Access, poverty, and learning achievement for primary school leavers in Kenya: Analysis of evidence from 47 counties

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Abstract

To what extent, if at all, did the introduction of Free Primary Education in Kenya in 2003 have positive equity effects; in terms of both access and achievement. Access is based on the number of candidates sitting the Kenya Certificate of Primary Education (KCPE) examination and KCPE score is used to measure achievement levels. The study uses data that reflects Kenya's 47 devolved governance counties. A quantitative measure of poverty in all 47 counties was then entered as an independent variable of regression analysis, and a negative association with KCPE performance noted (high poverty levels associated with low KCPE scores). Also noted was a contrast between counties showing high enrolment impact; improved KCPE scores, and those showing high enrolment impact; lower KCPE scores. Counties in the former group are located almost entirely in arid and semi-arid areas; those in the latter group in the coastal region.

Introduction

In recent years more attention has focused on the quality of schooling measured in terms of learning outcomes, and linking this to the contribution that education makes to economic productivity of individuals in the labour force and growth of nations (Hanushek and Woesmann, 2008; Carnoy, Ngware and Oketch, 2015). This is in contrast to the 1990s and the year 2000s when access and education for all dominated the focus on schooling. Today the notion of schooling as simply going to school is being rejected and there is growing recognition on the need to advance our understanding about how to hold school systems accountable particularly in developing low income countries which have heavily invested in expanding access in recent years in order to make sure that children who go to school in these systems leave school with key competency skills, particularly in literacy and numeracy. It is thought this attention to improve quality by holding schools and education systems accountable will yield desired result whereby schools effectively prepare learners to transition to the next level of the education ladder or for functional participation in society (Pritchett, 2013; Bruns et al. 2011). It is hard to argue against or challenge this "quality movement" notwithstanding however quality is defined and how nations seek to continuously improve upon it as the ultimate determinant of the contribution that education makes to development through human capital accumulation. Expanding access is still important both normatively and as investment, but this is now only considered as a first step in the emerging education investment discourse promoted by Hanushek and Woesmann (2008). The consensus as signalled by the EFA Monitoring Report titled "Teaching and Learning: Achieving quality for all" is on the distinction that should be made between schooling and learning (UNESCO, 2014). Nevertheless, the relationship between access and quality has never been straightforward due to the multiple definitions of what constitutes "quality" which all are considered acceptable elements of quality. This confusion is highlighted by Taylor and Spaull (2015, p. 48) who have argued that "School quality could be defined as the average performance (proxied by test scores) within a school. Or, it could be defined as the value-added by a school to its students, which allows for the possibility that one school may record lower

test scores than another but is more effective given the social composition of students". To add to this debate or "confusion" and as a response to Hanushek and Woesmann (2008) arguments backed up by their econometric evidence that quality is now more central to modern explanation of human capital theory which considered education as investment, Breton (2011) in his article titled "The quality vs. the quantity of schooling: what drives economic growth?" has attempted to prove that a clear separation cannot be made between quality and attainment. Breton's argument suggests that there is an element of quality in systems that have raised school attainment, but this could only be true in systems where progression into the next grade is not automatic and dependent on passing end of grade rigorous examination. Whatever the case is in Breton's argument, access and quality are interrelated elements of human capital investment (Oketch, 2006), and what constitutes access is often agreed upon but what indicators to use to effectively measure quality remain debatable and even contextualised. In some cases test scores are a dominant proxy of quality while in others, a focus is placed on improving literacy and numeracy as a measure of quality. Therefore, it can be assumed that among academic experts the jury on the best way to measure quality is still out but in the minds of most parents they know what they mean by quality education for their children – usually evident to them when an education system fulfils the aspirations they associate with educated persons, such as successful progression in an education system and successful transition from school to work. The consensus today is that whatever indicator or meaning to quality is applied it is important that an education system is of acceptable quality in the form of learning gains that can be demonstrated by learners in the key subject areas taught and their application.

Dealing with quality may be relatively easy when access is not equally a major issue. When both access and quality are complex issues, as they are in low income developing countries of sub-Saharan Africa which must expand access for a larger proportion of poor population and deal with quality at the same time, then solutions are also relatively complex but urgently necessary in order not to have wasteful school systems that produce large number of young people who have attended school but haven't learned enough to make the necessary transition from school to work.

Nonetheless, according to UNESCO Institute of Statistics (UIS) data, sub-Saharan Africa has made the most improvement in education access over the past few years through the Education for All (EFA) framework, which drawing on Breton (2011) augments should rightly so, be considered progress. Additionally, while there is evidence that expansion had largely been pro-poor (Deininger, 2003), other recent studies have questioned this claim, noting for example, that in the urban slums where the poor reside, FPE has led to greater utilisation of 'private schools for the poor' due to excess demand (Oketch et al., 2010) and in such scenario it cannot be claimed that EFA is completely pro-poor even on access front, let alone the quality aspect. Therefore, the picture can be said to be mixed, often with reality showing elements of EFA as being pro-poor and elements of exclusion of the poor in systems which have in place policy for universal primary education but with poor quality or inadequate learning gain. Given this scenario which is quite common in several countries in SSA, there is need to more clearly associate access and learning gains under FPE in order to shed more light on how the universal primary education policy is improving opportunity to learn equitably.

Kenya's education system is among those that are highly researched in sub-Saharan Africa. On some measures, such as Southern and East African Consortium for Monitoring Educational Quality (SAQMEQ) Kenya outperforms those countries that spend more on education such as South Africa and Botswana (Carnoy et al. 2015), yet nationally, Kenya's education system is assessed as wasteful with many children in the system unable to master the key competencies in numeracy and literacy according to annual reports prepared by Uwezo (www.uwezo.net). Like many other countries in sub-Saharan Africa Kenya introduced universal primary education in 2003 by adopting a policy that focused largely on quantitative expansion by eliminating all fees such as tuition fees, uniform, and textbooks. Much has been written about this policy, its implementation and impact on schools, and on access and learning in crowded classrooms (see e.g., Sifuna, 2007; Oketch and Rolleston, 2007; Oketch et al. 2010; Somerset, 2009; Oketch and Somerset, 2010; Tooley et al., 2008), but there is no known nationwide and cross-county systematically analysed evidence about

the tensions that this policy has presented in terms of learning achievement nationally and within and between Kenya's economically varied counties or regions. The study that comes close is that of Lucas and Mbiti (2012) but they focused on exploiting variation in pre-FPE dropout rates between districts. They also use a different approach and haven't undertaken cross-county analysis as approached in this paper. Kenya's 47 counties are highly varied: some poorer than others, some agriculturally productive and generally food secure, others are arid and semi-arid, and some are mainland while others are located in coastal areas. The main distinction can be made between arid and semi-arid northern regions, the mainland centrally located regions, and the coastal regions. For the purpose of this paper, the focus is on the counties, which are official constitutionally devolved governance units. Understanding how these varied counties have experienced opportunity to learn under FPE is important not only for its own sake, but also in advancing strategies and policies for improving access and learning equitably in Kenya. Within this overall scope, this paper uses KCPE scores data to examine to what extent, if at all, did the introduction of free primary education in Kenya in 2003 have positive equity effects, in terms of both access and achievement.

The rest of the paper is organised as follows. First, the paper provides an overview justifying public subsidies of education which underpin the EFA idea theoretically and introduces a summarised discussion of the concept of equity in relation to FPE. This is important because the moral considerations and desirability of universal provision of education is underpinned by the idea that it would promote equitable opportunity to learn for all. It is an idea that appeals to all in most instances, and formed a major manifesto item in many of the 1990s multi-party political campaigns in SSA (Stasavage, 2005). In the second section of the paper, the methodological approach to addressing the question of the paper on the extent to which FPE was equitable, if at all, and data is described, and in the third section discussion and analysis of FPE, achievement and equity nationally and importantly between counties is provided. The final section of the paper offers the conclusion.

Pubic Subsidies and Equity

Implicitly or explicitly, FPE policy introduced in Kenya in 2003 was geared towards improving opportunity to learn (OTL) and realising educational equity (Oketch and Somerset, 2010). Before FPE, the government had heavily relied on parents to finance education costs under cost-sharing scheme which had been established since the economic and demand management structural adjustment era introduced in the 1980s. Because of high incidence of poverty and economic inequality in Kenya, direct fees had been a major obstacle to schooling and opportunity to learn. Thus, the alleviation of direct school fees by FPE was intended to remove the financial burden of particularly poor households and encourage greater access, with the hope that learning would occur once pupils were enrolled in schools. Because some of the financial burden is removed equally for all through a policy such as FPE, although some financial obstacles will still remain, the degree of access opportunity can be assumed to become more similar for all financially. In theory, the aim of FPE policy is to reduce inequality of opportunity by income difference, gender, or geographic region (Inoue and Oketch, 2008). In Kenya's context with 47 counties, less is known about how the policy reduced inequality of access opportunity and improved learning equitably.

The economics literature is generally clear on the economic reasons why governments should fund education (at least basic education normally considered to include primary and secondary education) even for those who argue that this does not mean that all education should be financed solely by the government. The first reason is the external benefits of education, which asserts that education is beneficial to society. Therefore, to avoid underinvestment, especially by the poor and, the possibility of market failure, public funding is necessary. The second justification is concern for equality and equality of opportunity. Education must not be available to only those who can afford to pay for it. Therefore, government funding is necessary. Inequality in educational opportunity preserves income inequality from one generation to the next because education improves skills that raise earnings in the labour market. The third argument is based on economies of scale which generates a proportionate

saving in cost (see e. g. Inoue and Oketch, 2008; Psacharopoulos and Woodhall, 2005). All these reasons have supported the rolling out of FPE in Kenya but the equity consideration is the one that may have appealed the most to voters. In 2002, Kenyan citizens were for the first time ever presented with the real opportunity to vote into power a truly democratically elected government. The choice was clear: voting for the continuation of the 24 years of one party "dictatorship" under Kenya African National Union (KANU) party or the opposition- the National Alliance of Rainbow Coalition (NARC) which was a coalition of opposition parties. There was an atmosphere of excitement nationally and internationally among global allies of Kenya as this election was thought to symbolise the emerging wave of democratic trend in sub-Saharan Africa. As was anticipated, the opposition NARC won in December 2002 and once it formed government, swiftly implemented FPE policy at the start of 2003. Free primary education had been a major campaign pledge and manifesto offering by NARC. The campaign promise had been that the implementation of FPE policy would offer equitable provision of education, one of the dreams of many Kenyans since independence. Education is highly perceived to be associated with economic success (social mobility) in Kenya and this is why FPE was such a selling pledge for the opposition.

Equity consideration under FPE

Clearly, perceived or real equity is central to FPE. There are two types of equity in the standard economics literature- "distributional" and "procedural" equity (Musgrave, 1959). Within the distributional equity, there is distinction to be made between "horizontal" and "vertical" equity. In the horizontal equity model, the focus is identical treatment of equals (Monk, 1990) or what is often referred to as "equal treatment of equals". Advocates of vertical equity, on the other hand, focus on the differing needs of students and claim that "unequal treatment of unequals" is required to achieve equity (Inoue and Oketch, 2008, p. 45; Oketch et. Al., 2010). Both of these concepts are thought of as equitable, but attention should be called to groups of people and whether they are equals or unequals, and how they are considered in both equity concepts is important (Inoue and Oketch, 2008, p. 45).

"Procedural equity" on the other hand pays attention to the rules or processes of resource allocation, and in education there is no clear "consensus on what an equitable distribution of education resources involves" (Monk, 1990 in Inoue and Oketch, 2008, p.45). Equality of opportunity is what is emphasised by Wise (1968) whereby the main criteria should be such that equality of educational opportunity is realised "when a child's educational opportunity does not depend upon either his/her parents' economic circumstance or his/her location within the state"(p. 146). For Le Grand (1991) "a distribution is equitable if it is the outcome of informed individuals choosing over equal choice sets" (p. 87). Compared to the definition of Wise, however, Le Grand's statement implies that even if uniform subsidies are provided for everyone, as has been the case with FPE, it does not necessarily provide equal choice sets. For instance, even if school fees are waived to improve opportunities for all children through FPE, the children from poor households will still face more barriers associated with the need for them to provide family labour (formal and informal) or earn income for the family which compete with their schooling or simply a lack of adequate school provision by government in some places such as urban slums (Oketch et al., 2010). So these children from poor backgrounds will still not have equal choices with those who don't face these challenges even in a scenario of free primary education policy. Thus Le Grand's concept may require positive discrimination with the poor students (or counties) receiving larger grants or additional interventions than students (or counties) that are well-off. FPE policy in Kenya was not targeted and did not discriminate this way. It was uniformly implemented, with uniform subsidy through per pupil capitation grant applied nationally irrespective of county poverty differences or special circumstances- it was simply called universal primary education, but was it truly universal?. It should be noted here that when FPE was introduced, Kenya did not formally have counties, but boundaries had existed in the form of districts which were later renamed counties in a devolved two tier governance system. The aim of this paper is to understand to what extent, if at all, did the introduction of Free Primary Education in Kenya in 2003 have positive equity effects in terms of both access and achievement nationally and between counties.

Counties and KCPE

Kenya has 47 counties which were constituted following the promulgation of a new constitution in 2010. As previously stated, these counties were previously known as districts. Originally Kenya had 47 districts which with time became sub-dived for mainly political reasons into 72 districts. The 2010 constitution re-established the original 47 districts and renamed them as counties. However, unlike their previous status as district under the direct control of the national government represented by a powerful district commissioner appointed by the president, the county is now the lower level of a two tier governance system under the 2010 constituted devolved system of governance. The county is led by an elected Governor and the central government by an elected President. Since the 47 counties had existed as districts it is possible to review KCPE performance and enrolment in each of the counties since the introduction of FPE in 2003. Because there are limited places in Kenya secondary education, performance in KCPE is used to determine eligibility and to allocate secondary school places to those who complete primary education (Kenya has selection into secondary school by ability such that students are placed into the various categories of schools based on their KCPE score). It is a system of meritocracy inherited and maintained from the colonial education period and is highly disadvantageous for majority pupils from poor backgrounds and with illiterate parents who normally end up in the bottom tier secondary schools due to their poor performance in KCPE to be associated with the kind of primary schools they have attended, usually of poor quality and located in poor rural settings or urban-slums. In this next stage, those who study in these bottom tier secondary schools, who happen to be majority of secondary students, have limited chances of entering into tertiary education and reduced life-chances compared to the few who enter into the top and middle tier secondary schools, who often are from relatively economically better-off family backgrounds or have more educated parents than those in the bottom tier secondary schools. This can be said to be a complete educational injustice associated with the selective secondary school system in Kenya which in turn is associated with the socio-economic and educational backgrounds of the students. Five subjects are examined in KCPE- Maths, English, Kiswahili, Social Studies, Science, and Religious

studies (Christianity/Islam/Hindu). There is also written English Composition and its Kiswahili equivalent known as *insha*. The exam takes 4 days to complete and has usually been taken during the second to third week of November each year, with results released a day or two after Christmas. The maximum score per subject is 100 marks and the possible best total is 500 marks. Because it is used to allocate secondary school places (Kenya does not have universal secondary education although there is effort by the government towards this), KCPE is a high stake exam and parents have in the past trusted both the exam and its marking, and over the years, it has defined public perceptions of Kenya's primary education effectiveness. Recently, however, there have been controversies both about the examination and its marking which have widely been reported and commented on in the Kenya media, including the sacking of senior officials in the examination council to guard against perceptions of malpractices in the conduct of the examination.

Data and methodology

KCPE Data

Performance in KCPE data was obtained from the Kenya National Examination Council (KNEC), which is under the Ministry of Education. KNEC is responsible for coordinating all national examinations for primary schools, secondary schools, and technical colleges and polytechnics. This responsibility includes the setting and marking of these examinations. For the equity analysis carried out in this paper, nationwide KCPE datasets were obtained for the years 2002 to 2005 and 2009 to 2011. The datasets came in different forms and levels – such that some of the data was at school level and others at individual level. The datasets were stratified by gender of the pupils. Information on school type was missing from some of the datasets so for this paper 2002 and 2005 data were merged with the type of school using pre-existing information from the Ministry. The dataset contained key identifiers such as the school examination registration numbers. The registration number is geographically generated (based on the provincial administration in Kenya) informative index number and therefore it is possible to identify the county in which a school is located. Three main

variables were derived from the data: the county, KCPE achievement scores and the number of candidates who sat KCPE (survival to grade 8).

Using the index number, the districts in which the schools are located were generated. The schools and pupils were then mapped into their respective counties. The data was then aggregated at county level by calculating the mean score. The mean scores were then standardized by calculating z-scores, using the formula below.

$Z\ score = \frac{\chi - \mu}{\sigma}$; where χ is the county mean score at time 't'; μ is the overall mean in the 7 years of observation; σ is the standard deviation. Therefore, the z-score, hereafter referred to as the standardized score is the deviation of the county mean score on a particular year in respect to the overall mean score. In the regression analysis, the coefficient for a z-score is interpreted as "% change in one standard deviation". Access data was calculated as the total number of pupils who survived to the 8 years of primary cycle and sat the KCPE examination in each of the counties in a given year.

Poverty Data

Poverty data was obtained from the Kenya Household Integrated Survey, for the year 2005/2006. Poverty data was the proportion of individuals within each of the counties ranked as poor. The poverty rate estimates for each of the county are derived simply by dividing the total number of poor people in each county in 2005/06 by the total population in each county. 2005/06 is the nearest survey to when FPE was implemented in 2003, so it offers some kind of poverty baseline.

Empirical findings: equity analysis

The analysis uses the KCPE data to determine the "effect" of enrolment on KCPE performance (this is not a causal effect). Taylor and Spaull (2015, p. 48) have argued that "Measuring the causal effect of increased access is problematic because many other factors change over time apart from access to schooling". In order to determine the "effect" of enrolment on pupil achievement, a multi-level model (MLM) was fitted, with the counties calculated z-scores (standardized scores) as the outcome. The MLM makes it possible to estimate the variance for the observations as well as that which is

attributable to the counties. The assumption is that individual county scores are nested within the counties (7 corresponds with the time points) observations for each of the county), so level 1 is the actual county observations for each of the years, while level 2 (higher level) is the county. From this set up, the following regression models were fitted:

- o Model 1: outcome=county z-scores controlling for enrolment – by gender.

Enrolment by gender is time variant so

$$y_{it} = \beta_{oi} + \beta_{2ti}boys + \beta_{3ti}girls + \mu_t + \varepsilon_{it} \ldots\ldots\ldots \text{(i)};$$

- o Model 2: outcome=county z-scores controlling for both year of observation and enrolment by gender.

$$y_{it} = \beta_{oi} + \beta_{1i}time + \beta_{2ti}boys + \beta_{3ti}girls + \mu_t + \varepsilon_{it} \ldots\ldots\ldots \text{(ii)};$$

- o Model 3: in addition to variables included in model 2, county poverty index is controlled for.

County poverty index, was only measured once and does not vary by the county over time, and therefore fitted as a time constant characteristic.

$$y_{it} = \beta_{oi} + \beta_{1i}time + \beta_{2ti}boys + \beta_{3ti}girls + \beta_{4i}poverty + \mu_t + \varepsilon_{it} \ldots\ldots\ldots \text{(iii)};$$

- o Model 4: outcome=county pass rate controlling for year of observation, enrolment by gender and county poverty index. This is similar to equation 'iii', only that the outcome changes from county z-scores to pass rate.

Results

Descriptive statistics
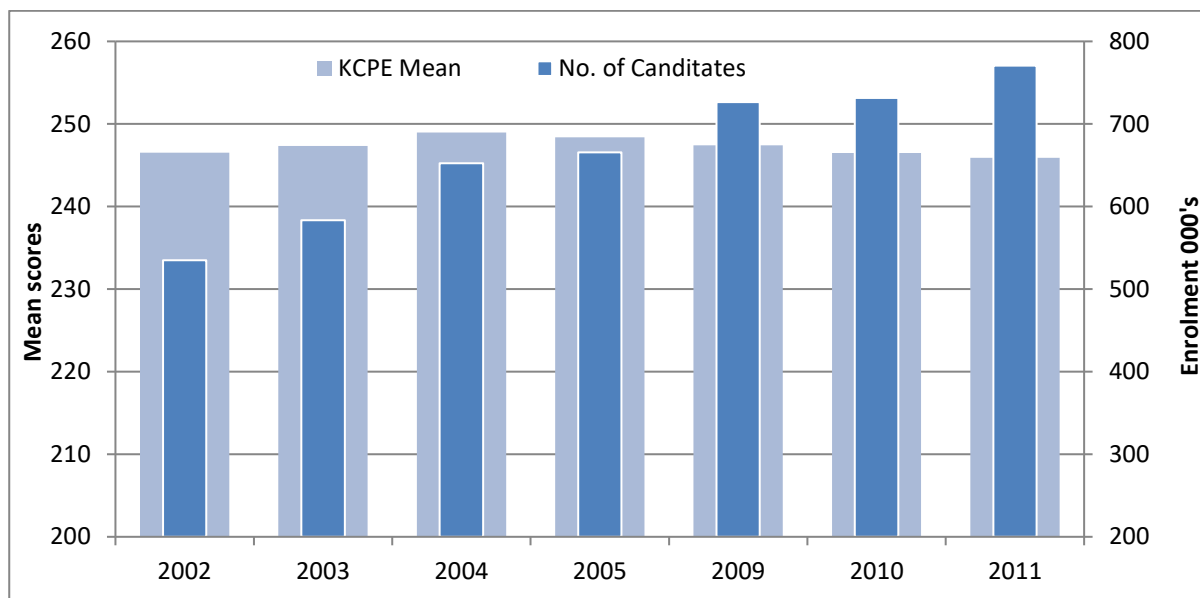
Figure 1: Enrolment and mean scores over time

Figure1 presents enrolment and county mean scores over time. From inception of the examination, KCPE raw marks were standardised each year to scores with an arbitrary mean of 50 marks and a standard deviation of 15 in each of the five subject areas. Hence the national mean total score was an invariant 250 marks each year. It was these standardised scores, rather than the raw marks, which were released to those pupils who sat KCPE and used for secondary school selection. Because the KCPE scores are standardised, this accounts for the trend shown in figure 1, in which KCPE mean total scores vary little from year to year. No inferences as to national-level changes in achievement from year to year can be drawn from standardised scores because year to year changes are ironed out by the standardised process. By contrast changes among groups (e.g. among counties, or between boys and girls) are meaningful. The national mean total score fell below 250 marks in each of the seven years reviewed by this paper. The national mean for each year was calculated from the country means which were calculated based on pupils' scores in each county, weighting by enrolment. This

was to account for the likelihood that less-developed counties would tend to have fewer candidates, and lower mean scores than the better-developed counties.

Regression Analysis

In model 1 in Table 1, there is a positive association between enrolment of boys and county z-scores and a negative one for girls. Enrolment here is expressed per 1000 pupils who survive to grade 8 and sat KCPE. In this respect, for every 1000 increase in the number of boys, the county standardised mean score increases by 0.016% (0.00016*100%) of a standard deviation. This means that for every 10,000 increase in the number of boys, there is an increase of about 1.6% of a standard deviation in the county KCPE performance.

Model 2 in Table 2 include controls for both year of observation and county enrolment: In this model 2006 is excluded since it was not possible to split the enrolment by gender. The enrolment of girls is negatively and significantly associated with county mean scores, while that of boys is positive but not significant.

Table 1: Multi-level regression coefficients: Bivariate analysis

Fixed part/Variables		Model 1	
		Coef.	SE
Constant		-0.23112	0.177506
Enrolment	Male	0.00016**	0.0000303
	Female	-0.00013**	0.0000348
Random Part			
County		0.55416	
Observations		0.42280	

ICC			56.72%	
# of counties			47	
# of observations			329	

In model 3 of Table 2 below, the year and enrolment remain significant as observed in model 2 after introducing the proportion of the population ranked as poor. Increase in poverty levels is associated with a significant decrease in achievement. 1% increase in poverty is associated with a decrease in county mean score by 2% of a standard deviation. This model also introduced control for the number of schools (excluded) in each of the county for every year, and the coefficient was still not significant. The variable with the number of schools per county was highly correlated with enrolment (rho of 0.88). Hence, both variables were not included in the same model.

The random part for the four models indicates a high Intra Class Correlation (ICC). For instance, in model 2, the ICC is 67%. This means that 67% of the variation in the county mean scores is attributable to the differences between the counties (the between variation). The remaining variation, which is approximately 33%, is attributable to differences in the means for the different examination years within the counties (within county variation). This additional step serves to indicate how counties differed rather than how the examination may have differed each year.

Table 2: Regression analysis z-score full model

		Model 2		Model 3	
Fixed part		Coef.	SE.	Coef.	SE
Constant		-0.1936651	0.1911486	0.9398084	0.4446613
Year	2003	0.1483502	0.1193342	0.1574913	0.1186496
	2004	0.2715898*	0.1220998	0.2938446*	0.1215834

	2005	0.3020943*	0.1232472	0.3271512*	0.1227808
	2009	0.8401905**	0.1301829	0.872006**	0.1298218
	2010	0.7838036**	0.1292415	0.8171189**	0.1289312
	2011	0.796854**	0.1316209	0.8377224**	0.1315222
Enrolment	Male	0.0000352		0.0000296	0.0000317
	Female	-0.0000723*	0.0000318	-0.000084*	0.0000344
			0.0000344		
Poverty				-0.0199382*	0.0069754

Random Part

County		0.6877217	0.62072
Observations		0.3316863	0.327678
ICC		67.46%	65.45%
Number of counties		47	47
Number of observations		329	329

Pass rate

Table 3 shows the mean proportion of schools which scored above pass mark of 250. On average, there is an increase of 14 schools per year in each of the counties.

Table 3: Mean pass rate and enrolment 2002 to 2011

				95% CI	
Year	Mean number of schools per county	Proportion of schools Scoring >250	Std. Err	Lower	Upper
2002	356	43.27	2.96	37.46	49.08
2003	369	43.56	2.72	38.21	48.91

2004	384	43.54	2.54	38.54	48.53
2005	398	44.97	2.30	40.44	49.51
2009	444	45.47	2.15	41.24	49.71
2010	452	44.42	2.24	40.01	48.82
2011	471	42.43	1.97	38.56	46.29

Using the proportion of schools above pass rate as the outcome, model 4 was fitted. This model is structurally similar to model 3 above except in the estimated outcome. The county pass rate from model 4 is a function of the examination year and of the population of male candidates. In 2009 the number of schools scoring above 250 marks was higher than in 2002. However, while in the earlier finding the enrolment of boys was found to be positive and not significant, in model 4 it is the opposite. This suggests that counties where enrolment by girls increased, the county pass rate improved in the subsequent year.

**Table 4:** Regression analysis pass rate full model

		Model 4	
Fixed part		Coef.	SE
Constant		57.50533	7.903257
Year	2003	0.7412032	1.715333
	2004	1.239537	1.76911
	2005	2.702663	1.790004
	2009	4.984243	1.899134
	2010	3.836547	1.889055
	2011	2.144765	1.939845
Enrolment	Male	-0.0012079	0.0004604
	Female	0.0002843	0.000512

Poverty	-0.179512	0.1275429
Random Part		
County	219.1207	
Observations	68.29806	
ICC	76.24%	
# of counties	47	
# of observations	329	

Change in enrolment and pass rate and county poverty: Comparing county OTL in 2003 Vs 2010

Figure 2 below plots the impact of FPE 2003 on KCPE enrolments, as measured by change between 2003 and 210, against change in mean KCPE performance over the same period, for the 47 counties. A most interesting contrast is between counties in the top-right quadrant (high enrolment impact; improved KCPE scores) and those in the bottom-right quadrant (high enrolment impact, lower KCPE scores). Counties in the former group are located almost entirely in arid or semi-arid pastoral areas; those in the latter group, in coastal regions. It is not clear what explains this, although it is possible they were starting from very low base in 2003 and by 2010, there was remarkable improvement. It may also be that in these northern arid and semi-arid counties, those pupils who persisted to grade 8 were those able to do well in school, a possibility of self-selection by ability occurring. It may also be possible that the better performance is a reflection of the efforts of a number of NGOs which have had sustained effort to increase enrolment and learning in these deprived nomadic counties of Northern Kenya. These are plausible explanations, but a fuller analysis of the differences between the two regions, and the impact these may have on KCPE performance would form a basis for further research. Additionally the data plotted in Fig. 2 suggest that KCPE enrolment impact and poverty level are, in all probability, strongly correlated to each other, (with Turkana as a likely outlier).

Figure 2: *Figure 2: Scatter diagram – change in enrolment and mean score: 2003 and 2010*

Change in KCPE mean score and enrolment between 2003 and 2010
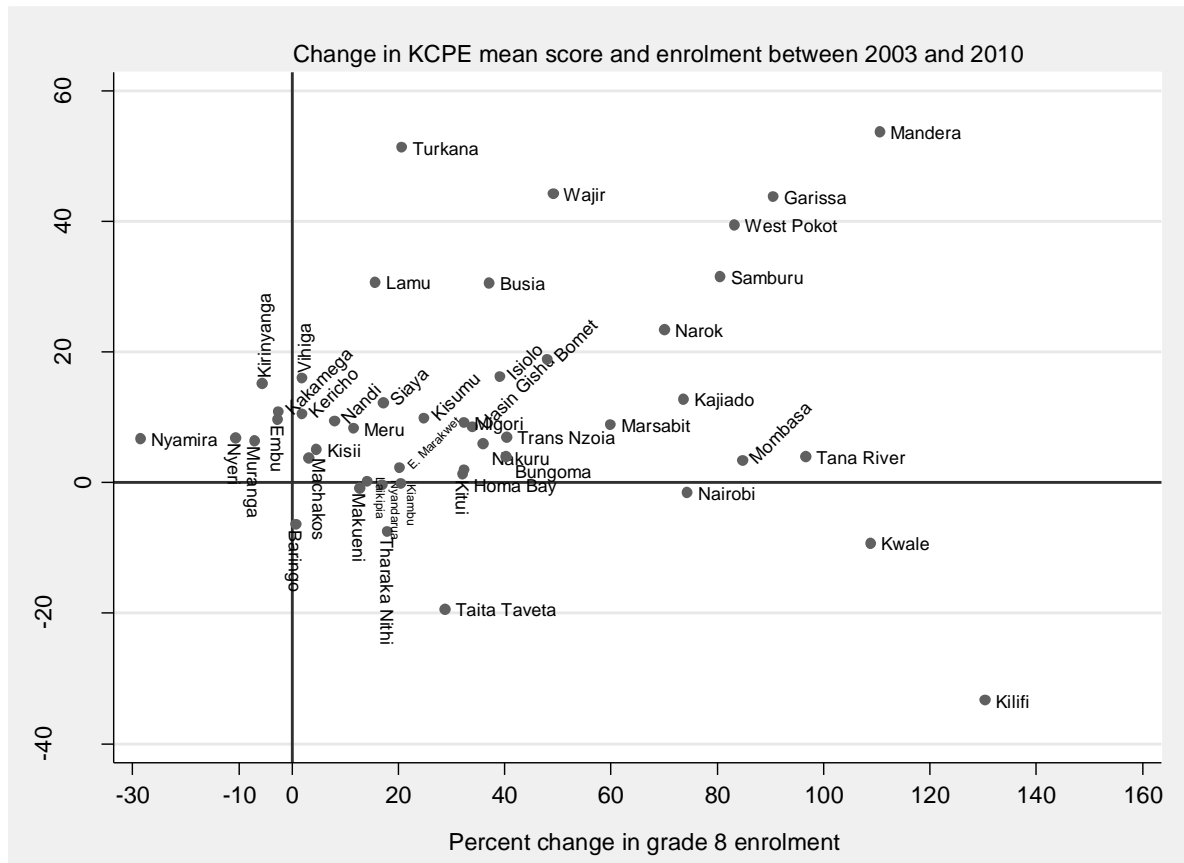
Conclusion

This paper started by noting that FPE which was introduced in Kenya during a period of significant political transition from 24 years of single party dominance to multi-party democracy was both a political statement and a demonstration of how seriously the Kibaki led new government which had just come into power in 2003 considered improving education chances for Kenya's children equally. Theoretically, it had equity motive and a signal of commitment toward opportunity to learn for every Kenyan child. Although the political alliance which formed the NARC party disintegrated only after two years and Kenya almost fell apart from this in the 2007/2008 post-election violence between two groups which had joined forces to win the 2002 election, FPE has remained ingrained in Kenya as a commitment by the government. At the heart of FPE was equity, distributional equity of "equal treatment of equals" when in reality this was a policy which was a bout "equal treatment of unequals". A quantitative measure of poverty in all 47 counties has shown a negative association

with KCPE performance (high poverty levels associated with low KCPE scores). The analysis presented in this paper has shown a contrast between counties showing high enrolment impact; improved KCPE scores, and those showing high enrolment impact; lower KCPE scores. Counties in the former group are located almost entirely in arid and semi-arid areas; those in the latter group in the coastal region.

The first question that might be asked is what lessons can be drawn from the FPE trend in arid and semi- arid counties that would be useful to the coastal counties? The other question is why haven't the coastal counties similarly gained in learning achievement?

These observations are suggestive, but whatever the reasons for the outcome shown by arid and semi-arid counties in contrast to the coastal counties under the FPE policy, they demand explanation through further research so that any "county fixed effects" may be taken in consideration by the Kenya government and her donor partners in the next phase of FPE policy which has focused on raising learning outcome equitably. The other aspect is to assess whether these trends presented in this paper based on years 2002-2011 KCPE data have continued to date.

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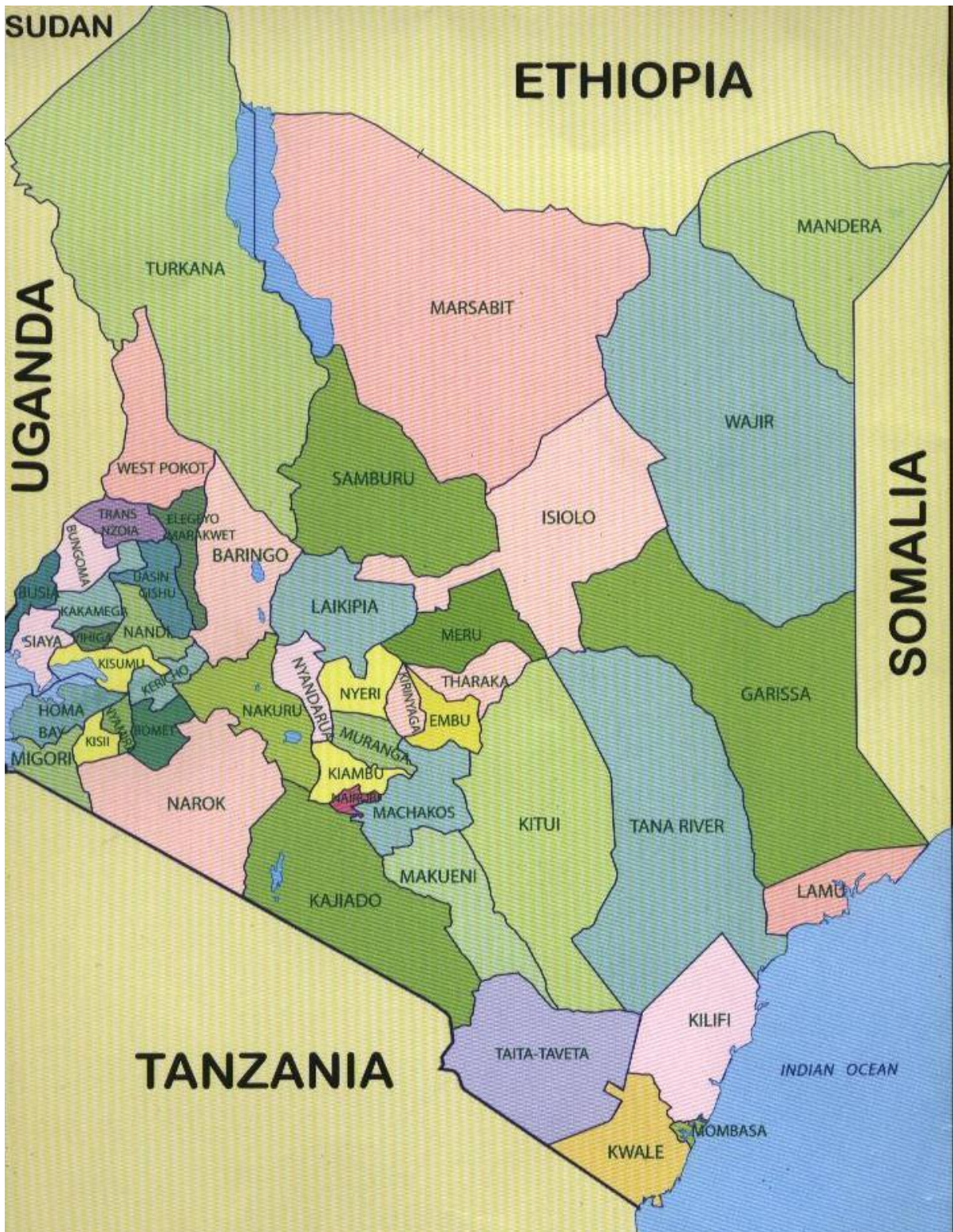
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Appendix 1: Map of Kenya Counties

Source: http://softkenya.com/county/ retrieved on 11/9/2016