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Education and poverty correlates: A case of Trans-Nzoia County, Kenya

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Education is widely accepted as the main backbone of growth and development of individuals and the nation. However, its achievement continues to elude many who are poverty stricken. Government of Kenya introduced free primary education in 2003 and tuition free secondary education in 2008. It is estimated that about 3 millions children are not enrolled in primary schools. For the children who enrolled in grade one, only between 46-48% can manage to complete the final grade and transition rate remained below 50%. The study was envisaged to look at interdependence between education and households' poverty levels and its influence in internal efficiency of primary schools in Kenya. Descriptive research method which primary concerns with the present, past events and influences as they relate to the current conditions was employed .The study used survey research design. The sample size of the study was 468 respondents, comprising 360 household heads, 12 head teachers and 96 class teachers. Simple random and purposive sampling design was used. Four instruments were developed and used to collect data: Questionnaires for the households' heads and class teachers, school data form and interviews. Data were analyzed with the help of SPSS computer programme (11.5). Household poverty levels were determined by use of poverty indexes developed by Greer and Thorbecke (1986). National poverty line of Kenya shillings (Ksh) 1562 developed by the government of Kenya in 2005/06 was adopted. Schools internal efficiency was determine with the help of educational statistical indicators developed by United Nations Educational, Scientific and Cultural Organization (UNESCO) (2009). Further to establish the relationship and test the hypotheses statistically, Pearson product moment correlation test was adopted. Findings of the study were presented by use of tables and figures. The study revealed that Kwanza district had 43.3 % of the households living above the poverty line, and 56.7 % of them operating below the poverty line. In the period 2004-2009 the dropout rate in Kwanza district schools ranged from 6.3 to 25.6%. The study also revealed that household's poverty level had a significant relationship with majority of the school internal efficiency measures which included repetition, dropout, survival rate, cohort wastage, academic achievement and transition rate. The study implication among others was that the government should take the key responsibility of preparing data base of the poor families in the district and develop a credit cum-subsidy scheme that will provide financial support in terms of loans to the disadvantage group.

Key words: Education, development, poverty.

INTRODUCTION

Education, as Harbison and Myers (1965,p. 40) stress, "is both the seed and the flower of economic development." It is difficult to separate the causal effect of education from the positive income demand for education. Much of the theoretical debate about the role of education in development and economic growth has focused upon

whether education is productive in an economic sense. There is much evidence that levels of schooling amongst the population are highly correlated with levels of economic development. But whether the former has helped cause the latter, or whether causality runs from income growth to educational expansion, remains open to debate.

Human capital theory asserts that education creates skills which facilitate higher levels of productivity amongst those who possess them in comparison with those who do not (Schutz, 1961). Education, then, is costly but it brings associated benefits which can be compared with its costs in much the same way as happens with any investment project.

To support the above assertions, human capital theory argues that there is a strong, and empirically verifiable, positive relationship across all societies between the wages and salaries people receive at work and the level of education which they have received. Using the 'normal' assumptions of competitive labor and goods markets, it follows that those with higher levels of education seem to have, on average, higher levels of productivity (Schutz, 1999). Employers use educational characteristics as a proxy for the suitability, and potential productivity, of their employees. Second, the earnings by age of the more educated not only start at a higher level, but increase more rapidly to a peak which happens later in life than is the case with the earnings profiles of the less educated. Indeed, those with no education tend to have earnings profiles which remain pretty flat throughout their lives. These patterns are said to indicate not just that education makes people more productive but also that it enhances the ability to learn-by-doing, causing productivity, and thus earnings, to increase at a faster rate than for those with less education.

As early as 1990, the World Bank's *World Development Report* on poverty for that year, used the results from a number of studies from the 1970s and 1980s to show that educational attainment increases both wages and labor productivity in agriculture and the informal sector. The research conducted by UNESCO (2008) confirms the World Bank's results, although with some slight differences. The incidence of education spending on wages in the formal sector is always significant. In Indonesia, for example, rates of return on primary and secondary education expenditures exceed 10 per cent; in Tanzania, they amount to 8 or 9 per cent. In Madagascar, primary education shows a 10 per cent return for salaried workers in the formal and informal sectors. In agriculture, however, the gains related to human capital are less clear. In Indonesia, additional years of education (nine

instead of five) increase agricultural output by 10 per cent, but no discernible effect on agricultural productivity were observed in Madagascar. In this case, however, education does allow some reallocation of the labor force outside farming, thereby increasing a given family's total income by the addition of non-agricultural revenue to the (unchanged) amount earned through farming.

Educational levels (primary, secondary, higher and tertiary) are valuable in increasing the per capita expenditure of the household. As expenditures include the nonfood items hence again education is relevant from the overall welfare point of view. Further, educational levels are significant elements in reducing the chances of the household to be poor (Okojie, 2002). It would be misleading to say that growth, development and poverty reduction hinge on the universalizing of primary education. Primary education is the initial threshold of human capital but secondary and higher education, and investment in science and technology will give rise to acceleration and sustenance in economic growth development, and hence poverty reduction. Some authors have reached the conclusion that the likelihood of being poor is higher for the lower level of education (Rodriguez and Smith, 1994; Coulombe and Mckay, 1996). Again et al. (2002*)* have concluded that growth is a prominent factor in eliminating poverty.

There exists a number of indirect channels through which better education can affect societies. The main idea is that education produces external effects that impact on others than the ones directly benefiting from it. One of these external benefits is social cohesion, which fosters political stability, and creates safer opportunities for investment in physical capital (Sianesi and Van Reenen, 2002). At the macro-level, this would have a positive impact on national income and lead to higher economic growth and possible reductions in the poverty level. At the microeconomic level a few concrete facts have been established empirically. Among the best documented are the positive effects of education on health for educated individuals themselves and their children (Bauman and Rosen, 1982; Desai, 1987). Similarly well established is the effect of parents' education on their children's cognitive development (Angrist and Lavy, 1996; Lam and Dureya, 1999).

Education is thus very important to the economic performance and the international competitiveness of countries. Education not only has a direct productivity impact in the labor market, but its impact also operates in another way: a lack of adequate skills derived from education is sometimes an important constraint on the growth of countries. This applies to very poor countries,

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where the workforce may lack basic literacy and numeracy skills, and to developed countries that may face specific shortages of high-level skills, such as medical specialists or information technology experts. Research points out a relationship between level of education and democratic political attitudes and also to cross-national studies which indicate that the political stability associated with an orderly transfer of authority and low levels of violence is confined to those relatively few countries whose population exhibit high levels of literacy and general education.

Londoño (1996) argues that inadequate education has been the most important factor holding back Latin American economic growth and thereby sustaining high levels of inequality and poverty. Gemmelt (1996) finds that primary education is most important for economic growth in low income developing countries, secondary education for middle income developing countries, and tertiary education for rich countries. Education is seen as one of the most important ways of combating Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome (HIV and AIDS) both in developed and particularly developing countries. These effects of education on wider development influence poverty in a narrower or 'money-metric' sense as well as in the broader sense.

Statement of the problem

Education is widely accepted as the main exit route from poverty. It is the backbone of growth and development of individuals and the nation. However, its achievement continues to elude many who are poverty stricken. It is important to note that Kenya's government, in spite of the difficulties they are going through, her commitment towards education is withstanding since independence, these is reflected through the immense resources allocated to education and training, it has steadily increased over the last five years from Ksh 72,292 billion in 2003/2004 to Ksh 104,686.39 in 2007/08. The government spending on education and training (both recurrent and development)as percentage of total government expenditure ranged between 23.55% and 27.43% ,with a record of 27.43% in 2003/04 reducing to 23.55% in 2006/07 before increasing to 27.16 in 2007/08 (MOE,2009).

Government of Kenya introduced free primary education in 2003 and tuition free secondary education in 2008. Primary net enrollment rate rose from 6,314,726 to 7,614,326 by the end of 2003 representing a 22.3% increase nationally. In 2005 the district that had registered over 20% increase in enrolment in 2003 hardly recorded more than 5% of standard one enrollment, it is also estimated that about 3millions children are not enrolled in primary schools (Sifuna, 2005). This can be

attributed to poverty because the poor household looses more when their children attend the schooling in the short run due to high opportunity cost.

For the children who enrolled in grade one, only between 46-48% can manage to complete the final grade. Majority of them dropout and others repeats one grade more than once, the average repetition rate is estimated at 15.4 per cent, with a rate of 15.25% for girls and 15.6% for boys. The wastage rate is estimated at 39.52, 32.19, 28.88, 31.16 and 26.06% in 2003,2004,2005,2006 and 2007 respectively (MOE, 2009). Transition rate remained below 50% between 2002 and 2004 but increased to 56.0% in 2005. The upward trend continued in 2006 and was 59.6% by 2007 and 59.9% in 2008. This indicates that as at 2008, 40.1% of the primary school children who sat the Kenya Certificate of Primary Education (KCPE) exams were not able to progress to the next level. However, the transition rate from secondary to university education declined from 5.6% in 2002 to 5.3% in 2003 and to 4.9% in 2004. Such a higher wastage rate, and low transition rate in an education system, raises a lot of questions both from the government, parents, donors and pupils, the outcome is not worthy the sacrifices made by the stakeholders. This also points that although the primary education system has been able to increase participation rates, its ability to attract more and sustain them is weak. Hence the internal efficiency of schools in Kenya is wanting and demands an agent attention.

It is out of such background that this study was envisaged to investigate the influence of household poverty levels on public primary schools' internal efficiency.

Purpose of the study

The study aimed to establish the interdependence between education and poverty by focusing on influence of poverty on school internal efficiency.

Hypothesis of the study

The following research hypothesis was developed.

1. There is a significant relationship between households' poverty levels and schools' internal efficiency measures.

METHODOLOGY

The present study employed random sampling design to pick one district in Kenya. The target population of this study was confined to Kwanza district, which is administratively divided into two divisions; Endebess and Kwanza division. Each division is further divided into three locations. The sample of the study involved villages, house

holds and public primary schools. Simple random sampling design was used to pick two villages from every location in the given two divisions. Hence the total number of villages selected was six per division (two per location) totaling 12 villages. Among the selected villages, 30 households from each village was picked randomly, thereby a total of 360 households represented the sample for the present study.

Every village has one public primary school and all the schools associated with the selected sample villages represented the sample for the study. Hence the total numbers of schools were twelve.

Data analysis techniques

Data collected from the field were examined thoroughly to ensure that they were accurate, consistent with other facts gathered. It was coded and appropriately organized into some sensible and manageable form easy to understand and to be keyed into computer programme. This was also necessary in order to bring out clearly the characteristics of the data to facilitate description, interpretation and generalization to be made. The SPSS computer statistical package was used to analyze the research data, in accordance with the research objectives.

The analysis technique involved both descriptive and inferential statistics. The descriptive statistics adopted were frequency, percentages, and mean, which were used to analyze the background information of the respondents and reasons for schools inefficiency in relation to poverty determinants. Household poverty levels was determined by use of Greer and Thorbecke indexes that included the poverty head count index, the poverty gap index and poverty severity index.

To establish the poverty levels of the households, both the income and expenditure approach was employed, with more weight given to the household expenditure due to many shortcoming raised by scholars concerning the income approach. All the computation of the income and expenditure were converted per annum per household. The expenditure of household served as the main determinant but where there was wide disparity between the two (Income and expenditure) moderation was done.

To establish a nominal measure of welfare-the value of total household expenditure was computed at the household level with an aim of obtaining a measure of individual wellbeing, due to the fact that per capita expenditures measures will underestimate the welfare of people who live in households composed of a high fraction of children. This is because children up to a certain age, consume less than adults. Equivalence scales are used to convert the household consumption aggregates into metric measures of individual welfare with Household size been the main deflator. The present study used the equivalence scales developed by Anzagi and Benard (1977a,1977b) which prescribe that age groups 0-4 are weighted as 0.24,children aged 5-14 are weighted as 0.65 and all people aged 15years and over are assigned a value of unity. Several earlier studies on poverty in Kenya have employed the same equivalence scales (KNBS, 2007, Greer and Thorbeckle, 1986a, 1986b, 1986c).

National poverty line developed by the government in 2005/06 from the Kenya Integrated Household Budget Survey KIHBS data using the cost of basic need method as outlined in Ravallion (1994, 1998) was adopted for this study. The overall poverty lines in monthly adult equivalent terms were computed as Ksh 1,562 and Ksh 2,913 for rural and urban areas respectively.

Kwanza district been a newly created districts from the former Trans-nzoia district, has its entire population as rural based, thus the poverty line of Ksh 1,562 was used. Determining the poverty line is expensive and time consuming as it demand a lot of large data collection and also involves a number of steps such as determining a calorie requirement, creating a food basket and evaluating the cost of meeting the calorie requirement. It is only the government funded agency who can collect such a large data, thus adopting poverty line was found appropriate and justified for this study. Several researches conducted on poverty in Kenya has always adopted the national set poverty line, this includes Kenya Institute for Public Policy Research and Analysis KIPPRA (2009), Suri et al. (2009) and Muyanga et al (2007) among others.

To establish the level of schools internal efficiency, educational statistical indicators/formulas developed by UNESCO (2009) were utilized which involved: survival rates, dropout rates, repetition rates, cohort wastage rates and average year per completer among others (The formulas are attached at appendix). To determine the academic achievement of pupils in the study, the Kenya Certificate of Primary Education (KCPE) results means score were used. The exams is coordinated by Kenya National Examination Council (KNEC) for all primary schools in the nation, it is always conducted once every year. The national examination results were found appropriate than the internally set examination results because it could enable the researcher to compare the achievement of pupils in different schools across the district.

Inferential statistics techniques such as correlation were used to compare the poverty levels with school internal efficiency and to test the formulated hypothesis. Parametric statistics are recommended to be used when the research data fulfill the following three conditions. One, when the population scores are normally distributed. Two, when the scores are measured on the interval or ratio scales and Three, the variance of the comparison groups in the study are equal or homogeneous (Calder, 1996; Siegel and Castellan, 1988).

RESULTS AND DISCUSSION

The study established that Kwanza district had 43.3% of households living above the poverty line, and 56.7% of the households operating below the poverty line. Poverty trend in the nation appears to be slightly decreasing over the years but poverty in Kwanza district emerged to be increasing, which implies that more non poor households in Kwanza district are at risk of been poor.

With respect to internal efficiency of schools, the study revealed that the schools in the district are still wanting. The schools experienced 13.89% out of school children ages 6-13 years, high repetition and dropout rate ranging up to 30.6 and 25.6% respectively. The study also noted that the district was operating below average in academic achievement for the period 2003-2009. With regard to transition of pupils, the study findings revealed that Kwanza district on average had a transition rate of 44.62% between the period 2002-2009. This implies that about 55.38% of pupils on final grade did not proceed to secondary school.

To correlate the poverty levels and school internal efficiency, poverty head count per village was correlated with each of the school internal efficiency measures which included enrollment, repetition rates, dropout rates, survival rates, cohort wastage rate, academic achievement and transitions rates. Pearson's product moment correlation coefficient was used which provided succinct

Table 1. Poverty levels and school internal efficiency measures.

Village	P. levels	School internal efficiency measures						
		En	Rn	D.o	Sv	C.W	Ach	Tran
1.	0.467	1084	0.016	0.078	0.916	0.383	248.0	43.18
2.	0.567	443	0.080	0.085	0.780	0.460	254.2	64.52
3.	0.400	539	0.029	0.082	0.902	0.379	278.7	97.56
4.	0.400	531	0.047	0.163	0.785	0.440	276.2	85.00
5.	0.600	862	0.165	0.164	0.747	0.495	230.9	60.34
6.	0.567	798	0.053	0.114	0.869	0.482	230.0	45.45
7.	0.633	588	0.111	0.142	0.807	0.489	244.4	27.08
8.	0.567	492	0.047	0.094	0.859	0.474	245.5	46.81
9.	0.667	748	0.151	0.167	0.727	0.589	196.6	25.00
10.	0.667	286	0.294	0.185	0.614	0.576	191.6	29.41
11.	0.667	370	0.240	0.216	0.712	0.573	190.7	5.88
12.	0.600	672	0.066	0.167	0.793	0.486	244.1	24.56

P. Levels-poverty levels, En-Enrollment, Rn-Repetition, D.o-dropout, Sv-survival C.W- cohort wastage, Ach-achievement, Tran-Transition.

Table 2. Correlation coefficient values between poverty levels and school internal efficiency.

	School internal efficiency measures	N	Correlation coefficient (r)
1.	Enrollment	12	-0.234
2.	Repetition	12	0.745*
3.	Dropout	12	0.586*
4.	Survival rate	12	-0.678*
5.	Cohort wastage	12	0.888*
6.	Achievement	12	-0.863*
7.	Transition rate	12	-0.849*

*correlation is significant at the 0.05 level (2-tailed), t table value-0.576, N-12, df-10.

assessments of the closeness of relationship among variables under study. The poverty level of each village and its school internal efficiency measures are presented in Table 1.

To ascertain whether there is a significant relationship between the household poverty levels and each of the school internal efficiency measures, the following research hypothesis was formulated and tested:

H_1- There is a significant relationship between households' poverty level and school internal efficiency measures in Kwanza district.

Further, to test the stated research hypothesis statistically, the following null hypothesis (H_0) was formulated.

H_0- There is no significant relationship between household's poverty levels and school internal efficiency measures in Kwanza district.

Pearson's moment correlation was used to test the hypothesis and the findings are presented in Table 2.

Table 2 depicts that except for enrollment, majority of the internal efficiency measures have a significant relationship with household's poverty level at 0.05 level of significance. Household's poverty level is found to be positively correlated with repetition, dropout and cohort wastage rate measures with each having a Pearson's product moment correlation coefficient of (r) 0.732 0.733 and 0.888 respectively.

Further, it can be noted that household's poverty level has a negative relationship with, survival rate, academic achievement and transition rates. The negative relationships means that as the poverty levels increases the level of survival rates, academic achievement and transition rates diminishes.

The findings in the table above implies that the research hypothesis which states that there is a significant

relationship between households poverty levels and school internal efficiency measures is accepted in the case of repetition, dropout, survival rate, cohort wastage rate, academic achievement and transition rate.

This means that as the household poverty increased, the schools were expected to experience increase in repetition, dropouts of pupils and cohort wastage. These findings concur with those of Nyamute (2006) and United Nations Development Programme UNDP (2003) which establish that persistent household poverty was the major influence on school attendance in Kenya. Gupta et al. (1989); Gupta and Srivastava (1991) found that wastage and stagnation was a major problem in educationally backward states, which incidentally are also economically backward; these rates were found to be high for scheduled castes and scheduled tribes, for children from the families with low economic status (Mahood, 1990). A critical analysis of the study also indicated that schools which had higher levels of repetition, dropouts, and cohort wastages in the study also their respective villages experienced higher levels of poverty.

The study also established that household poverty had no significant relationship with school enrollment. This was attributed to the free primary education introduced by the government in year 2003, where it attracted more children from the poor households who could not access education at this level previously. The findings contradicts those of Arif et al. (1999) who found out that Poverty exerts a significant negative influence on the primary school enrolment. He isolated poverty as one of the causes of low primary school attendance. Chishti and Lodhi (1988) also revealed that the decision to attend school depends on the gender of the potential student, household income, parents' education, and the ethnic background. Ravindra and Shreekant (2008) points that the overall low enrollment ratios in primary sections both for states and of the nation could be as a result of the lower enrollments among the children of the poor populations. In a purely subsidize education system especially at the primary level of education it's difficult to observe a significant influence of poverty on enrollment because the poor and non poor all have equal benefit of the free primary education especially during the implementation stage. A better influence of poverty and enrollment can be seen in a purely market oriented system where the consumers bears the maximum cost of the good (Arif et al., 1999; Appleton, 1991).

Conclusion

Implementation of free primary education is threatened by the increasing poverty among the households which makes them almost impossible to send their children to schooling. This has been established in the present study, which showed that there is a strong influence of

household poverty levels on schools internal efficiency. Schools which emerged to be highly inefficient i.e experienced high rate of dropouts, high repetition, poor performance and low transition and survival rates, were located in villages which were categorized as the poorest in the district. Household poverty levels showed a significant relationship with majority of the internal efficiency measures namely repetition, dropout, survival rate, cohort wastage rate, academic achievement and transition rate.

The study concludes that addressing the issues of efficiency in schools call for two approaches, the school factors approach and the households' factors approach by the government. The former approach should target the teachers, learning facilities, physical facilities and the management of the schools, while the later approach should involve addressing issues of opportunity cost among the poorest households, awareness of importance of education, unemployment and strategies of reducing/eradicating the poverty in the society.

RECOMMENDATIONS

i. The government should institute a national rural employment Guarantee act which will aim at enhancing the livelihood security of people in rural areas by guaranteeing minimum days of wage-employment in a financial year to a rural household whose members volunteer to do unskilled manual work. The objective of the act will be to create durable assets and strengthen the livelihood resource base of the rural poor, it will create a right-based framework for wage employment programmes and make the government legally accountable for providing employment to those who ask it. The policy act will address causes of chronic poverty and the process of employment generation will be maintained on a sustainable basis.
ii. Starvation and hunger are common phenomena among those who are below poverty line, because of their low purchasing power to access basic food at the market price, this leads to malnutrition in all age groups, especially among school age children. The government should provide safety net food subsidy for poor by instituting a targeted public distribution system, where the poor households can be provided with a given quantity of basic food (maize, edible oil, sugar and cereals) at highly subsidized price.

Conflict of Interests

The authors have not declared any conflict of interests.

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