The Impact of Free Primary Education Policy on Human Capital Development in Kenya: Wins and Losses

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Bringing Rigour and Evidence to Economic Policy Making in Africa

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Abstract

This report is based on a case study of human capital development in Africa, focusing on Free Primary Education (FPE) policy in Kenya passed in 2003. We address the policy contribution of Free Primary Education to human capital development in Kenya. The paper analyses and documents the wins and losses of the policy with regard to educational outcomes of enrolment, completion and transition from primary to secondary level education. The report uses the systems approach and mainly desk review of World Bank 30-year series data between 1989 and 2020. The results show that the FPE policy, albeit passed through a political declaration and manifesto devoid of much analysis at the time, made useful contributions to the three outcomes of enrolment, completion and transition. However, there were misses in learner achievement, gender and regional disparities. In addition, investments in reducing the teacher-pupil ratio made marginal sense. Drawing from these results, we recommend that human capital development policies in Africa be done in a more consultative way, whereby policy makers and technocrats discuss different scenarios before implementation. There is also a need to pay more attention to the quality of education offered beyond access and enrolment.

Keywords: *Human Capital Development, Free Primary Education, educational outcomes, education access, school enrolment, school transition, gender disparities, regional disparities*

1. Introduction

Background to the study

Governments worldwide vary in their ability to develop human capital. While some are consistently among the best, others struggle to provide even the most basic services. It has become clear that if governments want to compete in the global economy, they must possess the ability to build their human capital. Human capital development is about the holistic growth of a person in terms of their skills and capabilities (Angrist et al., 2020). Equated with the human development model promoted by the UNDP since 1990, it encompasses the enlargement of choices and opportunities for people and societies to lead fulfilling lives. Human capital development is a continuous and deliberate process of attaining the necessary knowledge, skills, and experiences to generate economic value for driving sustainable development in a country (Harbison, 1973; World Bank, 2019).

Human capital is the knowledge, attitude, behaviour, and competency built into an individual. It is the skills and abilities of human resources of a nation and accumulation of human capital as the process of learning and increasing the number of personnel who have the education, experience, and skills that are essential for development and growth of a country's economy (Adelakun, 2011; Rastogi, 2002; Okojie, 2005). It encompasses activities that influence future monetary and psychic income by increasing people's resources such as schooling, skills development, training, health care, and migration. Therefore, governments must invest in education, training skills, health, and other human values (Becker, 1994; Bowen, 1977).

Human capital is a concept used to designate personal attributes considered useful in the production process. It encompasses employee knowledge, skills, know-how, good health, and education. Human capital has a substantial impact on individual earnings. When a country fails to invest in her people, it essentially reflects in lack of development as a result of poor human capital.

Shultz (1961) coined the term human capital in the 1960s while pointing to its economic content determined by the acquisition of improvable qualities due to appropriate investments in education capital. It consists of acquired knowledge, skills, motivation, and energy people have that can be used for specific periods to produce goods and services. It is a form of capital because it is a source of future earnings and satisfaction. Human capital consists of knowledge, skills, and health that people invest

in and accumulate throughout their lives, enabling them to realise their potential as productive members of society. The World Bank (2019) indicates that countries need to strengthen their human capital to achieve sustained and inclusive economic growth, which will also cause limitations in developing high skills for the workforce for future jobs, hence not competing effectively in the global economy. Investment in people through health, quality education, nutrition, and skills, improves their human capital, which is crucial to combating extreme poverty and creating more inclusive societies (Pritchett and Sandefur, 2020).

Education is key to development in every society, as it forms the basis upon which economic, social, and political development of a nation is founded. Due to its contribution to economic growth, enhanced productivity, national and social development, and social equity, governments and households heavily invest in all forms of education (Mutegi, 2015). Literature asserts that investment in education has a long gestation period before investors receive its returns. Moreover, education expansion immensely contributes to the high growth rate of gross national product (GNP). Formal education develops middle and highly skilled personnel, providing leadership to plan and manage the economy (Holden and Biddle, 2016; Mutegi, 2015; Mwabu et al., 2002). Education is also perceived as a legitimate determinant of well-being in terms of both individual and collective goods, resulting in rapid growth at both national and global levels.

Besides promoting economic growth, education promotes equity, equality, and poverty reduction. It is argued that if education is provided under market conditions, only those who can afford to pay for tuition would enroll (Schultz, 1961). Not only would there be under-investment from the social point of view, but income inequalities would be preserved from one generation to the next, since education is a determinant of lifetime income. In terms of poverty reduction, literature argues that education increases the voice of the poor, particularly at the local level, where the poor gain the self-confidence needed to engage in dialogue and influence decisions. It also raises young people's awareness of their civil rights and responsibilities and encourages a sense of national loyalty (Fagerlind and Saha, 1997; Måns and Wambugu, 2006). For these reasons, governments and other stakeholders' endeavour to mobilise finances for the education sector with a view to promoting access to quality education. The big question is whether this financing results in better learning outcomes.

Most developing countries such as Kenya need assistance in human capital development due to issues of access, equity, quality, and relevance. For these reasons, human development indicators in most developing countries are low. In Kenya, Gachathi (1976) noted that formal education was oriented mainly towards passing examinations and obtaining certificates rather than grooming students to grow intellectually, physically, and spiritually as integrated human beings. In addition, access to education has been skewed over time to economically empowered households. Efforts by the Kenyan government to provide access to education in line with Sessional Paper No. 10 of 1965 have yet to realise the expected dividends. During the colonial period, there were disparities in

government expenditure on education. The European children received more than the African (Kenya) children (Mutegi, 2015). These are the disparities that the independent government aimed to address through Sessional Paper No. 10 of 1965.

The introduction of the Free Primary Education policy in Kenya in 2003 was in tandem with the efforts and commitment of the government and international community to promote access to education in line with the six Education for All (EFA) and the Millennium Development Goals in 2000 that called for increased access to quality primary education (Mulinya and Orodho, 2015; Republic of Kenya 2003; 2008). It was also premised on the importance of education as a critical vehicle for realising the Kenya Vision 2030. In addition, the Basic Education Act 2013 reiterates that basic education is free and compulsory in Kenya is operationalised through the legal framework enshrined in the Act (Republic of Kenya, 2012). Both the Constitution of Kenya (2010) and the Basic Education Act (2013) guarantee and provide legal mechanisms to ensure that every Kenyan citizen accesses basic education and other economic and social rights. Literature has shown that citizens' access to and performance in education, and the application of knowledge, attitude, and skills gained through the educational experience is important for overall development of a country. It is therefore essential to examine how the implementation of the FPE in Kenya in 2003 achieved the intended goals of human development during the past two decades. This report is based on an examination of the impact of FPE on education outcomes, mainly enrolments, transition and completion rates.

Problem statement

The FPE policy introduced by the National Rainbow Coalition (NARC) Government in 2003 was hugely a political pronouncement, but which the stakeholders in the education sectors had to implement in line with the manifesto of the Government. Without adequate preparation and planning, the FPE was implemented in a haphazard manner, which led to diverse outcomes in the public education system.

One of the immediate outcomes was the massive enrolment of pupils in primary schools without adequate provision of teachers and teaching facilities. According to IMF (2007), during the first year of the introduction of FPE in 2003, gross enrolment rate increased from 92% to 104%. Having more children in school meant that the country was bridging the inequality gap between the rich and the poor in terms of access to basic education. According to this policy, the government shouldered the financial burden from the parents, which led to more children going to school compared to previous years. This was expected to translate to higher literacy levels and in the long-run higher human capital development for economic growth and eradication of poverty in the society.

As mentioned earlier, the Government of Kenya rolled out the FPE programme without prior planning and engagement of relevant stakeholders. The programme was

based on a political manifesto promise by the NARC government that came to power after the 2002 general elections. There was no adequate planning and mobilisation of resources to implement the policy. This is not unique to Kenya, as many governments in the world implement policies based on political manifestos and pronouncements. Implementation of such policies becomes problematic to the technocrats, especially when financial and human resources are not adequate.

In Kenya, some of the challenges in implementing the FPE would have been dealt with if the government had a planned strategy for the implementation. The enrolment of children increased, especially at the primary school level. The pupil-to-teacher ratio increased from 1:34 to 1:40, and in some cases 1:100. The congestion experienced in schools led to low quality of education as teachers were stretched to the limit. This low quality education would later on be transferred to higher levels of education within the system. Thus, although the government had achieved the goal of universal primary education to its population, the graduates did not have the expected quality of education. Although access could have been a win and has been ably analysed in literature, there could have been misses regarding the education quality and related learning outcomes.

This paper, therefore, sought to fill this knowledge gap by analysing the impact of FPE policy on human capital development using Kenya as a case study. In addition, we tease out wins and misses in the implementation of FPE in Kenya. We use the systems approach in examining inputs to the policy process, outputs, and impacts within an open systems lens, as discussed in section 2. Finally, we use time series data between 1989 and 2021 to trace the impact of FPE on human capital development.

Research questions

The broad question for this paper is: what has been the impact of Kenya's Free Primary Education Policy on human capital development in Kenya?

Specifically, the study sought to answer three research questions:

(i) What has been the impact of Free Primary Education on human capital development?

(ii) What bottlenecks have riddled the formulation and implementation of the Free Primary Education policy?

(iii) How best could the Free Primary Education have been introduced to promote human capital development in Kenya?

Purpose and objectives

This research analysed Kenya's FPE policy journey and discourses concerning human capital development. The paper uses the systems approach, examining inputs to the policy process, outputs, and impacts within an open systems lens (adapted from Yin Cheong et al., 2002). This is a framework that deeply helps to go beyond policy formulation and implementation to address its long-term consequences.

The specific objectives of this paper are to:

- Assess the impact of Free Primary Education on human capital development in Kenya.
- Analyse the differentials in learning outcomes across the rural-urban in the context of the Free Primary Education.
- Examine the gains and challenges faced in formulating and implementing Free Primary Education policy.
- Provide policy suggestions on how to formulate and implement policies for human capital development.

1.5 Research Justification

One of the outstanding achievements of the Government of Kenya in 2003 was the introduction of Free Primary Education (FPE). The Economic Recovery Strategy for Wealth and Employment Creation (ERSWEC), under which FPE was anchored, aimed to change lives and build a modern and prosperous nation. It focused on implementing the manifesto of the National Rainbow Coalition (NARC) government based on democracy and empowerment. The role of education skills, according to the ERSWEC, was seen as an important route to exit poverty by improving people's ability to take advantage of the opportunities that could improve their well-being as individuals and enable them to participate more effectively in the community and market.

The ERSWEC introduced the Free Primary Education policy despite significant challenges. It was geared towards achieving the EFA (Education for All) and the Millennium Development Goals (MDGs). There was an increase in enrolment from 5.9 million to 7.1 million in primary schools, especially in urban centres, due to FPE. This caused overcrowding and severe strain on the system. By 2006, the number of teachers in government schools had declined because of increased enrolment that skewd the teacher to pupils ratio, bringing questions about the quality of the country's education system. This paper analyses the FPE policy wins and misses in the country regarding human capital development.

2. Literature review

Background to education, human capital and Free Primary Education

Free Primary Education (FPE) was introduced in Kenya in 2003 following the entry of a new (NARC) government/regime after many years of the Second President of the Republic of Kenya. The new regime sought to enhance Education for All by boosting school enrolment and ensuring that all children who were not in school access education (Mulinya and Orodho, 2015; Oketch, Mutisya, and Sagew, 2012). The promise of FPE had been contained in the new government's campaign manifesto. In 2010, the Constitution of Kenya and later the Basic Education Act 2013 consolidated this policy direction by making education a fundamental socio-economic right. FPE further symbolised Kenya's commitment to implement the Children's Act 2001 Section 7(2), which states, "Every child shall be entitled to free basic education, which shall be compulsory per Article 28 of the United Nations' Convention on the Rights of the Child." This commitment had been largely ignored, and therefore the policy was both timely and relevant to the education scene in the country.

In contrast, Pritchett (2001), cited in Adelakun (2011), reports that in developing economies, there is no association between increase in human capital attributable to the rising educational attainments of the labour force and the rate of growth of output per worker. Specifically, he reports that estimates of the impact of growth in education capital on growth per worker are insignificant.

Although the FPE boosted student numbers and enhanced access to basic education, many of the studies undertaken on this policy have examined the policy formulation process and its implementation, focusing on the challenges of the policy (for example UNESCO, 2005). The policy saw an increase of between 20% and 30% in enrolment. No study has been undertaken to investigate the learning outcomes of the policy. This literature review seeks to understand the education outcomes of FPE.

Theoretical literature

This paper is rooted in the systems approach developed by Yin Cheong et al. (2002). This framework examines inputs into the policy process, the process itself, outputs, and impacts within an open systems lens, as shown in Figure 1.

This framework helps go beyond policy formulation and implementation to address its long-term consequences (Figure 1). The paper is based on a model stipulating these aspects, but adds dimensions of gender and rural-urban differentials since these are viewed as substantially relevant for Kenya and much of Africa's human capital landscape. According to Yin Cheong et al. (2002), proper education policy analysis needs to examine the various dimensions of intervention, including:

- *Identification of existing problems:* within the education system, at the societal level, from outside the society.

- *Principles underlying the setting of policy objectives:* traditional beliefs and values about the nature of education, the nature, and process of schools, the relationship between education and schools, and the needs of society.

- *Functions of education (functional and perspective):* individual: survival, personal growth, and development; societal: integration, control, selection, sorting, allocation, socialisation, social mobility, social changes, equalisation; political: socialisation, legalisation, selection, control, equalisation, political changes; economical: change of human resources structure, quality of human resources, population control, economic development; cultural: inheritance, development, and creation of culture.

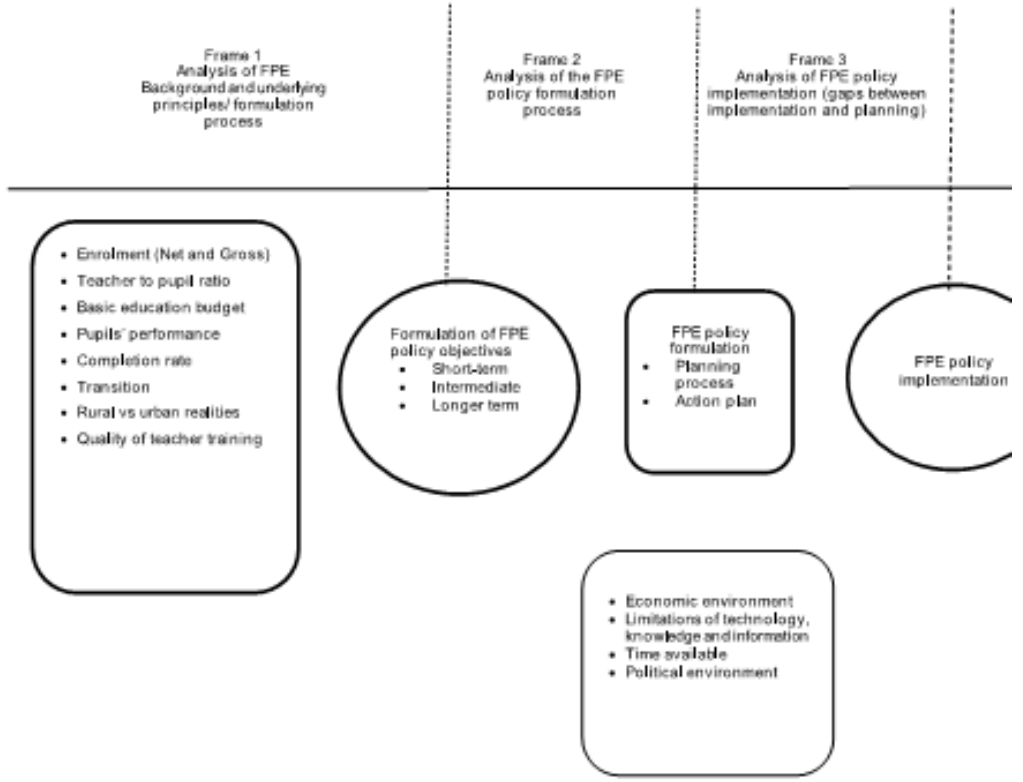
- *Hidden functions of education (conflict theories):* reproduction of social class structure and cultural capital; perpetuation of class inequality.

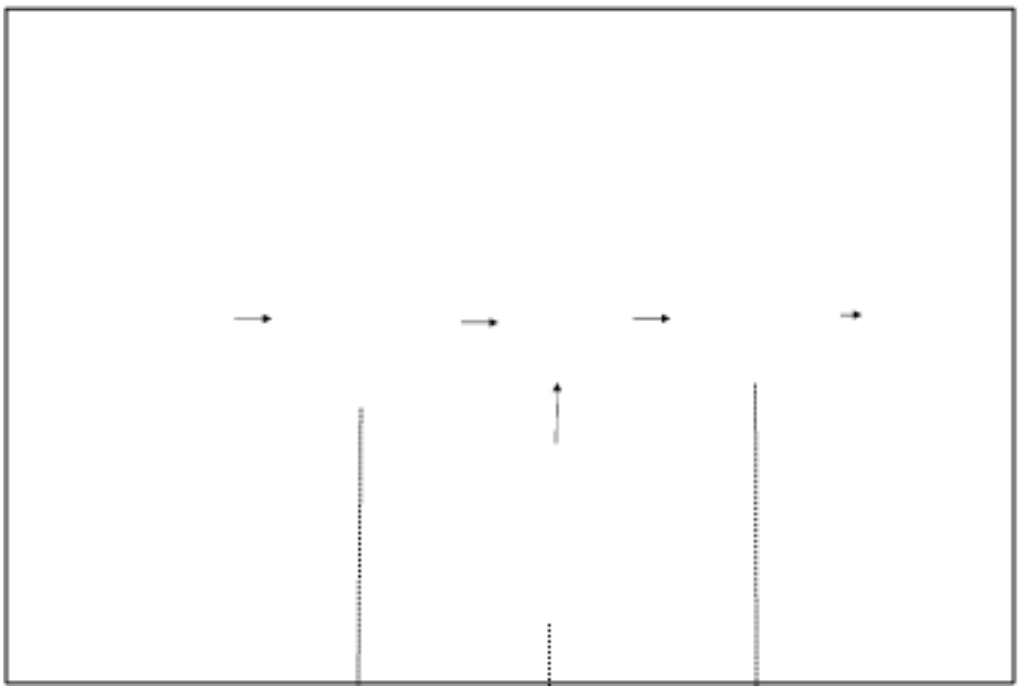
- *Philosophical considerations:* the ideal learning environment, inputs, processes, outcomes of education and schools; consistency between educational philosophies, educational objectives, and policy objectives.

- *Legal considerations:* legal values such as human rights, freedom, equity, the balance of interests, etc; existing legal constraints.

- *Practical constraints:* consideration must be given to constraining factors such as resources and time, political and environmental issues, and human resources.

Figure 1: Overview of the four frames





Source: Adapted from Yin Cheong et al., 2002)

This framework has been used and tested in Hong Kong since 1984. It examines the policy context, process, outputs, and impacts within an open system lens. The approach can be borrowed for FPE to check if the policy delivered the learning outcomes and explain why this is the case.

Purpose of the FPE policy

The FPE in Kenya entailed the abolition of fees and other school levies, which essentially had been tried before. In 1971, President Kenyatta exempted the hardship districts of Marsabit, Isiolo, Samburu, Turkana, Garissa, West Pokot, Mandera, Wajir, Tana River, and Lamu from primary school levies as a way of ensuring that these areas increase their access to basic education. The regions had traditionally been left behind and often faced the worst cases of development and insecurity. The move boosted primary school enrolment by 23% for Isiolo and 72% for Wajir. It resulted in a phenomenal growth in the number of pupils accessing basic education.
In 1973, another Presidential decree made education free for the country's first four years of primary education. Wanjohi (2014) observes that the Presidential decree was one of the most dramatic political pronouncement since it caught the planners and the public unaware.

Free primary education has been premised on addressing poverty and household hardships as barriers to education access. It was expected that just as had happened in the hardship districts, removing schools' fees and levies would boost enrolments and promote national building. Economic development, as envisaged by the NARC government's manifesto, was felt to be greatly facilitated by an empowered workforce. Education, as the acquisition of skills and knowledge, was the entry point at the basic level. According to Oketch and Somerset (2010: 1), "the initiative had a straightforward, but ambitious purpose: to make primary schooling accessible to all young Kenyans of appropriate age, wherever they lived and whatever their family circumstances". Removing the financial burden from poor households was felt to contribute to Education for All.

Before FPE, the primary education system in Kenya was characterised by high wastage in the form of low enrolment, high drop-out rates, grade repetition, and poor transition from primary to secondary school. This scenario was attributed to the high cost of primary education (Muyanga et al., 2010). The hypothesis was that free primary education would be a motivation to send children to school. The government pointed out that even in areas with limited facilities such as classrooms, desks, books, and other teaching aids, the affected schools would improvise with available local resources. Poverty was discarded as a barrier to learning.

Implementation of free primary education in Kenya

Numerous studies by the government, UN agencies, civil society, think tanks, and academics have analysed FPE. Recent studies by Mulinya and Orodho (2015) and Oketch and Somerset (2010), have highlighted that over one (1) million pupils were enrolled in the first year of implementation of FPE. The result was huge numbers and high pupil-teacher ratios, leading to poor delivery, limited interaction with students, and overall poor performance. However, there is no adequate empirical study to support the views and assertions concerning teachers' experiences and motivation towards implementing the FPE policy in Kenya (Abuya et al., 2015).

Although FPE was supposed to be non-payment of basic education, there is no evidence to suggest that schools in Kenya are an issue of household payments (Oketch et al., 2012). In a study done in two of Nairobi's slums, the quality of education is more fundamental in determining parents' decisions to pay for primary education. Cost is a less critical factor. In this regard, the question in this policy paper is whether the removal of levies was an essential factor in the policy or the issue of policy around quality delivery, given that the expectations from learners and parents/guardians would have been more critical.

Implementation of FPE led to employment of more teachers and the eventual construction of more classrooms. The new government also established the Constituency Development Fund (CDF) under the Constituencies Development Fund Act of 2007 (revised with the Constituencies Development Fund Act of 2013 to factor the separation between the National and County governments under the Constitution of Kenya 2010. Physical infrastructure, especially classrooms, drove the decision by the government to support FPE.

Different scholars have cited a significant issue with implementation. Otike and Kariuki (undated) have cited the need for more clarity regarding the roles of different stakeholders, including teachers, parents, and school committees, regarding the FPE policy. This can essentially result in weak role performance to the detriment of the learner. The study on teachers' perceptions (Abuya et al., 2015) supports the same perspective where many teachers needed to understand the system's expectations. Sawamura and Sifuna (2008) studied the challenges of implementing FPE and listed the following:

(i) Because of acute teacher shortages, teachers were forced to combine classes for several grades. Some schools had to introduce double shifts to cater for the increased enrolments. Too few classrooms were available to divide the classes.

(ii) Teachers needed to be more motivated due to increased workloads and the scrapping of extra tuition, a significant source of their income. This contributed to a decline in the quality of education.

(iii) Teachers needed help in managing large classes. Teacher-pupil interaction could have been more minimal, resulting in a disadvantage for slow learners. There were also serious disciplinary problems with over-age children.

(iv) Because it was deemed free education, some parents expected the government to take full responsibility for education. They became apathetic to all school activities, making effective school management difficult.

(v) Grants from the government were not distributed in the new school term when schools needed funds, and the amount needed to be increased. The use of funds was uniformly specified, which did not reflect the actual needs of each school.

Wanjohi (2010) further analysed teacher shortages and congested facilities as critical issues facing FPE implementation. To this list, he added difficulties in the managerial skills of school head teachers, and embezzlement of funds made the implementation of the policy difficult.

One observation as early as 2008 has been that despite the abolition of fees and levies, many schools continued to implement the exact charges in a "soft" manner, for instance in terms of extra classes, activity fees, school trips, teacher holidays, uniforms, and other expenses (Sawamura and Sifuna, 2008).

FPE and learning outcomes

In a recent paper by Pritchett and Banerji (2013), the measure of success in education has been moved from enrolment and participation to capture more actual outcomes such as literacy and numeracy skills. Through data analysis by Uwezo, a literacy and numeracy analysis think tank, and other sources, including the World Bank, the authors found that students in Tanzania, Uganda, and Bangladesh had far fewer capabilities than expected in their levels of education. Similar findings were found in India. This study is a change-maker in the assessment of educational outcomes. Countries often take pride in high enrolment rates and increased financial investments in the education sector.

As early as 2008, soon after the FPE was introduced, Sawamura and Sifuna (2008) had predicted that quantitative (number-based) investments in policies such as the FPE without thinking about the qualitative aspects in terms of relevance, significance, and effects of the policy on individuals would be detrimental to the country's development. Besides the quantitative-qualitative divide, these two authors cited the substantial regional and gender differences in education access and outcomes across Kenya. Although the national average of gross enrolment rates is more significant than 100%, in the North Eastern Province, an arid or semi-arid area with a large population of pastoral nomads, rates were 32% for boys and 19% for girls in 2003. In regions with such low school attendance rates, gender disparity is also significant. One question to raise concerning education outcomes is whether the regional, rural-urban, and gender differentials in schooling and learning persist.

3. Methodology

Theoretical framework

This study examines the impact of the Free Primary Education (FPE) Policy on human capital development in Kenya. It heavily borrows the concepts of the human capital theory, proposed by Schultz (1961) and developed extensively by Becker (1964). The theory suggests that individuals invest in education in anticipation of a wide range of benefits, including monetary rewards of increased earnings.

According to Becker (1964), human capital theory was developed in the 1960s due to the realisation that growth of physical capital has only a tiny part of the growth in income. The theory asserts that education or training raises workers' productivity by imparting sound knowledge and skills and raising their future income by increasing their lifetime earnings (Becker, 1994). It further postulates that expenditure on training and education is costly, and should be considered an investment since it is undertaken to increase personal incomes. According to Becker (1975), the human capital investments model deals with choosing between current and future consumption. By sending a child to school, parents take on the costs of schooling and forego the benefits of the child's market and non-market labour in the expectation of future benefits to schooling. Because many benefits of education accrue over time and as social externalities, parents are predicted to under-invest in schooling.

Human capital is significant because it improves productivity in several ways. First, the human capital theory views schooling as an investment in skills, which contributes to improvements in productivity (see, for example, Becker, 1975; Schultz, 1960; Schultz, 1961). The growth-accounting literature posits that education improves productivity and contributes to economic growth by increasing the human capital stock of individuals. The endogenous growth literature, popularised by the work of Romer (1990), assumes that the creation of new designs/ideas is a direct function of human capital, which is reflected in the accumulation of scientific knowledge.

Therefore, investment in human capital through school attendance generates growth in physical capital, which results in economic growth (Asterious and Agiomirgianakis, 2001; Romer, 1990). Moreover, the persistent accumulation of knowledge by individuals, either with intentional efforts as explained by Lucas (1988) or with learning by doing, as explained by Azariades and Drazen (1990), enhances labour and capital productivity, thus contributing to economic growth.

Empirical model

Model specification

The empirical model used in this study is based on Schultz (1961) and later developed extensively by Becker (1964). In this study, we employed multiple linear regression to determine the effect of free education policy on human development in Kenya. The model included three regressions testing different human capital development (HCD) outcomes of transition, completion, and enrolment rates on the same independent variables. We used time series data covering the period 1989 to 2021.

The model is described as follows.

$$Enrol_t = \alpha_1 + \beta_1 Schls_t + \beta_2\, P1Tchrs_t + \beta_3\, DipTchrs_t + \beta_3\, OtherTchrs_t + \beta_4 MoEbdgt_t + \beta_5 Basicbdgt_t + \beta_5 FPE + \beta_7 MoEexpend_t + \beta_8 Basicexpend_t + \beta_9 tchr - pupil_t + \beta_{10} achiev_t + \varepsilon_t \quad (1)$$

$$Complet_t = \alpha_1 + \beta_1 Schls_t + \beta_2\, P1Tchrs_t + \beta_3\, DipTchrs_t + \beta_3\, OtherTchrs_t + \beta_4 MoEbdgt_t + \beta_5 Basicbdgt_t + \beta_5 FPE + \beta_7 MoEexpend_t + \beta_8 Basicexpend_t + \beta_9 tchr - pupil_t + \beta_{10} achiev_t + \varepsilon_t + \varepsilon_t. \quad (2)$$

$$Transit_t = \alpha_1 + \beta_1 Schls_t + \beta_2\, P1Tchrs_t + \beta_3\, DipTchrs_t + \beta_3\, OtherTchrs_t + \beta_4 MoEbdgt_t + \beta_5 Basicbdgt_t + \beta_5 FPE + \beta_7 MoEexpend_t + \beta_8 Basicexpend_t + \beta_9 tchr - pupil_t + \beta_{10} achiev_t + \varepsilon_t. \quad (3)$$

Where:

(i) Enrol = **Enrolment rate:** This is the number of children enrolled in primary school as a ratio of all school-going children. The enrolment rate can be gross enrolment, where the ratio involves students of all age groups who enrolled, or net enrolment rate, which includes enrolment of children within the school-going age (6-13yrs). This variable is measured as a percentage.

(ii) Complet = **Completion rate:** Completion rate is the rate by which learners who enrolled complete the last grade of the section, which in this case is a primary school (UNESCO, nd). It is measured as a share of students who completed among all that were enrolled in school.

(iii) Transit = **Transition rate:** This variable is defined as the rate at which a learner moves from one level to another, such as from primary to secondary school. It is also measured as a percentage of all who enrolled in primary school.

(iv) Schls = **Number of schools:** The number of registered public schools in the country.

(v) P1Tchrs = **Number of teachers with P1 certificates:** This variable represents the number of trained teachers who have a P1 certificate in the country.

(vi) Diptchrs = **Number of teachers with diploma:** This variable represents teachers in primary schools who have a diploma.

(vii) OtherTchrs = **Number of teachers with certificates other than P1:** These are teachers with lower certificates such as P2, P3, and any other lower than the P1 certificate.

(viii) MoEbdgt = **Total budget by the Ministry of Education:** Total government funding allocated to education programmes. The data is measured in Kenya shillings.

(ix) Basicbdgt = **Total basic education budget:** Funding from the government allocated to the free primary education programme, in Kenya shillings.

(x) FPE= **Free Primary Education Policy.** This is a dummy policy variable taking the value 0 before the FPE was introduced (before 2003) and 1 after the introduction of FPE (from 2003)

(xi) MoE = **Total expenditure by the Ministry of Education:** The total spending that the government does on education in Kenya shillings. This refers to the expenses allocated to various education sectors at the Ministry level. It is budgeted each financial year and excludes spending on educational activities by other ministries.

(xii) Basic expend = **Basic education expenditure:** Total spending on basic education in Kenya shillings.

(xiii) Tchr-pupil = **Pupil-teacher ratio:** Primary school pupil-teacher ratio is the average number of pupils per teacher in primary school (World Bank, 1998-2015)

(xiv) **Population (6-13 years):** Population of all school-going children; that is, children of 6-13 years (Kenya Population and Housing Census 1989-2019).

(xv) Achiev- **Learners' achievement:** Learner's achievement is the level of achievement by primary school learners in the country. This refers to the extent to which a learner has attained their short- or long-term educational goals. In Kenya, at the end of each education level, an exam is administered before transiting to the next level. This study focused on the Kenya Certificate of Primary Education (KCPE) examination. The variable was measured using each period's final KCPE national mean grade.

The variables used in the empirical model are operationalised in Table 1 below:

Table 1: Definition of variables

Variable	Significance	Data source
HCD OUTCOMES		
Transition rate	The percentage of all who enrolled in primary school and moved from primary to secondary school	Economic Survey (1991-2021)
Completion rate	Share of students who completed primary school among all that were enrolled in school	World Bank Data (1989-2021)
Enrolment rate (Gross and Net)	The number of children enrolled in primary school as a ratio of all school-going children	World Bank Data (1989-2021)
EXPLANATORY VARIABLES		
Number of schools	The number of registered public schools in the country	Economic Survey (1991-2021)
Number of teachers with P1 certificate	The number of trained teachers who have a P1 certificate in the country	Economic Survey (1991-2021)
Number of teachers with certificates other than P1	These teachers have lower certificates such as P2, P3, and any other lower than the P1 certificate	Economic Survey (1991-2021)
Number of teachers with a diploma	Teachers in primary schools who have a diploma	Economic Survey (1991-2021)
Total budget by the Ministry of Education	Total funding from the government that is allocated to education	Economic Survey (1991-2021)
Total basic education budget	Funding allocated to free primary education	Economic Survey (1991-2021).
Total expenditure by the Ministry of Education	The total spending on education by the government	Economic Survey (1991-2021)
Basic education expenditure	Total spending on basic education in Kenya shillings	Economic Survey (1991-2021)
Free Primary Education (FPE)	This is a dummy policy variable taking the value 0 before the FPE was introduced (before 2003) and 1 after the introduction of FPE (from 2003)	UNESCO
Pupil-teacher ratio	The average number of pupils per teacher in primary school	World Bank (1998-2015)
Population (6-13 years)	The population of all school-going children who are 6-13 years	Kenya Population and Housing Census (1989-2019).
Learners' achievement	The level of achievement by primary school learners in the country	Economic Survey (1991-2021)

4. Research findings

Generally, the findings show that the FPE in Kenya led to higher enrolment, transition and completion rates. These proxies for human capital development show that removing levies in primary education essentially led to better human capital development outcome. In this regard, the findings coroborate empirical findings in literature where it has been shown that one of the deterrents to human capital development among developing countries is the fees and charges levied on households.

Gross enrolment rates

The gross enrolment rate (GER) in education is the total enrolment in a specific level of education, regardless of age, expressed as a percentage of the population in the official age group corresponding to this level of education. The GER can exceed 100% because of early or late entry and/or grade repetition.

As shown in Table 2, the GER for the period 1989-2021 in Kenya was 98.5%, with a standard deviation of 7.14. This implies that the spread of GER across years was low, especially in the years of FPE.

When we compare GER across gender in Kenya, male enrolment appears to be higher than for female pupils at 99.69% and 97.76%, respectively. In both cases, the spread is low with a standard deviation of 6.07 and 6.80 for male and female, respectively.

Table 2: Gross enrolment rates

Variable	Obs	Mean	Std. Dev.	Min	Max
Gross Enrolment Rate -Total	31	98.50	7.14	85	115
Gross Enrolment Rate -Female	31	97.76	6.80	85.7	109.9
Gross Enrolment Rate -Male	31	99.69	6.07	90	109

Net enrolment rates

Net enrolment rate is the ratio of children of official school age who are enrolled in school to the population of the corresponding official school age. This rate ranges between zero and 100%.

The estimation results in Table 3 show that the mean net enrolment for the period 1989-2021 was 79.62%, with a standard deviation of 11.44. There was a higher spread of date, which is attributable to the period before the FPE was introduced. However, gender differentiation in net enrolment was minimal at 77.97% (male) and 77.67% (female), with standard deviations of 9.14 and 9.83, respectively. This may imply that when the FPE was introduced in Kenya, both boys and girls were able to enroll in public schools with much ease compared to the period before the FPE.

Table 3: Net enrolment rates

Variable	Obs	Mean	Std. Dev.	Min	Max
Net Enrolment rate -Total	31	79.62	11.44	61.6	99.6
Net Enrolment rate-Female	31	77.67	9.83	61.9	89.9
Net Enrolment rate -Male	31	77.97	9.14	61.2	91

Transition and completion rates

In Table 4, results show that both transition and completion rates improved across the board because of FPE. As expected, there was a deliberate push by the government to enhance primary school transition to 100% through political action of ensuring local administration got all children to schools. There was also strategic effort to build secondary schools in each primary school to absorb every child.

Table 4: Transition and completion rates

Variable	Obs	Mean	Std. Dev.	Min	Max
Transition rate	33	61.10	16.82	38.37	91.0
Completion rate	31	65.05	17.01	42.60	85.4

Statistical analysis of other variables of interest

In Table 5, we demonstrate that there was an increase in teacher population, expenditure on education and teacher-pupil ratio. However, despite the doubled teacher-pupil ratio, the mean scores increased marginally by only 4 points, which could mean reduced performance.

Table 5: Summary statistics of key variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Pop (6-13yrs)	31	6,158,179	1,612,811	4,389,124	1.01E+07
No. of teachers with P1 certificate	33	111,752.3	35,529.81	82.024	184,312
No. of teachers with certificates other than P1-Approved	31	27,199.34	22,825.23	519	55,593
No. of teachers with certificates other than P1-Graduate	33	5338.008	8133.667	0	21302
No. of teachers with Diploma	33	16600.18	11770.45	629	39143
No. of primary schools	31	22631.03	6942.223	14691	37910
Total education budget by Ministry of Education	34	214.2711	117.3044	2.8	544.4
Total expenditure on education by Ministry of Education - Total	31	134280.5	135253.5	487.9	439186.9
Total expenditure on education by Ministry of Education -Recurrent	31	123693.3	125070.6	436.6	407373.1
Total expenditure on education by Ministry of Education -Development	31	10347.43	10999.27	36.36	38312.19
Total expenditure at basic education level -Total	34	161614.1	163364.3	526.36	486062.9
Total expenditure at basic education level -Recurrent	34	24082.88	33833.75	18.5	96420.77
Total expenditure at basic education level-Development	34	3485.08	3678.032	0.69	11156.42
Learner achievement (national Kenya Certificate of Primary Education - KCPE mean score)	31	54.12858	0.8906852	51.5	55.95
Teacher/pupil ratio	31	38.35094	6.172793	28.49991	56.5747

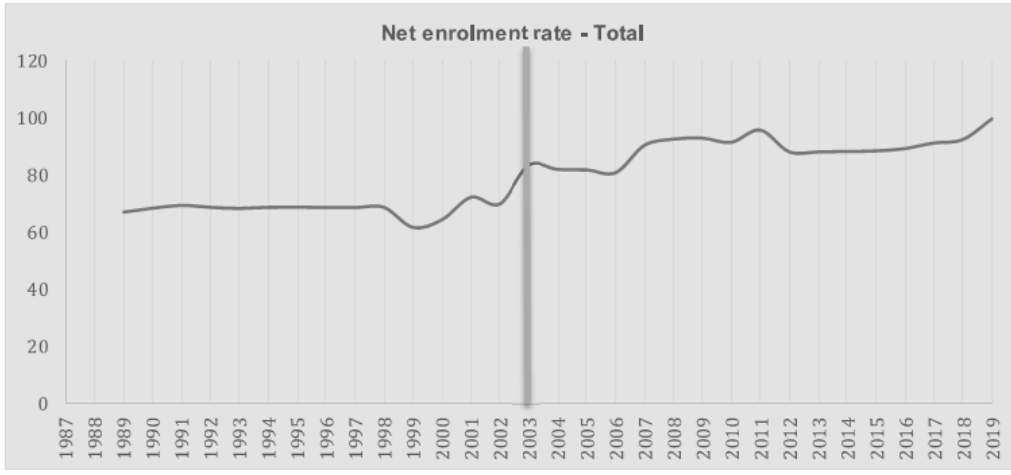
FPE Scenario analysis

To establish if there were changes in the education sector before and after the introduction of FPE in Kenya, we provided a time trend of key variables of human capital development indicators. This enabled us to analyse scenarios with and without FPE in Kenya. As shown in Figure 1, gross enrolment was declining from 98.8% in 1990 to 85% in 2003. Since the introduction of FPE, the gross enrolment rate increased from 85% to a peak of 115% in 2011 and to 104% in 2019.

Figure 1: Gross enrolment rate, 1989-2019

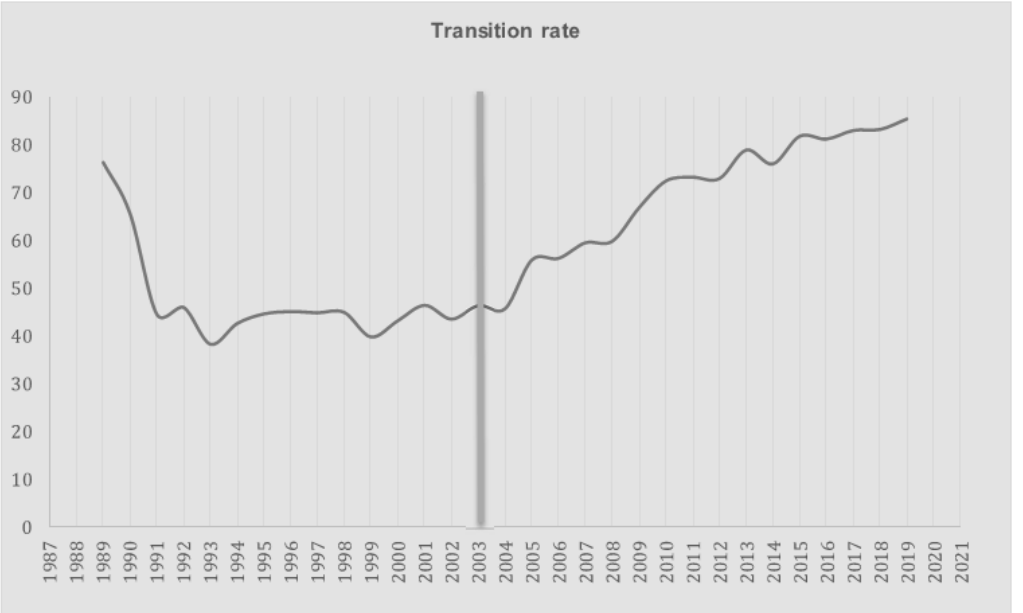
Regarding net enrolment following the introduction of FPE, there was a drastic rise of 83.3% in 2003 to 99.6% in 2019. This is clear indication that before FPE, there were many pupils missing out of the education system at the level in which they were ideally supposed to be.

Figure 2: Net enrolment rate, 1989-2019



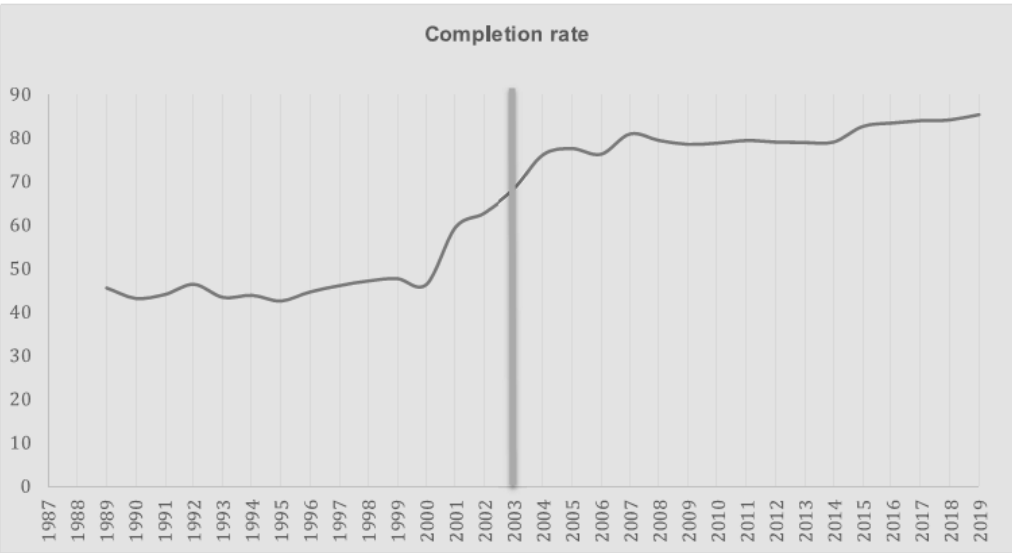
On transition rate, the highest recorded figure prior to the introduction of FPE was in 1990, where it was 76% (Figure 3). The performance of this indicator declined gradually to 46.6% in 2003. However, following the introduction of FPE, transition rate begun to rise steadily and by 2019, it was at the highest ever point of 85.5%.

Figure 3: Transition rate, 1989-2021



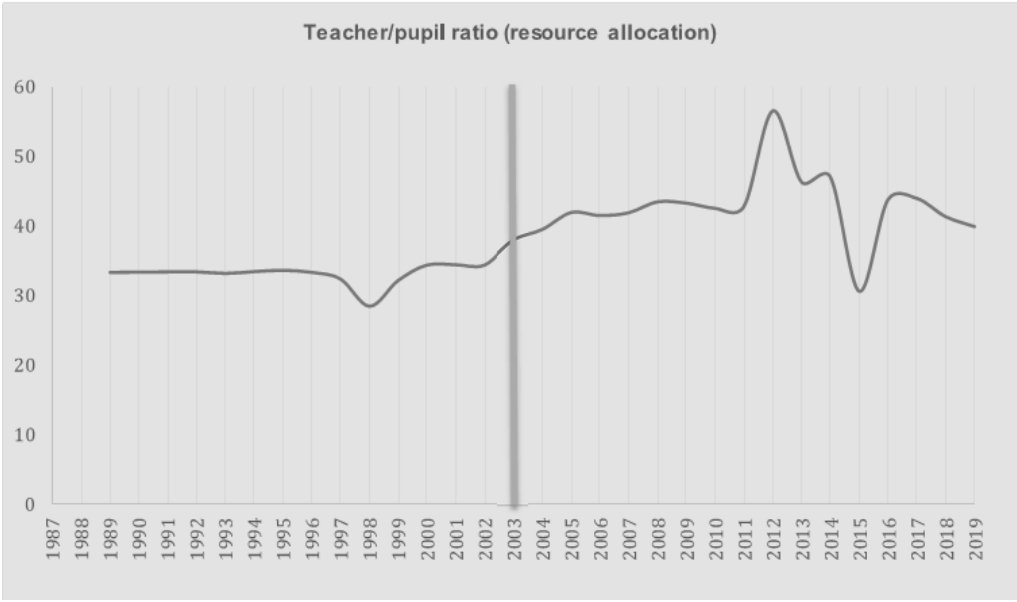
As discussed earlier, completion rate has been widely used to measure human capital development in many countries. It demonstrates the seepage along the education system, which at times can be triggered by inability of households to raise the requisite fees and levies. In Figure 4, we demonstrate that following the introduction of FPE, completion rate increased steadily from 68.2% in 2003 to 85.4% in 2019. Holding other factors constant, one can argue that the FPE contributed positively to increased completion rate.

Figure 4: Completion rate 1989-2019



With the introduction of FPE in Kenya in 2003, analysts have argued that class sizes in public schools bloated, as many pupils who had dropped off or had not enrolled in formal education, joined. It is estimated that the weight of high enrolment was in the lower levels of education system, which ideally are the formative stages. The question that has not received adequate attention was whether there was allocation across grades to cater for increased enrolment. With data to answer these questions being unavailable, we plotted the trend on teacher-pupil ratio as reported in the datasets that were used in the analysis. As shown in Figure 5, the teacher-pupil ratio increased between 2003 and 2012, from 1:38 to 1:56. This indicator then dropped to 1:30.6 in 2015 before starting to rise to reach 1:39.9 in 2019. We deduce that there was resource allocation proxied by the reallocation of teachers to where huge numbers were being recorded so as to ease pressure on teachers in the lower levels of the education system.

Figure 5: Teacher/Pupil ratio, 1989-2019



Econometric analysis results

The study ran three models to determine the effect of education policy on education outcomes, namely enrolment rate, completion rate, and transition rate.

Model one: Net enrolment rate

The first model was a regression model that showed the different factors affecting primary school net enrolment rate, including population of children aged 6-13 years, number of teachers, education budget, qualifications of the teacher, and performance of primary school children nationally. Some of the variables were omitted from the model due to high correlation. The regression results are shown in the table below.

Table 6: Regression results on net enrolment rate

Dependent variable: Enrolment rate			
	Coefficient	**t-value**	**Probability score**
Pop. 6-13yrs	5.37	2.36	0.028
Teachers with P1 cert	-0.000036	-1.95	0.064
Teachers without cert	-0.0000312	-0.47	0.695
Teachers with Diploma	0.0002971	3.35	0.003
No. of schools	0.0007049	2.55	0.019
MoE educ. budget	-0.01047	-1.17	0.254
Learner achievement (KCPE score)	-1.3782	-1.21	0.012
Teacher-pupil ratio	0.05437	0.28	0.781
Free primary education policy	11.217	2.59	0.001
Constant	128.44	2.08	0.05
Adjusted R squared	0.9509		
F-statistic	65.98		
F-statistic p-value	0.0000		

The table shows that the model is stable, having an F-statistic with a p-value less than 0.05 (0.0000). The adjusted R- squared is 95.09%, meaning that only 5% of the variation in the dependent variable is unexplained. The Free Primary Education policy dummy had the largest impact on net enrolment rate, which was statistically significant. Only the number of teachers with and without the P1 certificate and teacher-pupil ratio, and the Ministry of Education budget, were not statistically significant in the model (p-value greater than 0.05). The results also showed that more teachers with diploma increased enrolment rate. Learner achievement affected enrolment rate negatively, but the number of schools had a significant positive effect on net enrolment rate.

Model 2: Completion rate

As in net enrolment, similar independent variables were tested to measure their effect on primary school completion rate. The completion rate model results were not as favourable as the net enrolment rate. The following results were found.

Table 7: Regression results on completion rate

Dependent variable: Completion rate			
	Coefficient	**t-value**	**Probability score**
Pop. 6-13yrs	1.69	2.09	0.0391
Teachers with P1 cert	0.0000273	0.41	0.133
Teachers without cert	-0.0004661	-4.28	0.000
Teachers with Diploma	0.0000218	3.12	0.017
No. of schools	0.0005667	2.26	0.042
MoE educ. budget	0.0031938	2.91	0.022
Learner achievement	0.5206	0.37	0.635
Teacher-pupil ratio	-0.3943	2.92	0.043
Free primary education policy	11.12	4.59	0.001
Constant	16.72	1.29	0.211
Adjusted R squared	0.9502		
F-statistic	165.64		
F-statistic p-value	0.0000		

The results suggest that education expenditure, learner achievement, number of schools, number of teachers with a Diploma, and the Free Primary Education policy had significant effect on primary schools' completion rate, according to the probability value of the t-scores. The Adjusted R- squared was 0.9502, showing that 95.02% of the variation in the dependent variable was explained in the model, and only 6% remained unexplained. The F-statistic also showed that the entire model was statistically significant. As in enrolment, all the variables weakly affected the completion rate. However, the variable of interest, which is the Free Primary Education policy, had a relatively strong statistically significant impact on primary school completion rate. The implementation of the Free Primary Education policy increased completion rate by 11.12%.

Model 3: Transition rate

The model on transition rate showed how the same independent variables affected transition from primary to secondary school. Before the analysis, pairwise correlation was done on the variables. As in the previous models, some variables were excluded due to their high correlational results. The results from the model are as shown:

Table 8: Regression results on transition rate

Dependent variable: Transition rate			
	Coefficient	**t-value**	**Probability score**
Pop. 6-13yrs	0.00078	2.16	0.056
Teachers with P1 cert	-0.0001495	-0.41	0.572
Teachers without cert	-0.000522	-4.89	0.001
Teachers with Diploma	0.000973	3.25	0.0085
No. of schools	0.009528	2.69	0.0215
MoE educ. budget	-0.0183	-2.09	0.0368
Learner achievement	-4.78	-3.37	0.012
Teacher-pupil ratio	0.4737	0.92	0.687
Free Primary Education policy	-5.703	4.10	0.002
Constant	272.77	2.29	0.004
Adjusted R squared	0.7081		
F-statistic	9.08		
F-statistic p-value	0.0001		

According to the model results, the adjusted R-squared was relatively high, showing that more variables can be included in the model. According to the adjusted R-squared, only 70.81% of variation in transition rate is explained within the model. The other 30% is unexplained. The F-statistic showed that the model was statistically significant, but some of the variables in the model were not statistically significant as shown by the p-value of the t scores. According to the model results, the number of teachers without certificates significantly affected the transition rate negatively. Additionally, the Ministry of Education budget had positive effects on transition rate. This means that an increase in education budget or expenditure increased transition rates from primary to secondary schools. Unlike the models of net enrolment rate and completion rate, this model showed that the Free Primary Education policy had a negative effect on transition rate. For every year the Free Primary Education policy was implemented, transition rates reduced by 5.7%.

5. Summary, conclusion and recommendations

Summary

The role of human capital development, which consists of the knowledge, skills, and health that people invest in and accumulate throughout their lives, enabling them to realise their potential as productive members of society, cannot be overestimated. Investing in people through education and skills development helps in developing human capital. This is critical not only for economic growth and reducing poverty, but for creating more inclusive societies and enhancing global competitiveness. It is for these reasons that governments all over the world implement policies aimed at strengthening human capital development.

To promote education, governments abolish fees and levies to enable households to send their school-going children to enroll and complete education. Depending on how such fees and levy waiver policies are implemented and planned, the outcomes in human capital development could be varied. This paper has contributed to this debate by examining how the FPE policy in Kenya implemented since 2003 has impacted on human capital achievements.

The FPE in Kenya started as a political and campaign statement by the NARC government (in 2002), which was determined to take over power from KANU that had ruled the country since independence in 1963. When the NARC Government came to power in 2003, then FPE was made a policy, which was to be implemented immediately. One of the challenges that such political statement turned into policy faces is that the technocrats are most of the times unprepared, and yet they are expected to implement the suggested policies. This policy has been in operation for the last twenty (20) years.

This paper was therefore designed to examine the impact of FPE on human capital development in Kenya. The paper relied heaving on education-related secondary data spanning over thirty (30) years (1989-2021) drawn from a variety of sources. This was supplemented by information obtained during education stakeholders' meetings held during the formative and implementation stages of the project. The paper used enrolment, transition and completion rates as proxies for human capital development in the estimation of econometric models.

The results show that the FPE policy has remarkably impacted enrolment, transition, and completion rates. This means that many pupils and students who initially were not accessing education due to fees and levies shouldered by households were able to join schools and learn. However, in some cases, schools were crowded

and class sizes grew to over 100 pupils per teacher. This was, however, short-lived as more teachers were employed to address the shortfalls in many schools, and this enabled the learning to continue as normal. There was also massive investments in physical facilities in many parts of the country to ease congestion.

The data analysis has shown that the FPE policy impacted positively on all learning outcomes. For example, with a coefficient of 9.03, the FPE impacted positively on overall enrolment in schools. Similarly, the FPE contributed to about 22.87% of changes in completion rate and 9.60% in transition rate. Further analysis of data has shown than there was reallocation of resources to ensure that the FPE was successfully implemented, which was a win. On the flip side, the rush with which the FPE was adopted and implemented led to lack of optimal utilisation of resources.

Conclusion

Drawing from the findings of this research, we establish that the FPE, which resulted in the waiver of levies and fees that was initially shouldered by households, led to positive outcomes in human capital development.

There is enough evidence to show that FPE in Kenya led to better education outcomes as proxied by enrolment, transition and completion of primary school education where there was a lot of seepage before.

Recommendations

Based on the conclusions of this paper, the following overarching recommendations are made:

a) The FPE introduced in 2003 in all public primary schools in Kenya resulted in positive outcomes for human capital development. For this reason, the FPE should be supported and promoted to other levels of education.

b) There is need to increase education funding in Kenya and to reduce the burden shouldered by households.

c) For smooth implementation and success of such programmes, there is need to have more dialogue among stakeholders prior to implementation. This will promote buy-in by all stakeholders before implementation.

d) There is evidence to show that even with funding, male and female pupils in primary schools are impacted differently. It is therefore important that such programmes introduce gender dimensions to ensure that those who are likely to lag behind in enrolment, transition and completion are given special attention.

e) Finally, there is need to merge school support systems with livelihoods support for households so that children do not drop out of school due to hunger experienced at home.

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