division Working Paper No. 196*. New York: Population Council.

Montgomery, M., M. Grant, B. Mensch, and R. Roushdy. 2005. *Children's schooling in developing-country slums: A comparison of Egypt and India. Economics Departmental Working Paper No. 05–07*. Stony Brook, NY: Stony Brook University.

Moser, C., and A. Felton. 2007. Intergenerational asset accumulation and poverty reduction in Guayaquil, Ecuador, 1978–2004. In *Reducing global poverty: The case for asset accumulation*, ed. C. Moser. Washington, DC: Brookings Institution Press.

Ngware, M., M. Oketch, A. Ezeh, and N. Mudege. 2009. Do household characteristics matter in schooling decisions in urban Kenya? *Equal Opportunities International* 28, no. 7: 591–608.

Nyokabi, J. 2009. Determinants of primary schooling in Kenya. KIPPRA Discussion Paper No. 104.

Oketch, M., M. Mutisya, M. Ngware, and A.C. Ezeh. 2010a. Why are there proportionately more poor pupils enrolled in non-state schools in urban Kenya in spite of FPE policy? *International Journal of Educational Development* 30, no. 1: 23–32.

Oketch, M., M. Mutisya, M. Ngware, A.C. Ezeh, and C. Epari. 2010b. Free primary education policy and pupil school mobility in Urban Kenya. *International Journal of Educational Research* 49: 173–83.

Oketch, M.O., and R. Rolleston. 2007. Policies on free primary and secondary education in East Africa: Retrospect and prospect. *Review of Research in Education* 31, no. 1: 13–58.

Oketch, M., and A. Somerset. 2010. Free primary education and after in Kenya: Enrolment impact, quality effects, and the transition to secondary school. Create Pathways to Access, Research Monograph No. 37, University of Sussex, Falmer.

Quisumbing, A.R. 2007. Poverty transitions, shocks, and consumption in rural Bangladesh: Preliminary results from a longitudinal household survey. CPRC Working Paper 105. Manchester: Chronic Poverty Research Centre.

Rose, P. 2002. Is the non-state education sector serving the needs of the poor? Evidence from east and Southern Africa. Paper prepared for DfID Seminar in preparation for 2004 World Development Report.

Sabot, R. 1992. Human capital accumulation in post green revolution rural Pakistan: A progress report. *Pakistan Development Review* 31, no. 4: 449–90.

Sander, W. 2001. The effect of catholic schools on religiosity, education and competition. National Center for the Study of Privatization in Education Occasional Paper 32. http://www.tc.columbia.edu/ncspe.

Sen, B. 2003. *Drivers of escape and descent: Changing household fortunes in rural Bangladesh*. Dhaka: Bangladesh Institute of Development Studies.

Sifuna, D.N., and N. Sawamura. 2008. Universalizing primary education in Kenya: Is it beneficial and sustainable? *Journal of International Cooperation in Education* 11, no. 3: 103–18.

Somerset, A. 2007. A preliminary note on Kenya primary school enrolment trends over four decades. Create Pathways to Access, Research Monograph No. 9, University of Sussex, Falmer.

Ssewamala, F., and J. Curley. 2005. *Increasing life chances for orphaned children in Africa: Testing an asset-based development strategy. CSD Working Paper No. 05–01*. St Louis, MO: Washington University, Center for Social Development.

Thomas, L., and D. Knezek. 2002. Standards for technology – supported learning environments. *State Education Standards* 3, no. 3: 14–20.

Tooley, J. 2004. Private education and 'Education for all'. *Economic Affairs* 24, no. 4: 4–7.

Tooley, J.D., and J. Stanfield. 2008. Impact of free primary education in Kenya: A case study of private schools in Kibera. *Educational Management Administration and Leadership* 36, no. 4: 449–69.

UNESCO-UIS. 2011. *Global education digest 2011: Comparing education statistics across the world*. Montreal, Canada: UNESCO Institute for Statistics.

Watkins, K. 2004. Private education and 'Education for all' – or how not to construct an evidence-based argument. *Economic Affairs* 24, no. 4: 8–11.

Waite, L.J., D. DeTray, and R. Rindfuss. 1983. *Expectations of Malaysian mothers for the schooling of their children*. Santa Monica, CA: The Rand Corporation.