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Expectations of School Feeding Programme: Impact on School Enrolment, Attendance and Academic Performance in Elementary Ghanaian Schools

Anselm Komla Abotsi^{1*}

¹*Social Science Department, University of Education, P. O. Box 25, Winneba – Ghana.*

Author's Contribution

The only author AKA performed the whole research work. Author AKA wrote the first draft of the paper, read and approved the final manuscript.

Research Article

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ABSTRACT

Aims: The Ghana School Feeding Programme (GSFP) was conceptualized to provide pupils at the public basic schools with one hot nutritious meal per day. The objectives of GSFP included reduction of hunger and malnutrition, increase school enrolment, attendance and retention among others. There has been limited or insufficient research into the relationships between nutritional status, the participation in school feeding programs and school performance. The study therefore seeks to find out the impact of school feeding programme on school enrolment and attendance and on the academic performance of the pupils in the basic Schools.

Study Design: Longitudinal study design.

Place and Duration of Study: The study was carried out in sampled basic schools in the Asikuma-Odoben-Brakwa District in the Central Region of Ghana.

Methodology: The study was carried out in six basic schools that participated in the GSFP in the District, and six basic schools not included in the programme served as the control group. Descriptive statistics was the main method used in the analysis. Multivariate analysis of variance was also performed using SPSS. Within the selected schools, simple random sampling technique was adopted in the selection of 10 pupils from each school. In all 120 sampling units were included in the study, 60 each from schools with GSFP and 60

*Corresponding author: Email: agrivetent@gmail.com, agrivetent@yahoo.com;

from schools without GSFP.

Results: Partial Eta Squared values of 0.735 and 0.752 shows relatively high magnitude of variances in pupil attentiveness in class and pupil school enrolment respectively explained by the GSFP. The Partial Eta Squared value of pupils' attendance was 0.001 and was not statically significant which is indicative of no difference between schools with GSFP and schools without GSFP. The Partial Eta Squared values of 0.399 indicate a low impact on academic performance due to GSFP.

Conclusion: The national school feeding program implemented in Ghanaian basic schools included in this study showed positive effects on school enrolment and school academic performance, but less remarkable impact on attendance over an extended period of 3 years.

Keywords: School feeding programme; academic performance; school enrolment; school attendance; class attentiveness.

1. INTRODUCTION

1.1 Background to the Study

With the quest to achieve Universal Primary Education (MDG 2), the Government of Ghana has shown progressive and purposeful commitment through policy directives and interventions like the Education Strategy Plan (ESP) for 2003-2015, the Growth Poverty Reduction Strategy (GPRS) and the Free Compulsory Universal Basic Education Programme. Certain programmes including the abolition of school fees known as Capitation Grant, promotion of measures to improve Gender Parity in primary schools, expansion of Early Childhood Development services, and the introduction of Nutrition and School Feeding programmes are all strategies by government toward the achievement of Universal Primary Education.

The Ghana School Feeding Programme (GSFP) was conceptualized to provide pupils at the public basic schools particularly those in the poorest areas of the country with one hot nutritious meal per day. Ghana was one of the ten African countries to be selected by the New Partnership for Africa's Development (NEPAD) to implement domestically run school feeding programmes on pilot basis. The programme was aimed at achieving the first three objectives of the Millennium Development Goals (MDGs), i.e. eradicating extreme poverty and hunger, achieving universal basic education and promoting gender equality and women empowerment. The GSFP identified three key objectives: to reduce hunger and malnutrition; increase school enrollment, attendance and retention; and boost domestic food production.

The GSFP started on a pilot base in September 2005 with ten schools, one in each region of the country. By August 2006, it had been expanded to 200 schools covering 69000 pupils in all 138 districts of the country. The next phase of the GSFP began in 2007 with nationwide coverage in all the 170 districts. By the end of first quarter of the year 2011, the programme fed 713,590 children in all the beneficiary schools nationwide. The Central Region accounted for 44,248 children [10]. With the expansion of the GSFP, many stakeholders' expectations have risen. These expectations encompass both increasing the number of beneficiary schools nationwide and improving the quality of students' educational experiences. More especially, GPRS is expected to impact positively on school enrolment and attendance.

1.2 Targets Groups and Districts

School feeding programme targets the following groups among the Ghanaian communities,

- Deprived districts by growth and poverty reduction strategy (GPRS) classification
- Poorest and the most food insecure districts
- Low wealth level districts
- Low school attendance rate (high absenteeism) districts
- High school dropouts districts

1.3 Criteria for Selection

The following criteria informed the government of Ghana in selecting schools and communities to be on the GSFP;

- Willingness of the community to put up basic infrastructure (example, kitchen, storerooms and latrines) and contributes in cash or kind
- Commitment of the district assemblies toward the programme and the level of readiness and interest towards the programme as well as the level of readiness and interest towards sustaining the programme
- Poverty status based on Ghana living standard survey (GLSS) data and national development planning commission (NDPC) poverty mapping
- Low school enrolment and/or attendance rate and gender parity
- High school dropout rate
- Low literacy level
- Presence of planned provision and expansion of health and nutrition interventions

Ministry of Local Government and Rural Development (MLGRD) is the oversight Ministry for the GSFP. Collaborative ministries in Ghana that ensure the sustainability of the GSFP include the Ministry of Education/Ghana Education Service, Ministry of Health/Ghana Health Service, Ministry of Food and Agriculture and Ministry of Finance and Economic Planning. Other active partners of the GSFP include the Dutch Embassy, World Food Program (WFP), Plan International Ghana, School Feeding Initiative Ghana Netherlands (SIGN), Netherlands Development Organisation (SNV), Social Enterprise Development Organisation (SEND Foundation) among others.

The programme initially was providing thirty Ghana pesewas (16 cents) per pupil per day for an average of 65 days within any school year but now increased to forty Ghana pesewas (21 cents) pupil per day. The total budget for the first phase of the programme is estimated to cost US\$211.70 million. A larger percentage of this amount is being borne by the Ghana government and the Dutch Embassy being the principal donor to the GSFP.

Different studies on the impact of school feeding programme have shown an increase in both gross primary school enrolment ratio (GP SER) and net primary school attendance ratio (NP SER) and an increase in school attendance rates [2,6,7,18,23]. The fact that poorly nourished children benefit cognitively from GSFPs has also been demonstrated in several studies [3,11,15].

In these studies a significant improvement could be detected in school performance of undernourished children who received breakfast or lunch especially when compared with children in the control group who did not receive breakfast or lunch [19].

Though high school performance by the pupils is supposed to be an indirect impact of school feeding on pupils participating in the programme, there has been limited or insufficient research into the relationships between nutritional status, the participation in school feeding programs and school performance. Most of the evidence which shows improved school performance resulting from a school feeding programs is based on rather subjective evaluation. According to Osei et al. [16] though the school feeding programme together with the capitation grant in the early periods of implementation in Ghana have chalked some gains, their impact on the quality of education is not well defined because any increase in enrolment resulting from these education subsidies puts added pressure on existing school facilities with adverse implications for the quality of education provided.

The study therefore seeks not only to find out whether the school feeding programme has had any positive impact on school enrolment and attendance, but also on the academic performance of the pupils in the basic Schools with GSFP and compare the findings with schools without GSFP in Asikuma-Odoben-Brakwa District. It is important to state that most studies on GSFP are cross sectional studies which looked at different pupils at the same period but this study is a longitudinal study which looks at the same pupils over a period of six years. The differences observed in these pupils are less likely to be the result of cultural differences and because of this, any observable changes can be tracked easily and more accurate. This study monitors the school attendance and academic performance of selected pupils from class one through to class six and compared the scenario before the implementation of the GSFP to that after the implementation of the GSFP to find out the actual impact of school feeding programme on these pupils. The study continues to find out whether the increase in enrolment if any, has affected academic performance.

1.4 Literature Review

School feeding in general terms represent a more varied and comprehensive set of uses of food for the achievement of educational outcomes [24]. School feeding as it is practised in Ghana refers to the provision of hot meals at school during the school day.

This study proposes a conceptual framework that links school feeding programme to pupil enrolment and attendance as well as their academic performance. The school feeding programme is aimed at increasing school enrolment because it is believed that because poor parents could not provide food for their wards in school, these parents do not enroll their wards into schools. Even the poor parents, who do enroll their children in schools, find it thorny to ensure that their wards attend and remain in school every day till the school closes because they cannot provide food for their children in school every day through the term. The GSFP thus motivate parents to enrol their children in school and to see that they attend school regularly. It is thus the expectation that pupils' enrolment in schools with the GSFP show an increase as well as attendance and retention as this is supported by literature on school feeding programmes in various countries and contexts, including Ghana [2,6,7,18,23].

Tulane University Early Childhood Research Center in New Orleans did a more direct study of the learning ability of malnourished children in 1971 where learning ability was measured by practical learning tests, and a significant relationship was found between malnutrition and impaired learning ability and attributed this result to the difficulties of the malnourished children in maintaining attentiveness. Thus, early malnutrition was associated with abnormalities in brain development, behavioural disturbances, mental retardation (as measured by IQ tests or tests of intersensory integration), and impaired learning ability [4].

There are other persuasive evidence that poor nutrition in early childhood adversely affects cognitive development and learning potential [13]. The thought that the GSFP is supposed to reduce hunger and malnutrition among the pupils on the programme and as a result improve the pupil's academic performance is very fragile. A study on the impact of the Ghana School feeding programme on Nutritional and Health status of Ghanaian pupils in the Central Region (where this research was conducted) by van den Berg [22] indicates that although the school lunch significantly contributed to the diet diversity among children at GSFP schools, no differences were found between the whole day food consumption of GSFP children as compared to non-SFP children. Also, the study did not show that the nutritional and health status of the children in the Ghana SFP schools improved by serving them with one hot meal on every school day.

This research rather posits that the GSFP is supposed to lead to an increase in school attendance and retention, attentiveness in class and thus enhance the pupils' participation in the teaching and learning process which is latent and this is expected to have a positive impact on their academic performance. GSFP alleviate immediate short-term hunger and this is expected to increase pupil attentiveness in the class. Children who are not hungry are more attentive and have higher cognitive abilities [20]. Short-term hunger can adversely affect attention and interest of pupil [15].

Therefore school attendance and retention, attentiveness in class and enhancement of pupils' participation in the teaching and learning process lends credence to the expectation of improvement in academic performance. According to Adams and Hayes [1], academic performance really means three things: The ability to study and remember facts, being able to study effectively and see how facts fit together and form larger patterns of knowledge and being able to think for yourself in relation to facts and thirdly being able to communicate your knowledge verbally or down on paper.

The GSFP can thus be said to be a laudable programme in promoting education for all in all aspect since its target is not only quantity but quality as well. Ghana's Poverty Reduction Strategies (GPRS) paper named the capitation grant and the school feeding programme as strategies towards meeting the quality needs of basic education. It is based on this premise that the study seeks not only to find out whether the school feeding programme has had any positive impact on school enrolment, attendance and retention, but also on the academic performance of the pupils in the basic Schools in Asikuma-Odoben-Brakwa District.

2. METHODOLOGY

2.1 Study Area

Asikuma-Odoben-Brakwa District is one of the 138 districts in Ghana that benefits from the GSFP. The district was created from the former Breman-Ajumako-Enyan-Essiam District. Its administrative capital is Breman Asikuma. The district is located in the north-central part of the Central Region and covers a geographical area of 884.84 square kilometers. It is within the semi-equatorial climatic zone and is covered by tropical rainforest. The average household size is three to four and this varies in the individual communities. The more rural the community is, the larger the household size. There are more females in each household than males. The trend of migration in the district is basically rural-urban. This is primarily due to the rural nature of the district and the fact that attractive job opportunities are located mainly in the larger communities and the urban centres. Total population in the district is

89,395 (representing about 5.6% share of the regional population and 0.47% of the national population figure (2000 Population Census) with annual population growth rate of 2.1%. Infant dependent population i.e. between the age of 0 and 19 years is 52.2% of District population.

The major economic activities are agriculture and fishing. Small-scale manufacturing also takes place in food-processing, ceramic wares, as well as salt and soap industries. The region is classified among the four poorest in the country.

The district is endowed with 36 early childhood, care and development centers, 66 primary schools carrying 13,604 pupils, 50 junior high schools carrying 4,486 pupils and 2 senior high schools with a total student population of 724 [9]. There are also 3 vocational schools and a technical school in the district.

2.2 Sampling and Sample Size

The study was carried out in all the six basic schools that participated in the GSFP in the Asikuma-Odoben-Brakwa District, and six basic schools not included in the programme served as the control group. Each of the control schools were selected based on its proximity to the schools with the GSFP. Within the schools, simple random sampling technique was adopted in the selection of 10 pupils from each school. In all 120 sampling units were included in the study, 60 each from schools with GSFP and 60 from schools not with GSFP.

2.3 Data

Structured questionnaires were deployed in the collection of data. These questionnaires were administered to the school authorities of the selected pupils. Another questionnaire asked the selected pupils to rate how attentive they were in class during lessons, before and after the break on a scale of 1 to 10.

The data collected from the school authorities consist of the pupils' scores (sample units) in the third term examinations in English language, Mathematics and Integrated science subjects from 2004/05 to 2009/10 academic years. The third term was chosen because pupils are promoted based on third term examinations results. The academic years, 2004/2005 to 2009/10 was considered to include two years prior to the implementation of the programme as well as the years after. Data collected also included the attendance records of the selected pupils in all the classes from 2004/05 to 2009/10 academic year. Other data collected was the yearly enrolment figures of pupils in the various schools over the years. Microsoft Excel and Statistical Product and Service Solutions (SPSS) were the statistical software deployed in the analysis of the data collected from the survey. The data collected was retrospective apart from data collected on how pupils rate their attentiveness in class during lesson.

2.4 Method of Analysis

Descriptive statistics was the main method used in the analysis. The average yearly scores in English language, Mathematics and Integrated science subjects obtained by each pupil in each school were calculated. These scores were plotted against the academic years to depict the trend in the performance of the pupils over the years. With attendance, the number of days each pupil attended school was divided by the total number of days opened

for attendance by each school in the academic years. The attendance of each pupil per the total number of days opened for attendance in an academic year is plotted against the academic years. Using the year 2000 population of the district (89,395) and the growth rate (2.1), the population of the district over the years were estimated. This yearly population figures were then deployed in the estimation of enrolment per 10,000 populations in the district. The enrolment per 10,000 populations was then plotted against the number the academic years.

3. RESULTS AND DISCUSSION

This section commences with results from schools that are participating in the Ghanaian school feeding programme followed by results from schools that are not participating in the programme and finally a comparison of trends is presented.

3.1 Schools with GSFP

3.1.1 Impact on enrolment in schools with GSFP

A look at all the schools under study in which the GSFP has been implemented reveals (Fig. 1) that enrolment per ten thousand population increased from 34.98 in 2004/05 to 35.34 in 2005/06 academic year. The figure fell in 2006/07 and thereafter began to increase again. The school feeding program was introduced in the 2006/2007 and after its implementation; enrolment rate kept rising till in the 2008/09 academic year depicting the positive impact of GSFP on pupil's enrolment. However the enrolment per ten thousand populations decreased in 2009/10 academic year after which it went up again in 2010/11. The findings confirm earlier findings [2,6,7,18,19,23] who attest to an increase in both gross primary school enrolment ratio (GP SER) and net primary school enrolment ratio (NP SER) and an increase in school attendance rates due to GSFP.

3.1.2 Impact on pupils' attendance in schools with GSFP

Fig. 2 below shows the average total attendance by pupil per total days opened by schools to pupils. (Total number of days pupil attended school divided by the total school days in the term). The lowest attendance per school open days (0.70) was recorded in class one and the next lowest value (0.76) was recorded in class three. This was the academic year in which the school feeding programme was implemented.

After the implementation of the GSFP, the attendance per school open days increased to 0.85 in 2007/2008 when the pupils were in class four. This increase can be attributed to the introduction of the GSFP in the various schools in the previous academic year. This figure though plummeted in the following academic year (2008/2009) to 0.81 when the pupils were in class five but still higher than that of the year of implementation increased again to 0.83 in 2008/2009 academic year when the pupils were in class six. This illustrate that the attendance by pupil per open days for the schools improved significantly after the implementation of the program. The increase of attendance rate from 0.70 in 2004/2005 to 0.82 in 2005/2006 academic year when the pupils where in class two is quite amazing since the school feeding program had not yet been introduced.

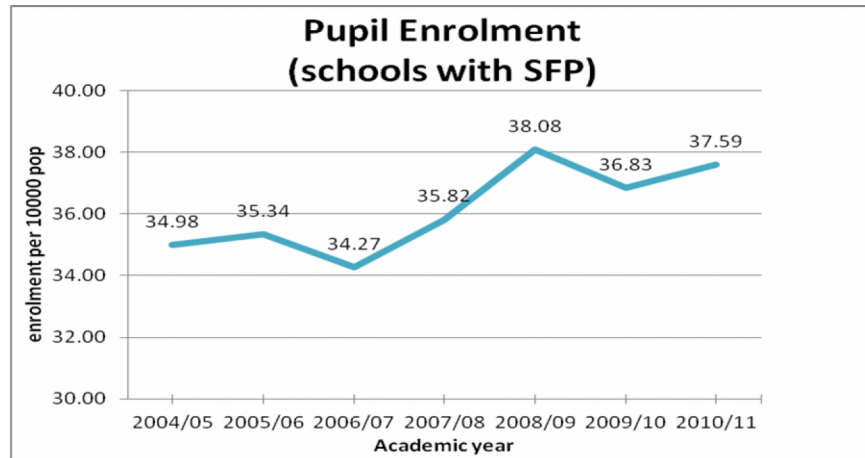


Fig. 1. Pupil Enrolment in schools with GSFP

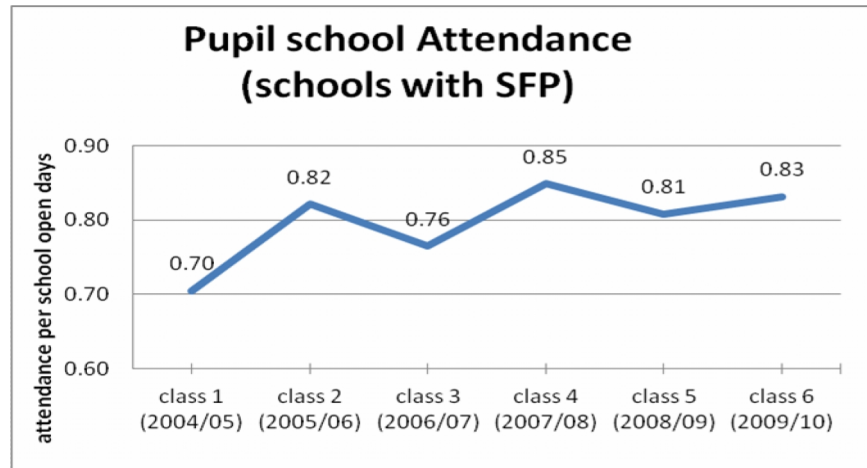


Fig. 2. Pupil school Attendance in schools with GSFP

3.1.3 Impact on academic performance in schools with GSFP

The academic performance of the pupils from schools with GSFP is shown in Fig. 3. In 2004/05 academic years when the pupils enrolled in class one, the average mark the pupil obtained in English, Mathematics and Integrated Science in the third term examinations was 57.3 percent and 2005/06 academic year when pupils were in class two, the average mark increased to 57.7 percent. In 2006/07 academic year (class three), the average marks increased significantly by 8.7% over the previous year to 62.7 percent. This was the year in which the school feeding programme was implemented. It is a reflection of the impact of the GSFP on the academic performance of the pupils. The rising trend continued in 2007/08 after which it started a downward trend in the following years to 63.2 percent in 2009/10 but even that, the average mark was still higher than the year before its implementation.

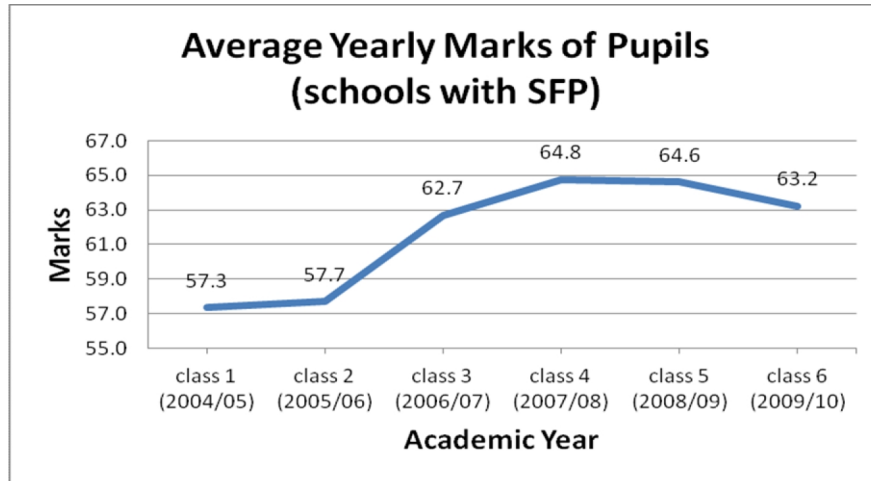


Fig. 3. Average Yearly Marks of Pupils in schools with GSFP

3.2 Schools without GSFP

3.2.1 Impact on enrolment in schools without GSFP

In order to establish the fact that GSFP has had positive effect on enrolment, attendance and performance, data from schools without the GSFP was also collected and analyzed to enhance a comparative study. Starting with the pupil enrolment, the enrolment per 1000 population was highest (12.9) in 2004/05 academic year and then started dwindling over the years to 8.45 in 2010/11 academic year. This is shown in Fig. 4.

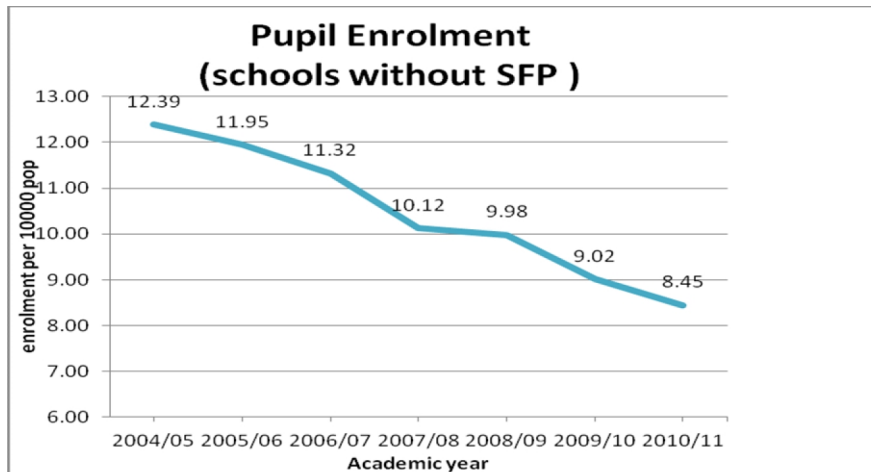


Fig. 4. Pupil Enrolment in schools without GSFP

3.2.2 Impact on pupils' attendance in schools without GSFP

The attendance of pupil per school's open days (Fig. 5) was somehow stable within the period under review apart from the 2007/08 academic year. The attendance of pupil per

school's open days was 0.80, 0.82 and 0.81 in 2004/05, 2005/06 and 2006/07 academic years respectively. In 2007/08 the attendance per open day increased piercingly under unexplained circumstances by almost 21% to 0.98 after which it plummeted to 0.77 in 2008/09 and ended at 0.79 in 2009/10 academic year.

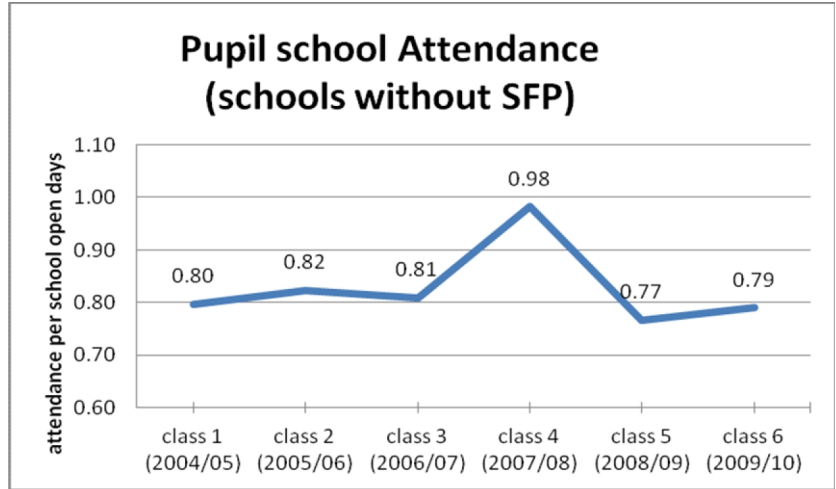


Fig. 5. Pupil school Attendance in schools without GSFP

3.2.3 Impact on academic performance in schools without GSFP

In 2004/05 academic year when the pupils enrolled in class one, the average mark the pupil obtained in English, Mathematics and Integrated Science in the third term examinations was 51.1 percent (Fig. 6). In class two, the average mark increased to 50.6 percent and then to 53.4 percent in 2006/07 academic year when pupils were in class three after which average mark was almost stable in class four, five and six.

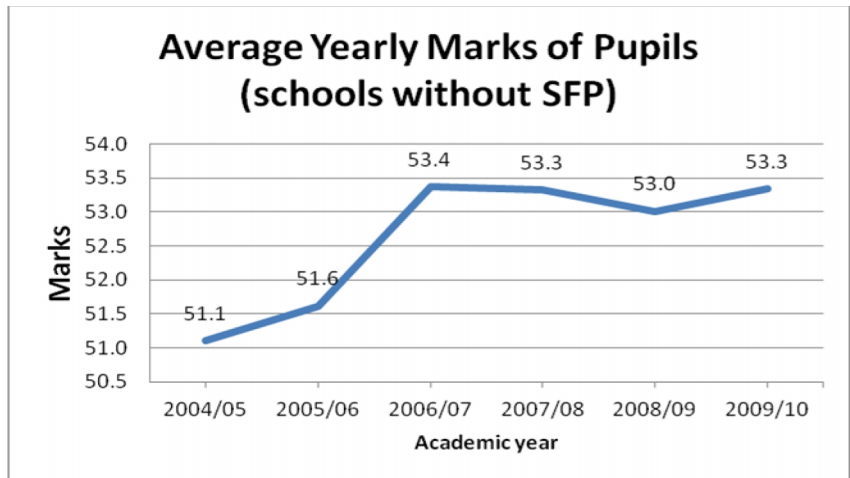


Fig. 6. Average Yearly Marks of Pupils in schools without GSFP

3.3 A Comparative Analysis

A comparative analysis between the schools participating in the GSFP and those not participating in the GSFP within the same district was done to envisage the substantial impact of the feeding program on enrolment, attendance, and academic performance.

3.3.1 Enrolment

Fig. 7 depicts the enrolment trends of both schools (those with the GSFP and those without) the two lines diverge gradually from 2001/02 academic year towards the 2010/11 academic year. As the enrolment per ten thousand populations in the schools with the GSFP programme increased over the years, that of the schools without GSFP programme decreased over the years.

The increase in the enrolment per ten thousand populations in the schools with the GSFP could be attributed to the GSFP. It could be concluded that the GSFP has had a positive impact on school enrolment. It must be emphasized that class-sizes have been identified as determinants of academic performance. The increase in enrolment without commensurate increase in infrastructure may have a negative effect on academic performance. Some studies have indicated that schools with smaller class sizes perform better academically than schools with larger class sizes. Kraft [14] in his research concludes that class sizes above 40 have negative effects on students' achievement.

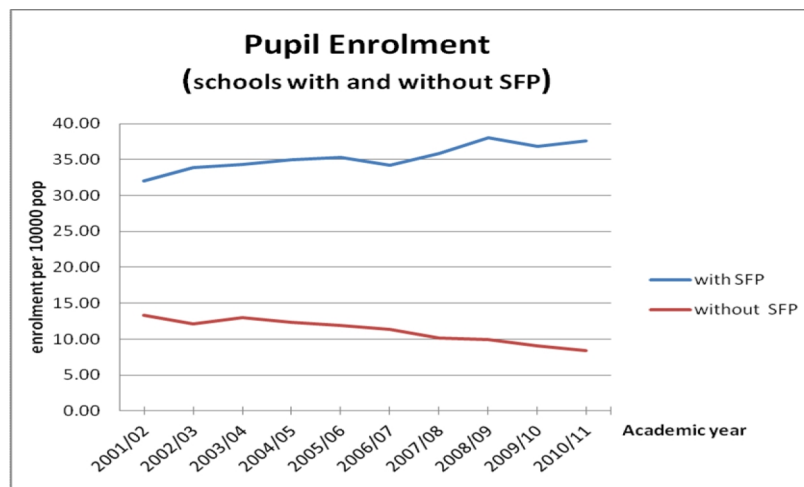


Fig. 7. Pupil Enrolment in schools with/without GSFP

Class supervision and control can only be effective when the population is minimal and this in turn promotes teaching and learning process. Fabunmi and Okore [8], suggest or propose that class size, pupil-teacher ratio and the school population are major factors of performance in most of the Ghanaian schools.

3.3.2 Attendance

The difference in pupils' attendance within the 6 different academic years between GSFP-participating schools and non-GSFP schools is displayed in Fig. 8. In class one, the

attendance of pupil in the schools without GSFP was 80% as against 70% attendance of by pupil in the schools without GSFP. In class three (2006/07 academic year), when the GSFP was implemented in the schools, the attendance in the school without GSFP was 81% which was still higher as compared to 76% of attendance in schools with GSFP. The picture became clearer in class four when attendance in schools without GSFP improved by almost 21% to 0.98 attendance per open day whilst schools with GSFP improved by only 12% 0.85. In class five, the attendance of pupils in both schools nosedived and improved again in class six. In class five and six, the attendance of pupil with GSFP was higher (0.81 and 0.83 respectively) than pupil with GSFP (0.77 and 0.79 respectively). The picture depicts that though GSFP have a positive impact on pupils' school attendance which is the cases in class four, five and six since the attendance in these classes were higher than that of class three which was the year in which the GSFP was implemented, the case in class four of schools without GSFP shows that there is more to attendance than simply GSFP. Though the GSFP had a positive impact on attendance in schools on the programme, there are other compelling factors that positively influenced the attendance of pupils in schools not on the programme.

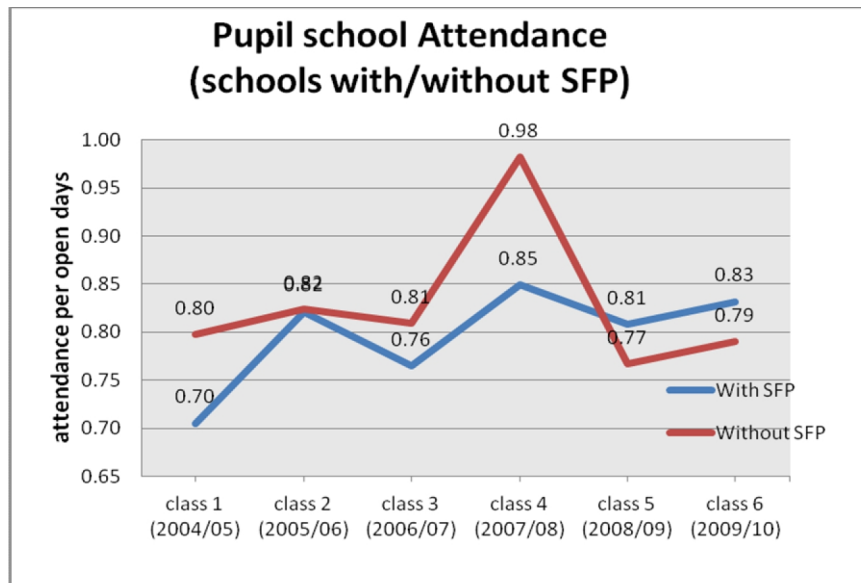


Fig. 8. Pupil school Attendance in schools with/without GSFP

The Office of Juvenile Justice and Delinquency Prevention, categorised factors that contribute to truancy into school, family, economic and students factors. Under school, factors such as a school's size and the attitudes of administrators, teachers, and other students, as well as the degree to which a school is flexible in meeting the diverse cultural and learning styles of students were mentioned. The most important attribute being the approach to which a school tries to unravel the truancy problem among their students. Family factors included poverty, domestic violence, lack of familiarity with school attendance laws, varied education priorities and lack of parental supervision and/or guidance which is very important especially considering the age of pupils (Virginia Department of Education, 2005).

3.3.3 Academic performance

The average mark the pupil obtained in English, Mathematics and Integrated Science in the third term examinations of schools with and without GSFP is presented in Fig. 9. The trend line of marks over the years of schools with GSFP has a steeper gradient as compared with that of schools without GSFP indicating that academic performance of pupil in schools with GSFP was better than schools without GSFP. Though in class one, the average mark of pupil in schools with GSFP was higher (57.3) than schools without GSFP (51.1) indicating that perhaps pupils in the schools with GSFP were more brilliant than their counterparts in the schools without GSFP, but when the GSFP was implemented in class three, the improvement in academic performance in schools with GSFP was 8.7% over the previous year and this trend continued whilst that of schools without GSFP improved by only 3.5%. The improvement in academic performance of pupils in schools with GSFP attests to the fact that GSFP has had a positive impact on academic performance.

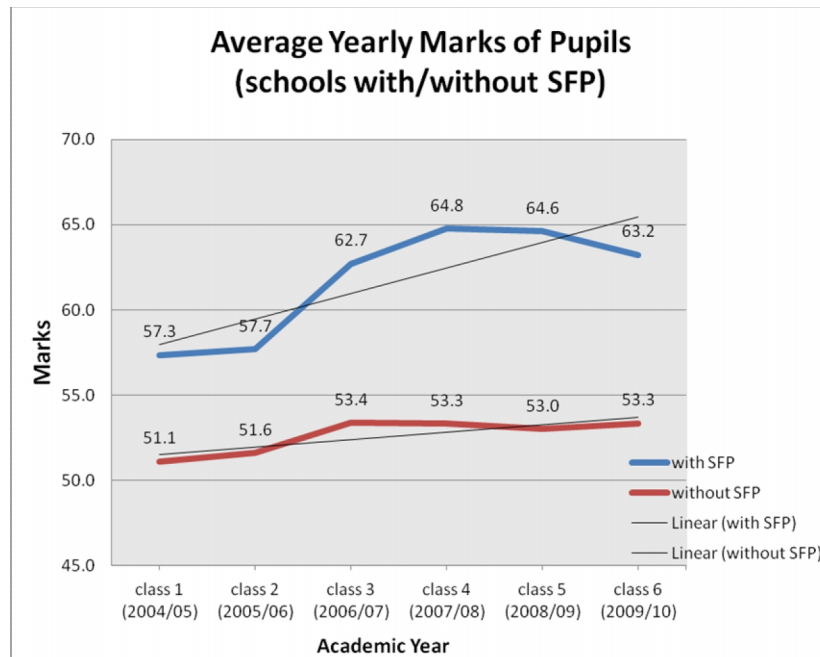


Fig. 9. Average Yearly Marks of Pupils in schools with/without GSFP

Aside GSFP, there are other factors that affect pupils' academic performance. Sogbetun [21] established that different factors are capable of influencing the academic performance of students. Such factors may be the student's internal state (intelligence, state of health, motivation, anxiety among other factors.) and their environment (availability of suitable learning environment and adequacy of educational infrastructure and resources, such as textbooks). In the views of Hassan [12], low intellectual ability, poor study habit, lack of achievement motivation, lack of vocational goals, low self-concept, low socio-economic status of the family, poor family structure and anxiety are factors influencing academic performance. Ausubel [5] also states that young children are capable of understanding abstract ideas if they are provided with sufficient materials and concrete experience to understand the explained phenomena and concepts.

3.4 Multivariate Analysis of Variance (MANOVA)

Multivariate analysis of variance is an extension of analysis of variance used when there is more than one dependent variable. MANOVA compares the groups and tells whether the mean differences between the groups on the combination of dependent variables are likely to have occurred by chance. Multivariate analysis of variance was performed using SPSS to find out if there was a significant difference between the schools with GSFP and schools without the programme, i.e. the independent variable. Pupil academic performance, pupil attentiveness in class, pupil school attendance and pupil school enrolment were the dependent variables. Only the academic years in which the GSFP was implemented were included in this part of the analysis. Correlations between the dependent variables were checked since MANOVA works best when the dependent variables are only moderately correlated. The highest correlation found (0.7) is between attendance of pupils and performance of pupils.

A Wilks' Lambda value of 0.118 (significant at 1%, Table 1), shows that there was a statistically significant difference between schools with GSFP and schools without GSFP in terms of pupil academic performance, pupil attentiveness in class and pupil school enrolment. This is also confirmed in Table 2. The exception is pupils' school attendance, which did not show any statistically significant difference between schools with GSFP and schools without GSFP.

Table 1. Multivariate Tests^b of school feeding programme

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial eta squared
Status_Prog Wilks' Lambda	.118	2.154E2 ^a	4.000	115.000	.000	.882

a. Exact statistic; b. Design: Intercept + Status_Prog

Table 2. Tests of between-subjects effects

Source	Dependent variables	Type III sum of squares	df	Mean square	F	Sig.	Partial Eta Squared
Status of School feeding Programme	Performance of pupils	3403.740	1	3403.740	78.267	.000	.399
	Attendance of pupils	109.061	1	109.061	.106	.746	.001
	pupils attentiveness in class	488.033	1	488.033	327.328	.000	.735
	Enrolment of pupils	17491.845	1	17491.845	357.875	.000	.752

a. R Squared = .399 (Adjusted R Squared = .394); b. R Squared = .001 (Adjusted R Squared = -.008); c. R Squared = .735 (Adjusted R Squared = .733); d. R Squared = .752 (Adjusted R Squared = .750)

The importance of the impact of GSFP on and pupil academic performance, pupil attentiveness in class, pupil school attendance and pupil school enrolment was evaluated

using the effect size statistic provided by SPSS. Partial Eta Squared represents the proportion of the variance in the dependent variables that can be explained by the independent variable. The Partial Eta Squared values of 0.399, 0.735, and 0.752 according to the generally accepted criteria (Cohen, 1988), are large effects or relative high magnitude of variances in pupil academic performance, pupil attentiveness in class and pupil school enrolment respectively explained by the GSFP. The Partial Eta Squared value of pupils' attendance was 0.001 and was not statically significant

4. CONCLUSION

Using a different perspective, this study confirms earlier findings on schools in which school feeding programmes has been implemented. The study found that GSFP impacted positively on school attendance and attentiveness in class which enhanced pupils' participation in the teaching and learning process leading to improvement in their academic performance. Pupil's school attendance did not show any statistically significant difference between schools with GSFP and schools without GSFP and this call for more focused measures to ensure that pupils attend school regularly. The Partial Eta Squared values of 0.399 of pupil academic performance explained by the GSFP means that there is the need to consider other factors that positively influence the academic performance to augment GSFP in order to achieve better results. Pedamallu et al. [17] used system dynamics model to build up relationships between variables that affect academic performance of migrant students. The simulation results of the system dynamics model showed that the most effective policies on academic performance are infrastructure improvement of schools, economic aid to the poor and adult education for parents among others.

A 2010 Ghanaian government document titled "Coordinated Programme of Economic and Social Development Policies" pointed to indicators of education that showed that the effective demand for education has improved, especially at the basic school level. At the primary school level, gross and net enrolments have been quite impressive and stood at 95.2% and 83.4% respectively in 2008. The survival or completion rate in basic schools increased from 83.2% in 2004 to 85.4% in 2007. In spite of these successes, indicators further suggest that the quality of education is declining. The pupil teacher ratio increased from 30 in 1998 to 34.0 in 2008. In other words, the average teacher had an additional four pupils to teach. On the pupil to core textbook ratio, the number of pupils sharing one core textbook increased from 2 in 2002 to 3 in 2005. These trends suggest that while the number of people accessing education in Ghana may have increased over the years, the quality levels may not have improved. The relatively low effect (Partial Eta Squared of 0.399) of GSFP on performance of pupils attests to the fact that GSFP may not be the only solution to low academic performance.

In addition to the school feeding programme which is a laudable idea, policies which will ensure high quality of teaching and learning such as teacher motivation, good condition of service for the education sector as well as proper supervision and management will go a long way to improve not only quantity but quality of education as well. The government together with the schools authorities should provide suitable learning environment, adequacy of educational infrastructure like textbooks since these have been found to influence academic performance of students.

Few limitations of the study need to be highlighted. One of the limitations of this study is that it does not explore if there are differences according to gender with respect to school enrolment, attendance, and performance at schools. This issue can be further explored in

Ghana to see if the GSFP is ensuring that girls and boys attend schools equally, and whether it has the same impact on performance and if not, what measures or programs need to be put in place to correct this since studies and SFPs supported by the WFP have shown that girls are less likely to attend schools in impoverished settings and communities which led to providing home-rations for families who send their girls to schools. Another limitation is the geographical scope of this study which was done in one district. Future work can be expanded to other districts and regions in the country to see if there are major differences with respect to the outcomes in comparison to geographic location. This would be useful for the national government and donors to focus on any underserved areas and schools.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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