Intergenerational Poverty Transfer: Evidence from Rural Kenya

Milu Muyanga
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RESEARCH PROPOSAL
Presented to
PEP Network

By
Milu Muyanga
Tegemeo Institute, Egerton University (Kenya)

&

Esther Mueni
Institute of Open Learning, Kenyatta University (Kenya)

John Olwande
Department of Agricultural Economics, Egerton University (Kenya)

Stella Njoki Wambugu
Department of Agricultural Economics, University of Nairobi (Kenya)

KENYA

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* Lead Researcher, Email muyanga@tegemeo.org; phone +254-20-2717818; Fax +254-20-2717819
Abstract

Poor education is a medium through which poverty is passed on from one generation to the next. Poverty is not only about income; it is also about inequitable access to services, lack of opportunities, reduced outcomes, and reduced hope and expectations. Missed schooling or poor educational achievement can undermine efforts to escape from poverty. Children who attend primary and secondary education and are able thereafter to pursue higher education are more likely to attract higher incomes, and bring up their own future offspring out of poverty. Children from poor backgrounds are more unlikely to continue in education and are more likely to be engaged in poorly paid jobs. In the increasingly knowledge-based economy, education is bound to be a critical determinant of poverty or wealth. In this study, we propose to explore how poor parents transmit poverty and disadvantage to their children through poor schooling in Kenya. The specific purpose of the study is to investigate the effects of family background factors and access to infrastructural facilities in determining intergenerational transfer of poverty. Next, we examine whether government intervention through subsidies in primary education can help in overcoming parental disadvantages and thus effectively stemming intergenerational transmission of poverty. Last, we discuss policy implications of the results. The analysis is based on empirical panel data from a sample of 1500 rural households in Kenya interviewed in 1997, 2000, 2004 and 2007.
1. Main research questions and core research objectives

Education is critical to breaking the cycle of poverty. For the poor parents, the opportunity to obtain primary education for their offsprings is the first empowering step in their journey out of poverty (Holyfield, 2002). Education raises productivity, innovation and output, and therefore contributes to economic growth and poverty reduction. It gives people new skills and empowers them to take advantage of new opportunities, providing them with the means to gain a fairer share of the economic cake. Education has a value in itself. Education builds self-confidence and expands horizons, which are important in enhancing the status of marginalized communities increasing choice and opportunities. It enables these communities to take control of their lives and stand up for their rights. It is thus a basic human right for everyone.

The link between lack of education and poverty is clear. A large body of literature from various parts of the world show that educational returns for an additional year of schooling are positive and range anywhere from 5 percent in developed countries to as high as 29 percent in developing countries (Psacharopoulos, 1985 and 1994). For example, Psacharopoulos (1994) finds that returns to education in Africa are higher than for other regions. Using data from the Welfare Monitoring Survey (WMS) of 1994, undertaken by the Central Bureau of Statistics Manda (2004) show that human capital has a positive effect on earnings, indicating that an increase in education benefits all workers in Kenya. However, men were found to benefit more from women’s education than the women do from men’s. The effects of human capital externality on private returns to schooling are shown to vary substantially between rural and urban areas and across levels of the education system. In a recently concluded study, Muyanga et al. (2007) established that high education attainment by the household head significantly reduces household chronic poverty component in Kenya.

Evidence exists indicating that parents’ education is positively associated with greater child education (Strauss and Thomas, 1995 and Shultz, 1988). The result is also reported in recent studies in Africa (Glewwe and Jacoby, 1994 in Ghana; Tansel, 1997 in Ghana and Cote d’ Ivoire; Lloyd and Blanc, 1996 in six countries; and Appleton, 2001 in Uganda). Glewwe and Jacoby (1994) and Wambugu (2002) suggest that individual characteristics, such as ability, and family factors, such as parental education, affect the child’s learning productivity and thus the earnings potential of the child. In Kenya, Wambugu (2002) established that having well-educated parents is associated with greater educational attainment and earnings. Using OLS and ordered probit models, parents’ education was found to be positively associated with worker’s education, measured in years completed or highest level completed.

Children born into poor families often have poor educational outcomes; exhibit more externalizing behaviors, and more depressive symptoms (Cross and Lewis, 1998). Experts have always pointed at parental poverty as the main reason for escalating rate of

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1 Although some people with low levels of education have been able to break the cycle and live successful productive lives, this scenario is not typical.
school drop outs as pupils go to school on empty stomachs and dressed in tatters making it difficult for them to concentrate on their lessons or participate in school activities (Center for Public Policy Priorities, 1999). In this study, high schooling gap or forgone schooling opportunities are seen as process by which poor parents transmit poverty and disadvantage to their children. Missed schooling opportunity is taken as an ‘irreversible disinvestment’ (Voth et al., 2000).

The poverty experienced by youth is often linked to childhood deprivation and parental poverty: that in one way or another, the ‘older’ generation has been unable to provide the assets required by the ‘younger’ generation, such that they are unable to effectively meet challenges faced during youth (Moore, 2004). These challenges may be both structural and idiosyncratic. Intergenerational poverty refers to the poverty induced by the socially/economically challenged background of a person’s parents. Tackling intergenerational poverty would involve the provision of support and opportunities essential to a person’s sound development but which support and opportunities would, if not for the intervention, be beyond reach as a result of the socially and economically challenges his/her parents face? Since life cycle development is cumulative, the earlier the compensatory intervention takes place, the less will be the impact of deprivation on the development of a child. Parental investment in children – in terms of time and capital in education and training, health and nutrition, and general care – is strongly affected by available resources and localized norms of entitlement surrounding gender, age and birth order, parental education attainment, among other factors.

Studies have shown that without dependence on parental background, governments’ intervention can lead to enhanced access to education thus effectively affording younger generation from poor households an equitable chance to escape from poverty in the future (Raymond and Sadoulet, 2003). This study proposes to establish the effects of family background and infrastructural factors in determining intergenerational transfer of poverty through low education attainment. By teasing out factors causing low educational attainment by children, the study will be in a position to tell whether the recently introduced free primary education (FPE) programme and the manner in which it is designed, will assist in revering earlier observed dropout rates, grade retardation and schooling gaps.

2. Primary education in Kenya

In Kenya, the government has since independence committed itself to providing universal education to all primary school going age children. This initially took the form of free primary education (FPE), which was provided in the second decade after independence. Having existed for more than 10 years, free primary education was later abolished under the Structural Adjustment Programs (SAPs). These meant that parents had to contribute more towards the education of their children through the cost-sharing programme in form of uniforms, textbooks and other instructional material. The cost-sharing system introduced to ease the financial burden on the public education system in 1988 somewhat led to decline in the gross enrollment rate (GER) and school attendance (Bedi et al., 2002 and Kimalu et al., 2001). The GRE dropped from 115 percent in 1987 to 95 percent in 1990 and further to 91 percent in 2001 (World Bank,
The primary school GRE declined from 98 per cent in 1989 to 89 percent in 2002, while the secondary school enrolment rate dropped from 29 to 23 percent during the same period. These trends were observed despite the fact that the country is among the highest spender on education in sub-Saharan Africa (Vos et al., 2004). The GER for girls has remained relatively lower than that of boys. In 2001 for example, the primary school GER was recorded at 90 and 91 percent for girls and boys respectively.

In general, the education system has been characterised by high wastage within in the system in the form of low enrollment, high dropouts, grade repetition, low completion and poor transition rates (Republic of Kenya, 2001). This scenario has been attributed to high cost of education, which has negative impact on access, retention, equity and quality. The need for education affordability and equitable access was felt and the government enacted 2001 Student’s Act that states that the government should provide free and compulsory education. In December of 2002, Kenya elected a new government (NARC). In accordance with the new government’s campaign promises, free primary education programme was introduced in January 2003. It was a historic period in Kenya; the shifting of government power to a new party for the first time since independence and ambitious new reforms like FPE generated lots of publicity in both national and international press and prompted general excitement among the populace. Avenstrup et al. (2004) observes, a top-level dynamic political initiative triggered FPE implementation in Kenya driven by a social contract with the electorate, leaving little time for detailed planning before startup. In some cases, there was little time even to consult with the stakeholders.

The FPE programme involves capitation payment to government primary schools intended to cover the costs of operation and maintenance previously covered by fees from parents. The programme is general and thus does not target the poor sections of the population. Before the beginning of 2003, the parents contributed a significant proportion towards operational and development costs averaging 35 percent of the total costs in primary schools (Republic of Kenya, 2003). The premise of the FPE programme was that the main barriers to schooling come from income constraints and direct costs. It was assumed that the supply of school was sufficiently adequate and opportunity costs of a child being in school did not matter.

By eliminating direct costs of schooling, families could send their children to primary school, thus increasing demand. The public response to FPE was overwhelming and created ‘access shock’. Enrollments jumped by 22 percent, yielding a gross enrollment rate of 104 percent (Table 1). A total of 1.5 million new students showed up to enroll in schools, drastically increasing classroom size from an average of 40 students to 120 (Schmidt, 2006). This led to overcrowded classrooms, and shortages of equipment, teachers, textbooks, and other materials. Many enrolled are over-age pupils and adults, who should have been taking adult education (Annex 1). A recent study by Vos et al. (2004) shows that shows that universal primary education by the year 2015 is a feasible target for Kenya. The results also show that with a more cost-effective spending of education resources - increased trained teachers, enhanced textbook supplies and
subsidies targeting the poor - the country could realize higher enrolment rates than what has been achieved with free primary education.

Table 1: Education Outcomes in Kenya Before and After Introduction of FPE

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of pupils</td>
<td>6,314,600</td>
<td>6,917,553</td>
</tr>
<tr>
<td>Number of teachers</td>
<td>197,331</td>
<td>178,037</td>
</tr>
<tr>
<td>Pupil to teacher ratio</td>
<td>32</td>
<td>38.9</td>
</tr>
<tr>
<td>Number of classrooms</td>
<td>186,000</td>
<td>191,088</td>
</tr>
<tr>
<td>Pupil to classroom ratio</td>
<td>34</td>
<td>36</td>
</tr>
<tr>
<td>Share of national budget to education</td>
<td>35</td>
<td>39</td>
</tr>
<tr>
<td>Primary education budget as a share of total education budget (%)</td>
<td>54.4</td>
<td>56.7</td>
</tr>
</tbody>
</table>

Source: Avenstrup, et al 2004

Questions have been raised about FPE sustainability, the lack of time for planning, slowness to deliver, and problems in quality education. Even though the dominant literature and initial figures on enrollment already indicate the positive impact of a reduction in school fees on enrollment levels, the magnitude of the effect of school fee elimination on school enrollment and its ability to persist over time remain unclear. Whether or not indirect costs of schooling are more important compared to the opportunity cost of schooling is less clear.

Main research questions
- How strongly are children schooling gaps and grade progression associated with family background and environmental factors prevailing where the child is brought up in Kenya?
- Are school drop out rates in Kenya influenced by family background and environmental factors prevailing where the child is brought up?
- What are the determinants of completion of primary and secondary education?
- Do schooling gaps, grade progression and completion rates vary across gender and regions in Kenya?
- Consequently, does government intervention through FPE represent an optimal solution to under-enrollment in primary schools?
- To what extent is the FPE intervention pro-poor?

Core research objectives
The overall objective of this study is to examine how parental poverty can be transmitted to children through low education attainment. Specifically, we first investigate the effects of family background and infrastructural factors in determining children drop out rates and grade retardation. We then examine whether parental disadvantages can be reversed through government intervention. Consequently, we examine the design and progressivity of the recently launched free primary education (FPE) in Kenya.
3. **Knowledge gaps and scientific contribution of the research**

The motivation behind this study is the growing concerns over widespread and deep poverty in broad sense and thus the need to understand poverty in its social and economic context. A key empirical contribution will be analyzing household poverty and the possibility of such poverty persisting beyond the current generation through low education attainment and how it can be mitigated. Studies relating education and poverty are scarce in Kenya. The study uses panel data collected in 1997, 2000 and 2004 to track children in the school going age and relates their school attainment evolution to prevailing parental, household and environmental factors.

4. **Policy relevance**

The thrust of this study is how parental poverty can be stemmed from permeating into the future generation. The overriding policy issue is whether the recently introduced FPE and its design is just enough in reversing low children education attainment in Kenya. By teasing out correlates of dropout rates, grade retardation and schooling gaps, the study will be in a position to come up with policy variables, that once addressed can abate intergenerational transfer of poverty. Policy proposals will be suggested that will aid in perfecting the FPE programme design and the designing of the envisaged free secondary education programme in Kenya. The study will also establish whether regional and gender disparities in education attainment exist in Kenya and suggest mitigating policy proposal. The study will thus go a long way towards achieving the Poverty Reduction Strategy (PRSP), Economic Recovery Strategy (ERS) objectives in Kenya as well as the United Nations Millennium Development Goals (MDGs).

5. **Methodology**

As a beginning point, the process of the intergenerational transmission of poverty can be analyzed within the framework of the basic child quantity-quality interaction model introduced by Becker-Lewis (1973), and Becker (1991). In this model, families derive welfare from the number of children they have as well from the ‘quality’ of their children represented in better education, health and nutrition subject to their income and other resource constraints. Children and their quality characteristics require the use of parental time, money income and goods purchased in the market place as well as adequate public complementary supply of education, health facilities and other public services, which lower the costs of investments in children for parents. A survey of literature suggests that the decision on whether a child is enrolled depends on: child characteristics, parental characteristics, household demographic and economic characteristics, cost of schooling, school quality, wage and employment opportunities for children (which we call competing opportunities) and region (district) level characteristics.

In this model, the intergenerational transmission of poverty occurs because of the absence of adequate investments in children's human capital --education, health and nutrition-- by their parents so that children can surpass their lifetime income and consumption levels that bring them out of poverty (Castaneda and Aldaz-Carroll, 1999). Why parents are unable to do that depends on several factors, including the number of children they have, parents education that increases home productivity in human capital,
parental income, variables that relate to the costs of providing human capital, and contextual factors that constrain family incomes, aspirations and social development.

In this study, due to limitation in health and nutrition data we focus on investment in child’s education. First we employ descriptive statistics and non-parametric regressions to relate schooling gaps and drop out rates among children at different time periods in the panel to the family background and environmental factors. Schooling gaps (GAP) are measured as expected schooling (the number of years of school an individual would have if she or he entered school at age six and advanced one grade every subsequent year) minus the number of years of school that individual actually has. The normal progression through schooling in Kenya includes between one and three years of pre-primary school, followed by eight years of primary school, and then four years of secondary school. Children generally enter grade (class) one of primary school at age six (6) and exit grade eight (8) of primary school at age 14. Drop out rate is a dichotomous variable measured depending on whether a child in the school going age was in (1) or out (0) of school at the time of the time of the interviews.

**Schooling gaps and grade progression models**

To estimate to what extent the schooling gap (GAP) is associated with family background and environmental factors prevailing where the child is brought up we estimate the following model:

\[ GAP_t = \alpha_0 + \alpha_1 P_t + \alpha_2 X_t + \alpha_3 C_t + \alpha_4 Z_t + \alpha_5 \text{REG} + \varepsilon \]  

(1)

where, \( P \) is the household poverty status (0 is above the poverty line and 1 if below); \( X \) is a vectors of family background (father’s schooling, mother’s schooling, sex of the household head, marital status of household head, household size, household composition, household assets, relationship with the child caregiver, number of children in the school going age in the household), \( C \) is a vector of child level characteristics such as age, sex and rank at birth while \( Z \) infrastructural facilities access such as distances to nearest schools and hospitals in time \( t \) (1997, 2000, 2004 and 2007). \( \text{REG} \) represents the agro regional zone where the child hails from. The \( \alpha \)s are the coefficients to be estimated while \( \varepsilon \) is the stochastic disturbance term.

Next, we will estimate the determinants of student grade progression (or retardation) to establish correlates of student grade repetition. In our analysis, student grade progression index (\( \Delta PROG \)) will be measured by subtracting grade achieved in time \( t-1 \) from grade achieved in time \( t \). The larger the index, the serious is the student grade repetition. Then we will estimate the determinants of student grade progression using the following model:

\[ \Delta PROG_t = \beta_0 + \beta_1 P_{t-1} + \beta_2 X_{t-1} + \beta_3 C_{t-1} + \beta_4 Z_{t-1} + \beta_5 \text{REG} + \xi \]  

(2)

The independent variables are as earlier defined in equation (1). The \( \beta \)s are the coefficients to be estimated while \( \xi \) is the stochastic disturbance term. The 1997-2000 student grade progression index will be regressed on 1997 independent variables while 2000-2004 student grade progression index will be regressed on 2000 independent
variables. The 2004-2007 student grade progression index will be regressed on 2007 independent variables.

To estimate models (2) and (3), since the dependent variables are greater than or equal to zero (censored), we propose to use quantile censored and non-parametric regressions. Quantile regression for censored data has gained much attention in literature recently (Yue et al, 2005; Cruces and Wodon, 2003; and Muller, 2002). Censored quantile regression approach is useful when the conditional distribution does not have the standard shape-asymmetric, fat-tailed, or truncated distributions. Censored quantile regression permits estimating various quantile functions of a conditional distribution. Each quantile regression characterizes a particular (center or tail) point of a conditional distribution; combining different quantile regressions thus provide a more complete description of the underlying conditional distribution.

Schooling completion and drop out models

The success of education in stopping intergeneration poverty transfer hinges on primary graduates excelling to secondary schools. Also, completion of secondary education by children and acquisition of skills that take them into the workplace is key threshold level for breaking up the intergenerational transmission of poverty cycle especially in sub-Saharan Africa. Children who were in primary class 6-8 in 1997 were expected to be in secondary school during the 2000 wave. Likewise, children who were in primary class 5-8 in 2000 were expected to be in secondary school during the 2004 wave. Following Castaneda and Aldaz-Carroll (1999) we use a logit model to estimate the determinants of primary-secondary transition and secondary education completion in Kenya. In the transition model, the dependent variable will be 1 if a child reported to be in primary school in 1997 had ascended to secondary school in 2000 and 0 otherwise. For the secondary completion the dependent variable assumes value 1 if a young person 16-26 years old reported completed secondary education in 2000 and 2004. We suggest using a wide age group range to maximize sample size for the statistical analysis. The normal age at which children complete secondary education is Kenya is 17 years of age so that most people in the sample have the age for secondary school completion. We estimate the following equation:

\[ COMP_t = \delta_0 + \delta_1 P_{t-1} + \delta_2 X_{t-1} + \delta_3 C_{t-1} + \delta_4 Z_{t-1} + \delta_5 REG + \zeta \]  

(3)

The independent variables for 2000 model are as defined in equation (1). The \( \delta \)'s are the coefficients to be estimated while \( \zeta \) is the stochastic disturbance term. The same analysis is repeated for 2004 dependent variable using 2000 explanatory variables. It should be noted that since we intent to use panel data in the analysis, households not sampled in the first wave (formed after 1997) will be excluded.

Next, we use a multivariate logistic regression to estimate the probability of a child going to school. The dependent variable \( SCH \) acquires value 1 if the child in the school going-age is in school and 0 otherwise. We use parental, household and environmental factors prevailing in 1997, 2000 and 2004 to explain dropout rates in 2000, 2004 and 2007 respectively. Thus, we specify the model as follows:

\[ SCH_t = \gamma_0 + \gamma_1 P_{t-1} + \gamma_2 X_{t-1} + \gamma_3 C_{t-1} + \gamma_4 Z_{t-1} + \gamma_5 REG + \zeta \]  

(4)
The independent variables are as earlier defined in equation (1). The $\gamma$s are the coefficients to be estimated while $\zeta$ is the stochastic disturbance term.

**Free Primary Education Analysis**

Studies examining household schooling choices over a time period following explicit government policy change are scanty. To assess the impact of the FPE programme in Kenya first we will re-estimate equation (4) in levels using 2000 and 2004 data to observe changes in explanatory power of the independent variables; as follows:

\[
SCH_{2000} = \pi_{2000} + \pi_{2}P_{2000} + \pi_{3}X_{2000} + \pi_{3}C_{2000} + \pi_{4}Z_{2000} + \pi_{5}REG + \zeta_{2000} \quad (5a)
\]

\[
SCH_{2004} = \mu_{2004} + \mu_{2}P_{2004} + \mu_{3}X_{2004} + \mu_{3}C_{2004} + \mu_{4}Z_{2004} + \mu_{5}REG + \zeta_{2004} \quad (5b)
\]

\[
SCH_{2007} = \nu_{2007} + \nu_{2}P_{2007} + \nu_{3}X_{2007} + \nu_{3}C_{2007} + \nu_{4}Z_{2007} + \nu_{5}REG + \zeta_{2007} \quad 5(c)
\]

Of utmost importance will be to compare household welfare indicator (P) coefficient magnitude and significance in 2000 (before FPE) and 2004 (FPE period). If the P coefficient reduces in magnitude and significance in 2004, then we will conclude that FPE has had a positive impact.

Next, we will adopt a model used recently by Deininger (2003) while analyzing Uganda’s Universal Primary Education Program using two large longitudinal household surveys. Data on enrollment and child and household characteristics are used to estimate a linear probability model of the following form:

\[
ENROL = \sigma_{0} + \sigma_{1}1997 + \sigma_{2}2004 + \sigma_{3}2007 + \sigma_{4}GENDER + \sigma_{5}AGE + \sigma_{6}REG + \zeta \quad (6)
\]

where the dependent variable, $ENROL$, is a dummy variable equal to one if the child is enrolled at the primary school level. If the child is not enrolled and has not yet completed primary school, then $ENROL$ takes a value of zero. However, if the child has completed primary school and is not enrolled or if the child is enrolled in a level other than primary school, then $ENROL$ is coded as missing. These students should not be included when considering primary school enrollment decisions as they are either enrolled in another level of schooling or have already completed primary school and were dropped from the analyses. Coefficients on the independent variables thus represent the relative impact of those variables on the probability of enrollment in primary school. $\sigma_{1}$, $\sigma_{2}$, and $\sigma_{3}$ are dummy variables equal to one if the observation is from the year 1997, 2004 and 2007, respectively. The year 2000 is left out as the reference year. The $\sigma$ coefficients allow us to determine how the pattern of enrollment changes over time. More specifically, we can interpret the coefficients on the year dummy variables as the increase or decrease in the probability of enrollment for a given year relative to 2000, controlling for other observable factors. The other factors controlled for in this model are gender (GENDER); age (AGE) and region (REG). GENDER and REG are dummy variables while AGE is a continuous variable.

In addition to running this simplified version (6), a second model will be run including interaction terms between age and each of the year dummy variables, as well as an interaction term between gender and age. The coefficient on the interaction terms allow for an estimate of the change in the relationship between age and the probability of
attendance over time. We also estimate the regression separately for all students of primary school age (ages 5 to 14), young students ages 5 to 9, older students ages 10 to 14, and the oldest students, who are not of primary school age (ages 15 to 19) to elicit structural differences between age groups and identify whether or not FPE was associated with a significant amount of delayed enrollment.

Progressivity of the free primary education (FPE) programme

Next, we assess the impact of the FPE programme on poverty. Is the programme designed in such a way that the (net) per capita subsidy received by a household decrease with respect to its per capita wealth? Do the poor benefit more by the redistribution of national wealth through government programmes? More specifically, do the poor benefit more than the non poor from FPE programme transfers? To answer this question, we use the concentration curve as proposed by Duclos and Araar (2006). Suppose pre-tax incomes (gross incomes) X are ranked in ascending order such that: $X_1 \leq X_2 \leq \cdots \leq X_n$. Suppose again that taxes (benefits) are ranked according to the rank of their associated gross incomes. In a discrete form, one can define the concentration curve at percentile $p$ as follows:

$$C_N(p = i/n) = \frac{\sum_{j=1}^{i} T_j}{\sum_{j=1}^{n} T_j}$$

(7)

The concentration curve shows the proportion of total taxes paid by the bottom $p$ proportion of the population. When the concentration curve of transfers is above the Lorenz curve, the poor receive relatively more transfers than the non poor: the transfer is progressive.

Further, one can check the inequality of net income $N$ simply by comparing the concentration curve of $N$ to the Lorenz curve for $X$.

$$C_N(p = i/n) = \frac{\sum_{j=1}^{i} N_j}{\sum_{j=1}^{n} N_j}$$

(8)

Denote the average tax by $t = \mu_T / \mu_X$, the link between the Lorenz curve and the concentration curves of transfer and net incomes is:

$$C_N(p) - L_X(p) = \frac{\mu_T}{\mu_N} \left[ L_X(p) - C_T(p) \right]$$

(9)

When the average rate of taxation (transfer) for T increases with gross income at all percentiles, such that $\partial T(X) / \partial X > 0 \forall p$, and when re-ranking is not observed, we find:

$$L_N(p) - L_X(p) = \frac{\mu_T}{\mu_N} \left[ L_X(p) - L_T(p) \right]$$

(10)

This indicates simply that a tax progressive reduces inequality in net incomes. After applying the tax T or transferring the benefit B, one can be interested by two types of progressivity comparisons, which are: Tax Redistribution (TR approach) and Income
Redistribution (IR approach). Using Lorenz and concentration curves, the following rules can be used to check benefit progressivity. A benefit B is TR-progressive if: \( C_B(p) \succ L_X(p) \forall p \in (0,1] \). A benefit B1 is more TR-progressive than a benefit B2 if: \( C_{B1}(p) \succ C_{B2}(p) \forall p \in (0,1] \).

6. Data requirements and sources:
The analysis uses Tegemeo TAMPA panel data drawn from about 1500 rural households interviewed in 1997, 2000, 2004 and 2007\(^2\) across Kenya. Respondents were asked about each household member’s schooling, including the number of years spent in school prior to the survey and whether each child was regularly attending school at the time of survey. The survey also collected data on economic and social indicators of the households in all the waves.

7. Dissemination strategy:
Working papers of the study will be presented and discussed at various research forums including stakeholder workshops occasionally organized by the host institution and also for peer review at PEP workshops. The final report will be presented and discussed in Tegemo’s annual general conference that is attended by all stakeholders including development partners. Policy briefs will be made available to policy makers in Kenya and also to the public. The final report of our study will be made available in the form of a PEP working paper as well as working papers for the host institute. Excerpts of the study will also be submitted to renowned journals for publication.

One of the team members (Milu Muyanga) was the lead researcher in the PEP project on ‘Transient and Chronic Rural Household Poverty: Evidence from Kenya’. A Tegemeo Working paper is being finalized and with funding from PEP network, a national dissemination workshop is planned to take place in July this year. As a result of this work, the lead author has joined other authorities on poverty issues in the country and is usually invited to national conference where poverty issues are discussed were his contribution reflects results from this study. Further, Muyanga has been invited to participate in various government task forces. This work was disseminated in PEP annual general meeting in Ethiopia last year. The lead author has also been invited to present the paper during the Centre for Study of African Economies (GPRG) Conference on Livelihoods and well-being in developing countries: Multidisciplinary approaches to be held on 18th March 2007 at University of Oxford. From this study, three journal articles (Agriculture and Rural Household Poverty in Kenya: Panel Data Analysis; Measurement of Transient and Chronic Household Poverty: Evidence from Rural Kenya; and Censored Quantile Regressions of Chronic and Transient Poverty in Rural Kenya) have been prepared and submitted to journals listed under ECONLIT and are currently under review.

\(^2\) Preparations for the 2007 wave are ongoing.
8. Short list of key references


Duclos, Jean-Yves and Abdelkrim Araar. 2006. Poverty and Equity: Measurement, Policy, and Estimation with DAD. Springer and International Development Centre


Muller, Christophe. 2002. Censored Quantile Regressions of Chronic and Transient Seasonal Poverty in Rwanda. Centre for Research in Economic Development and International Trade, School of Economics, University of Nottingham, University Park, Nottingham NG2 2RD


Schmidt, Dana. 2006. The Impact of Free Primary Education on Enrollment in Kenya. A monograph in partial fulfillment of the requirements for the degree of Master of Arts at Stanford University, School of Education


9. List of team members’ prior training and experience in the issues and techniques involved.

**Mihu Muyanga,** Team Leader
Mihu is a Research Fellow, Tegemeo Institute, Egerton University (Kenya). He has benefited from two PEP network training workshops as well other donor sponsored courses. Among others, he has participated in the following courses:

- **August 2006:** Community Based Monitoring Systems and Gender and Poverty Course offered by Research on Poverty Analysis (REPOA), Dar es Salaam, Tanzania, and sponsored by IDRC
- **June 2006:** Advance Course on Poverty Dynamics using STATA and DAD organized by Poverty and Economic Policy Network (PEP-Net) in Addis Ababa, Ethiopia
- **March 2006:** Study Visit at University of Laval, Quebec, Canada to finalize Rural Household Poverty Dynamics study using Tegemeo’s 1997, 2000 and 2004 panel data set
- **September 2005:** Poverty Measurement and Diagnostics Course offered by Research on Poverty Analysis (REPOA), Dar es Salaam, Tanzania, and sponsored by IDRC
- **June 2005:** Advance Course on Assessment of Poverty Impacts of Public Programmes using STATA and DAD organized by Poverty and Economic Policy Network (PEP-Net) in Colombo, Sri Lanka
- **June 2004:** SPSS Training course, offered by Michigan State University, Department of Agricultural Economics, East Lansing, USA

**Stella Njoki Wambugu**
Stella is currently a Master of Science degree student in Agriculture and Applied Economics in the Department of Agricultural Economics, University of Nairobi (Kenya). She is also a research assistant with Tegemeo Institute.

**John Olwande**
John is currently a Master of Science degree student in Collaborative Masters in Agricultural and Applied Economics in the Department of Agricultural Economics, Egerton University (Kenya). He is also a Research Assistant with Tegemeo Institute.

**Esther Mueni**
Esther is currently a Postgraduate Diploma in Education student at the Institute of Open Learning, Kenyatta University (Kenya). She has a Bachelor of Arts Degree and a Master of Arts degree from the University of Nairobi.

10. Expected capacity building
The members envisage acquiring skills on new empirical methodologies and learning theories on education, child poverty and intergenerational poverty transfer. Further, the researchers envisage learning econometric computer software such as DAD in analyzing progressivity and impact of government transfers on poverty.
In this project, Milu Muyanga will be the team leader coordinating day to day running of the project activities. He will play a leading role in data analysis. The graduate students, Stella, John and Esther will basically be involved in literature search, data cleaning and bringing together panel variables, data analysis while learning from the more experienced project leader, and report writing.

11. Any ethical, social, gender or environmental issues or risks which should be noted.

NONE

12. List of past, current or pending projects in related areas involving team members (name of funding institution, title of project, list of team members involved)


Appendices

Appendix 1: Kenya’s Oldest Schoolboy

The provision of free primary schooling in Kenya has been widely welcomed as a success since the newly elected government introduced it. The policy has had some unexpected consequences though - not least, the enrolment of the country's oldest schoolboy. Wearing a faded blue blazer, shorts and long socks, Mzee Kimani Nganga Maruge walks to school with his classmates dressed much like any other new boy - except that he also carries a walking stick, has gray beard and weathered face and happens to be 84 years old. He says he decided to enroll when he heard that the new government was providing free primary education. He had hoped to go to school before, but had never had the opportunity. Mr. Maruge, not the least bit embarrassed to be in the same school with two of his grandchildren, dismisses his critics with a wave of his cane. "Let them who want to make fun of me do it," he said. "I will continue to learn."

Maruge joined classes at Kapkenduiywa Primary School in the western town of Eldoret in early January. He is the world’s oldest pupil, according to the Guinness Book of World Records, and Kenya’s most famous primary school pupil.

Mr. Maruge is a widower who has fathered 15 children, 5 of whom survived. He is a great-grandfather who never spent a day in school. His own father had insisted that he look after the family's herd of livestock.

Mr. Maruge took part in the Mau Mau rebellion against the British. He says one of his main aims is to learn to count the money he expects to receive in compensation from the authorities for fighting against the British in the 1950s. He also hopes to learn to read the Bible - because he does not trust the version he hears each week in church.

While there is general support for the Kenyan Government's policy of providing free schooling, some parents have complained that standards have dropped and classes have become overcrowded.

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3 The New York Times, Monday, April 5, 2005 and BBC, Nairobi Wednesday, 14 January, 2004