

**EFFECTS OF SCHOOL FEEDING PROGRAMME ON ENROLLMENT
AND RETENTION IN PRIMARY SCHOOLS IN LILONGWE, MALAWI**

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DECLARATION

This research project is my original work and has not been presented for an academic award in any University

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DEDICATION

To

My husband Benedict and my son Mitchell

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TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
ABBREVIATIONS AND ACRONYMS	x
OPERATIONAL DEFINITION OF TERMS	xi
ABSTRACT	xii
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background	1
1.2 School Feeding in Malawi	5
1.3 Statement of the problem	7
1.4 Research Questions	8
1.5 Objective of the Study	9
1.6 Significance of the Study	9
1.7 Scope of the Study	10
1.8 Organization of the Study	10
CHAPTER TWO: LITERATURE REVIEW.....	11
2.1 Introduction	11
2.2 Theoretical Literature	11
2.2.1 Classical Liberal Theory.....	11
2.2.2 Equity Theory.....	12

2.2.3 Need Theory of Motivation.....	13
2.3 Empirical Literature	15
2.4 Overview of Literature	21
CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY.....	23
3.1 Introduction	23
3.2 Research Design	23
3.3 Theoretical Framework	23
3.4 The Empirical Model.....	24
3.5 Hypothesis	25
3.6 Definition and Measurement of Variables	25
3.7 Target Population	26
3.8 Sampling Procedure and Sample Size	27
3.9 Data Type and Source	28
3.10 Data Analysis	28
CHAPTER FOUR: EMPIRICAL FINDINGS AND DISCUSSION.....	30
4.1 Introduction.....	30
4.2 Descriptive Analysis of the data on variables.....	30
4.2.1 Descriptive statistics.....	30
4.2.2 Trends in enrolment and retention in schools.....	32
4.2.3 Type of Building in sampled schools	37
4.2.4 Correlation between variables.....	38
4.3 Empirical Results	40

4.3.1 The difference in enrolment of primary schools with SFP and schools without SFP
in Lilongwe Rural West.....40

4.3.2 Difference in retention of primary schools with SFP and schools without SFP.....42

4.3.3 Effects of school feeding on enrolment and retention in Lilongwe Rural West.....43

4.3.3.1 Effects of school feeding on primary enrolment in Lilongwe Rural West.....44

4.3.3.2 Effects of school feeding on primary school retention in Lilongwe Rural West.....45

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND POLICY IMPLICATION

5.1 Introduction.....47

5.2 Summary.....47

5.3 Conclusion.....48

5.4 Policy Implication.....49

5.5 Areas for further research.....50

REFERENCES.....52

APPENDICES.....56

APPENDIX A1: DATA USED IN THE STUDY.....56

APPENDIX A2: COMPUTATION OF CHI SQUARE STATISTICS.....58

LIST OF TABLES

Table 4.1 Descriptive statistics.....	31
Table 4.2 Pairwise Correlation coefficients.....	39
Table 4.3 Average enrolments between schools without SFP and schools with SFP.....	40
Table 4.4 Average retention between schools with SFP and schools without SFP.....	42
Table 4.5 Effect of school feeding on enrolment.....	44
Table 4.6 Effects of school feeding on retention.....	45
Appendix A1: Data used in the study.....	56
Appendix A2: Computation of Chi Square Statistics.....	59

LIST OF FIGURES

1.1 Primary school enrolment 1980-2011.....	3
2.1 Maslow's levels of need	14
4.1 Trends on enrolment and retention for Mphandula primary school.....	32
4.2 Trends on enrolment and retention for Maweru primary school.....	33
4.3 Trends on enrolment and retention for Magada primary school.....	33
4.4 Trends on enrolment and retention for Kapinga primary school.....	34
4.5 Trends on enrolment and retention for Mphambano primary school.....	34
4.6 Trends on enrolment and retention for Yepa primary school.....	35
4.7 Trends on enrolment and retention for Chiwoko primary school	35
4.8 Trends on enrolment and retention for Mwankhundi primary school.....	36
4.9 Trends on enrolment and retention for Ndumila primary school.....	36
4.10 Trends on enrolment and retention for Nzama primary school.....	37
4.11 Percentage of permanent building, temporary and mixed building.....	38
4.12 Average enrolments between SFP school and no SFP schools.....	41
4.13 Average retention between SFP schools and schools without SFP.....	42

ABBREVIATIONS AND ACRONYMS

CSB	Corn Soy Blend
ECDE	Early childhood and development
EDP	Education Development Plan
FPE	Free Primary Education
FFE	Food for Education
MDGs	Millennium Development Goals
MoEST	Ministry of Education Science and Technology
MIITEP	Malawi Integrated In-Service Teacher Education Project
PIF	Policy Investment Framework
SFP	School Feeding Programme
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Education Quality
UPE	Universal Primary Education
WFP	World Food Programme
PTA	Parents-Teacher Association

OPERATIONAL DEFINITION OF TERMS

Enrolment: Number of pupils registered in the school during a given year

Retention: The percentage of pupils registered in school and remains in it at the end of each academic year.

ABSTRACT

School Feeding is one of the supplementary policies in the education sector in Malawi implemented to enhance enrollment and retention in the system. The policy was implemented as one of the initiatives to achieve the Millennium Development Goal which aimed at achieving Universal Primary Education. The number of beneficiary schools of school feeding program has increased from 13 schools in 2004 to 33 in 2011 in Lilongwe district. However it is not clear whether the increase in enrolment and retention is as a result of School Feeding Programme or other interventions by the government. Findings from previous studies have reported mixed results pertaining to the effects of school feeding on enrolment and retention in schools. These studies failed to incorporate the effect of school feeding as there are other variables that lead to the increase in enrolment and retention in schools. The aim of the study was to investigate the difference in enrolment of pupils between primary schools with School Feeding Programme and schools without School Feeding Program in Lilongwe district, to establish the difference in retention of pupils between primary schools with school feeding and schools without school feeding program and to investigate the effects of school feeding on enrolment and retention in the district. To investigate the difference in enrolment and retention between the schools, the study tested independence of the differences between the observed results and expected results in schools implementing School Feeding Programme and schools not implementing School Feeding Programme using the Chi Square. Data on enrolments was obtained from school registers, staff returns and government policy documents. To investigate the effects of school feeding on enrolment and retention in Lilongwe, two models were estimated and the findings show that school feeding programme has an effect on enrolment but no effect on retention of pupils in the sampled primary schools. The variables which were found to be statistically significant in explaining the variations include number of teachers and performance in examinations. The study concludes that School Feeding Programme has a significant effect on enrolment but does not have any effect on retention in primary schools. Therefore the government of Malawi should work towards recruiting more teachers and expanding School Feeding Programme to other schools to attract enrolment. And also, school managers should find ways of improving performance on examinations to improve retention in the government schools. Policies such as the Malawi Integrated In-service Teacher Education Project (MIITEP) are in the right direction.

CHAPTER ONE

INTRODUCTION

1.1 Background

The Government of Malawi recognizes basic education as a fundamental building block of the economy. This recognition is in line with goal two of the Millennium Development Goals (MDGs) which seeks to achieve Universal Primary education (UPE) by 2015 and article 25 of the Constitution of Malawi (1994), which stipulates that the government will provide access to Free Primary Education to all children (Republic of Malawi, 2008). In order to achieve this goal the government embarked on restructuring the education system and shifting priorities from tertiary and secondary levels to primary level of education. The main objective of the shift was to increase access, equity and relevance of primary education. The shift was in response to the 1990 World Conference on Education for all in Jomtien, Thailand, where major problems facing primary education in developing countries were highlighted. The challenges included the rising costs of education, high population growth rates, poor retention rate in school, inadequate planning and monitoring and decreasing allocation of national budget towards education (Kadzamira and Rose, 2001). Donor priorities had also shifted to a focus on primary school education. The reforms in regard to the shift included elimination of the requirement for school uniform and the introduction of free education for girls in secondary schools in 1995 (Kadzamira and Rose, 2001). In support of these policies the government of Malawi introduced school feeding, which is now widely spread in the country.

The performance of the education sector in terms of English reading skills in Malawi is poor on the sub-regional scale and the gross enrolment is lower than the Sub-Saharan average

(Castel, Phiri, and Stampini, 2010). In primary school, pupil-teacher ratio was at 80:1 in 2005 which is above the Malawi government recommended pupil-teacher ratio of 60:1 (Bundy *et al*, 2004 and Fredriksen, 2004). Malawi is at the bottom of all the Southern and Eastern African Consortium for Monitoring Education Quality (SACMEQ) countries in English reading and next to last in Mathematics (Milner *et al*, 2005; Castel *et al*. 2009).

Before the introduction of Free Primary Education (FPE) in 1994, the Ministry of Education in Malawi was guided by Education Development Plans (EDP). The first EDP was formulated for the period of 1973 to 1980. The main objectives of the EDP were the fulfillment to the specific needs of the labour market. This Education Development Plan, prioritized secondary and tertiary level of education to provide the middle level manpower to fill posts left by colonial government (Kadzamira and Rose, 2001). The other objectives were the development of a school curriculum with relevance to the socio economic and environmental needs of the country, the improvement of efficiency in the utilization of existing facilities and resources, and also the achievement of a more equitable distribution of education facilities and resources (Swaison *et al.*, 1998, Kadzamira and Rose, 2001). The EDP's objectives were relatively achieved as a large percentage of people would hardly access educational facilities due to long distances and lack of school fees. The Ministry employed the same EDP from 1980-1984.

The second EDP covered the period from 1985 to 1995. The plan intended to address four overall objectives which included the equalization of education opportunity, the promotion of efficiency in the system, the improvement of physical and human resource, and the judicious use of limited use of resources. The plan shifted its focus from tertiary and secondary school levels to primary education (Swaison *et al.*, 1998), contrary to the first EDP which focused on

tertiary and secondary education for the provision of human resource. The shift of focus to primary education aimed at reducing inequalities among people. Education especially Universal Primary Education is increasingly recognized as an indispensable element for achieving social and economic development goals (Levinger, 1999). The objectives of the second EDP was not fully achieved since primary enrolments remained relatively low (Kadzamira and Rose, 2001).

The third EDP was the Education Policy and Investment Framework (PIF) for education in Malawi covering the period of 1995-2005. The government regarded the PIF as an on-going process and as such the PIF was updated several times beyond 1995. The PIF was developed to address the challenges that the Education sector faced with the introduction of the Free Primary Education in 1994, such as increased enrolment rates in all districts, shortage of teachers and learning materials. The trend in primary gross enrolment in Malawi has fairly improved since the introduction of Free Primary Education.

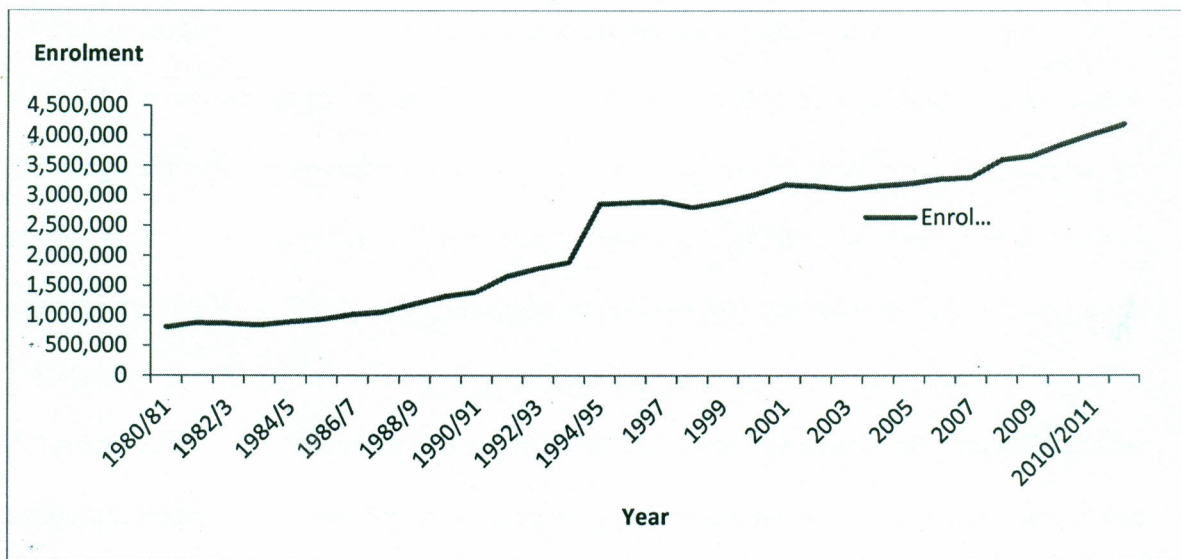


Figure 1.1: Primary school enrolments in Malawi 1980 – 2011

Source: Ministry of Education Science and Technology Education Statistics various years.

Figure 1.1 shows that enrolment rate has been increasing since the introduction of Free Primary Education in 1994. The enrolment rate for both girls and boys was increasing at almost the same rate fulfilling one of the objectives of the Universal Primary Education of increasing access to basic education.

In response to the high enrolments, the Malawi government introduced the Malawi Integrated In-service Teacher Education Project (MIITEP) in 1997. The project was designed to produce 18,000 teachers at a lower cost in a much shorter time than that of conventional full time teacher training program. The government also built resource centres for teachers, engaged communities in school and teachers housing construction, and provided instructional material (Riddell, 2003).

In pursuance of the Universal Education requirement, the government embarked on reviewing several educational reforms and instituted new policy measures. These reforms included the revision of the Policy Investment Framework Plan as a guiding tool, increasing the budget for primary education and the inclusion of School Feeding Program (SFP) as one of the policies to supplement other interventions to achieve the Universal Education (Kadzamira and Rose, 2001). The emerging of policies and institutional reforms to address problems on enrolment impacted both positively and negatively on the education sector. On the positive side, the enrolment rates increased. However, the rise in enrolment increased pressure on education resources such as instructional materials and school structures to the government. It was also realized that the policy reforms led to increased inequality in the society as the rich sent their children to private schools. The congestion levels in class rooms, made it difficult for a teacher to manage the class, leading to declines in the quality of

education. This has forced the rich people to send their children to private schools hence increasing the gap between the rich and the poor. Education has been seen as a key to higher income. Those who are educated receive better wages as compared to the less educated. As a result those who are unable to afford higher education generally receive much lower wages. This justifies that lack of education directly leads to lower incomes, lower savings and low investments.

1.2 School feeding programs in Malawi

School Feeding is a long standing and popular development assistance program in low and middle-income countries. As a safety net, school feeding has been popular in developing countries as an instrument of achieving the Millennium Development Goals (MDGs). The School Feeding Programs (SFPs) are targeted towards populations that are food insecure, reside in areas with high concentrations of families from low socioeconomic status and toward schools that face poor attendance and low enrolment (Afoakwa, 2007). Malawi is one of the countries in Sub-Saharan Africa that has benefited from the SFP because of the challenges such as high incidence of poverty, hunger and malnutrition, low enrolments rate, gender disparity, low school retention and completion rate which are perceived to be a hindrance to achievement of the Millennium Development Goals. The region was targeted with the SFP as a social safety net or a “quick impact initiative” to achieve the Millennium Development Goal one and two. The United Nations Millennium Project Task Force on Hunger proposed expansion of local school meals in 2003 (Afoakwa, 2007) and advocated for Home Grown School Feeding Programs to link school feeding with agricultural development.

The school feeding program was officially launched in 1999 by the Government of Malawi in partnership with World Food Programme (Republic of Malawi, 2009). The government of Malawi through the Ministry of Education, and the department of school health and nutrition initiative implemented the program with three main objectives. The objectives include improving the health and lifestyle of school-going children, improving the nutrition of school-going children and increasing public awareness, knowledge and competitiveness of school health nutrition (Republic of Malawi, 2009). The more specific objective included increasing enrolment; promoting regular school attendance and retention as well as improving children's learning capacity and outcomes (Republic of Malawi, 2009).

Prior to the implementation of SFP in 1999, WFP conducted a pilot project in 24 schools in Dedza district in Malawi. The pilot project indicated that more children were enrolled in the schools as a result of the food provision (WFP, 2009). Over a period of three months there was a 5 percent increase in enrolment and up to 36 percent improvement in attendance compared to control schools over the same period. The School Feeding project targeted communities that were most food insecure and which experienced low school attendance and high dropouts. After the successful reviews of the pilot project, the program extended to 3 other districts in 2000. In 2007 the Ministry of Education began to provide meals in 16 districts out of the 33 districts in the country covering 900 primary schools out of the 5,200 primary schools (Republic of Malawi, 2009).

Most of the districts covered by the SFP are from the Southern part of Malawi which often experience dry weather, poor harvest and rising of food prices. Districts such as Phalombe, Mulanje, Mwanza and Chiradzulu experience natural disasters like floods each and every year which contribute to food insecurity as most of the harvest is lost during the disaster. The

districts also experience low enrolments as a result of food insecurity and the cultural background which affect the enrolment of girls. The cultural background of these districts encourages young girls to get married when they reach puberty which in the programme contributed in the selection of the districts from the southern rather than the northern districts which experience high yields.

The program provides school children with a mid-morning snack of 100 grams of corn soya blend (CSB) which provides 400 kilocalories or 22 percent of the daily energy requirements for school going children (WFP, 2009). SFP also provides take-home rations of 12.5 kilograms of maize per month for girls and doubles to orphans who attend 80 percent of school days. Take-home rations are distributed all year round conditional to attendance for children in standard 5 to 8 and to pupils in standards 1-5 in the period of January to April when prices of maize become high for the many households. School feeding therefore, provides the pupils with nutritional needs and learning capabilities as well as shielding their households from food insecurity. Nutrition is fundamental pillar of human life, health and development across the entire life span. To complement the feeding the Ministry of Health provides de-worming tablets to all primary school pupils to reduce intestinal worms that lead to digestive and nutritional disturbances. This is important because children with nutritional deficiencies are vulnerable to changes in metabolism that impact upon cognitive ability and performance of the brain (WFP, 2000 and Sorhaindo and Feinstein, 2006).

1.3 Statement of the Problem

Over the years the successive governments of Malawi have instituted programs and policies to make primary education affordable and accessible to all citizens and improve educational outcomes. These policies include the shift of focus of the education system from tertiary and

secondary to primary levels, elimination of the requirement for school uniform, introduction of Free Primary Education, implementation of Policy Investment Framework and other interventions include introduction of the Malawi Integrated In-Service Teacher Education Project(MIITEP), increasing budget allocation to primary education and School feeding program. The trends in enrolment have increased since 1994 although accompanied with different challenges such as shortage of teachers, teaching and learning materials.

There is an exceptional recognition of the role that SFP is playing on encouraging school enrolment and attendance, an objective that continues to be important in Malawi. It has led to improvements in primary school enrolment, attendance as well as improved food security at household levels (WFP, 2007; WFP, 2009; Burbano and Gelli, 2009 and Chikuni, 2010). However, it is not clear whether the changes in school enrolment and retention are entirely as a result of school feeding or also due to other interventions that have been undertaken by the Government of Malawi. It is from this perspective that the current study intends to find out there effect of SFP on enrollment and retention in primary schools in Lilongwe Rural West of Malawi while incorporating other policy and institutional reforms as well as school specific factors.

1.4 Research Questions

The study aimed to respond to the following questions:

- (i) What is the difference in enrolment between primary Schools with SFP and schools without SFP in Lilongwe Rural West?
- (ii) What is the difference in retention between primary schools with SFP and schools without SFP in Lilongwe Rural West?

- (iii) What is the effect of school feeding program on enrolment and retention in Lilongwe Rural West in Malawi?

1.5 Objectives of the Study

The general objective of the study was to investigate the effects of School Feeding on enrolment and retention of pupils in Lilongwe Rural West in Malawi.

The specific objectives were to:

- (i) Determine the difference in enrolment between primary schools with SFP and schools without SFP in Lilongwe Rural West.
- (ii) Determine the difference in retention between primary schools with SFP and schools without SFP in Lilongwe Rural West.
- (iii) Analyze the effects of school feeding programme on primary school enrolment and retention in Lilongwe Rural West in Malawi.

1.6 Significance of the Study

Understanding the effects of school feeding programme on enrolment and retention is fundamental in Malawi as it would help in ensuring that policies, services and initiatives are in line with the implementation of the program. The findings are also useful to the understanding of school feeding as a complementary policy to other policy reforms towards realization of the UPE goal. More over the study contributes to the discussion on the existence of the difference on average enrolment and average retention in the Malawian context. The study findings also provide additional literature on the subject matter and form basis for further research.

1.7 Scope of the Study

The study utilized Quantitative data from the Ministry of Education in Malawi and other sources such as data from WFP Malawi. Data for sampled schools with SFP and schools without SFP was for the period of 2005 to 2013.

1.8 Organization of the Study

This research project is structured into five chapters. The first chapter highlights the background of the education system in Malawi, the background of school feeding in Malawi, statement of the problem, research questions and objectives of the study, significance of the study and the scope of the study. Chapter two undertakes the reviews of the relevant theoretical and empirical literature and concludes with the overview of the literature. Chapter three presents the research design and methodological approach that was used in the study. Chapter four provides the empirical findings on the effect of school feeding program on enrolment in Lilongwe Rural West. Chapter five presents the summary, conclusions and policy implications resulting for this research study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter reviews the theoretical literature and empirical literature on effects of School Feeding on enrolment and retention of pupils in primary schools. The chapter also provides an overview of existing studies and shows the existing gap that is to be filled by the current study.

2.2 Theoretical Literature

A number of theories have been used to explain the effects of school feeding on enrolment and retention in different societies and regions. These theories are drawn from different fields ranging from educationist, physiologist and economic perspectives. Educationist focus on the increase in the enrollment and retention (Cheung and Perrota, 2009).

2.2.1 Classical Liberal Theory of Equal Opportunity

The theory was developed by Dewey (1960) to explain how past experience interacts with the present situation, to create one's future experience. Every experience in some way influences the potential future of a person. Educators must take into consideration the unique differences between learners. Education prepares young people for life with a number of skills, dispositions, attitudes and values which make growth possible. The theory notes that each person is different genetically and in terms of past experiences. Therefore the teaching and curriculum must be designed in a way that allows such differences so that learners become effective members of the society. The theory assumes that information necessary for deliberation is available. Children lack the capacity on deliberation and it is up to parents and

other partners to act on their behalf. The theory also assumes that social condition do not impose a burden for acting on the results of deliberation. Dewey's hypothesis is that the current experience of an individual can be understood as a function of the past experiences interacting with the present situation to create an individual's future. Educators must understand the nature of human experiences, in order to design effective education. Educators cannot control students' past but they can try to understand those experiences so that better educational situations can be presented to students. The theory argues that education systems should be designed with a view of removing barriers of any nature that hinders children from lower economic backgrounds from taking advantages of the inborn talents that could accelerate social promotion.

The theory relates to the current study as SFP helps children with disadvantaged backgrounds to have access to food and education hence being able to utilize their capabilities (things that contribute to the well-being of people). The barriers to education include discrimination of individuals based on their social status. The current study is therefore linked to the theory since school feeding creates a better environment for learning by providing meals while increasing enrolment and retention hence predicting their future capabilities. However the theory is silent on whether the criterion of equality of education opportunity should be equality of access or equality of results.

2.2.2 Equity Theory

The theory was developed by Adams (1963) to explain what motivates individuals to do the required job in relation to fairness and equity. Individuals are motivated by fairness and they identify inequality in the input or output ratios of themselves and others. The higher the perception of an individual's perception of equity, the more motivated an individual would

be. If someone perceives an unfair environment he or she will be demotivated. The theory is aimed at reducing the existing regional districts and social-economic disparities with regard to access to education. The theory is centered on a cost-benefit analysis of any given relationship. It emphasizes on equalization of effort and work among partners. In equity theory, people are happy when an effort expended in a relationship is equalized by the reward earned from the effort and the effort from other partners in the relationship, community or society. The assumption of equity theory is that people are involved in relationships for an expended utility or an expected gain. It assumes that people change their behavior based on their perspective of equity. The theory links to the current study as school meals motivate school going children from disadvantaged backgrounds to attend school. This brings equality between the rich and the poor. School meals are meant to help the needy children to attend school hence provide equal opportunity for both rich and the poor.

2.2.3 Needs Theory of Motivation

The theory was developed by Maslow in 1943 to explain the complexity of human behavior by looking at internal factors that motivate an individual's behavior based on the premise that people are motivated by unfulfilled needs. Needs may be psychological or physiological insufficiencies that provoke some type of behavior response. Physiological needs include safety, social, esteem and self-actualization (the need to become what one is capable of). The physiological needs are the ones that one requires for survival such as air, food, water, shelter, clothing and sleep. Psychological needs include love and belonging. These needs can range from weaker to stronger which varies based on the environment, time and place as shown in the Figure 2.1

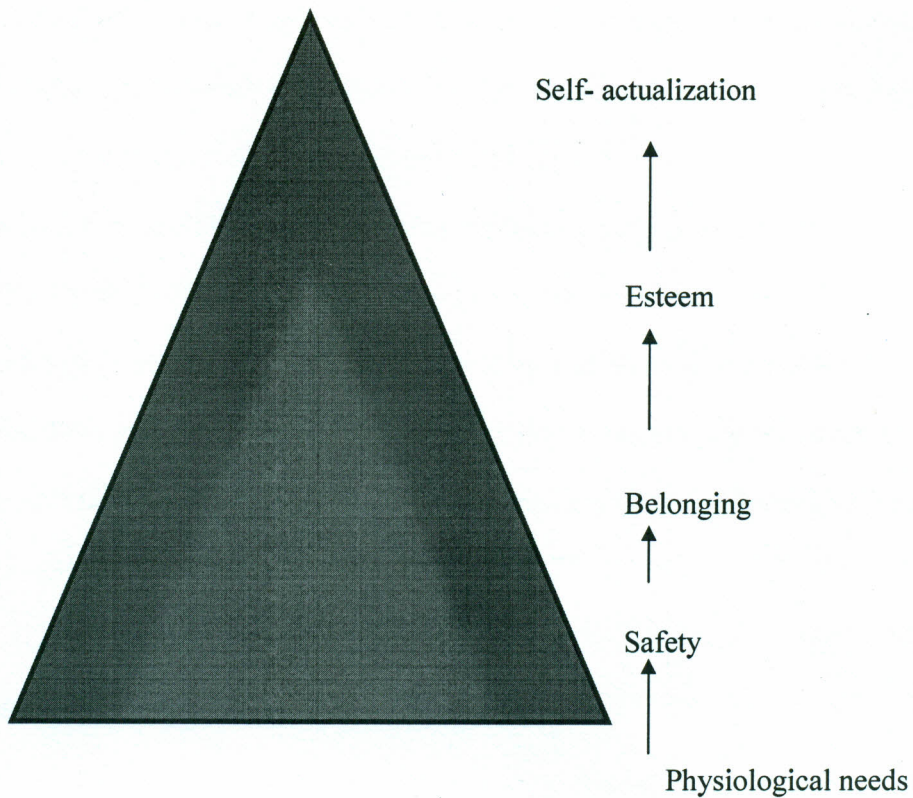


Figure 2.1: Maslow's hierarchy of needs (Maslow, 1943)

For one to acquire self-actualization, an individual has to access physiological needs such as food and shelter. The first four levels are also known as the deficiency or deprivation needs (physiological, safety, belonging and esteem). Self-actualization is the growth need that one requires after she or he has achieved lower needs. The theory assumes that lower needs must be met before higher level needs. The theory concludes that there is a relationship between the lower needs and the higher needs; one has to acquire lower needs to achieve Self-actualization. The theory relates to the study because the school meals are part of the physiological needs that one needs to achieve self-actualization. The school feeding

programme is implemented in areas that lack the basic needs which are necessary to achieve different goals in an individual's life. SFP motivate children to enroll in school for them to access the food while increasing enrolment in schools. The Need Theory of Motivation act as a useful guide for general understanding why students behave the way they do and determines how enrolment and retention can be affected due to lack of basic needs. Children are demotivated to enroll in school when they are hungry as they would rather stay home than attend school with an empty stomach. According to the theory SFP provides food that is the lower need that is needed by school going children and children are motivated to enroll in schools for them to access the food hence increasing enrolment and retention. However the theory is not clear on what is deficiency as one person's need is not necessarily a need for another person.

2.3 Empirical Literature

The approach to many empirical analyses of school feeding programme has been mixed. Some researchers have employed classical liberal theory of equal opportunity while others have used Needs theory of Motivation and equity theory.

World Food Program (1999) evaluated the effects of school feeding on enrolment in Malawi. The study compared the enrollments and retention rate of beneficiary schools and non-beneficiary schools. Schools were selected using purposive sampling. The findings showed increased enrollments and attendance in beneficiary schools. There was a 5 percent increase in enrolment and up to 36 percent improvement in attendance compared to control schools over the same period. The study employed the needs theory of motivation and run regression analysis to find the relationship between School Feeding Program and enrolments. The regression analysis showed positive relationship on School Feeding Program and enrolments.

Burbano and Gelli (2009) analyzed monthly attendance patterns of primary pupils in schools with and without SFP in Malawi. The study used stratified sampling to come up with the target population. The study compared seasonal attendance gaps between schools with school meals and schools without meals. The finding suggested that school feeding is associated with more stable attendance patterns with differences of about 1-2 percent points across the school grades. The largest differences were found in the higher grades, which suggested that take-home rations provided incentives for children to attend school. The study employed the difference in difference method.

Cheung and Perrotta (2009) investigated different measures of participation and attendance in schools with and without school feeding programme in Cambodia. The result of the fixed-effect regression for each treatment year, including controls for all the baseline school characteristics proved to be significantly different between treatment and controlled schools. The effect on enrollment was positive and significant in the first year of treatment. The increase in enrollment due to the Food For Education (FFE) program was about 5 percent with on-site feeding and take-home rations for treatment groups was almost 14 percent with the full-package of de-worming. For schools without FFE, enrolment does not increase further after the beginning of the year. The study argues that an alternative possibility is that schools reach full capacity after the first year's increase, and cannot enroll more children during the following years.

Chikuni (2010) assessed and evaluated the effects of SFP on pupils' school attendance and retention in Zomba District, Malawi using purposive sampling to select target primary schools. The SFP showed positive effects on pupils' attendance and retention indicated by

increased enrolment and reduction in dropout rates. High enrolments were shown through overcrowding of classes and high pupil-teacher ratios. The results also showed that the programme disturbed the school timetable as the distribution of meals and eating had to be accommodated at the expense of lessons. The study adopted Human capital theory.

Alderman *et al.*, (2010) assessed the impact of alternative methods of Food for Education delivery on schooling using a prospective, randomized controlled evaluation in Northern Uganda. Results indicated that in-school meals increased enrolment for those children who were not enrolled at baseline, but had reached the recommended age of entry. However the impacts varied by grade and gender. The study found that the impacts of Take Home Ration (THR) are more difficult to identify as children who received THRs were under the control of caregivers of the children. In this case the caregivers are free to use the food as they want such as redistribution of the food items with other households. The results also showed that there are positive impacts of the in-school meals on primary enrolment when restricted the analysis to children who were not enrolled before the introduction of FFE program. However the study found no impact on progression to secondary. This suggests that school meals may have the unintended effect of increasing the time taken to complete primary school.

Gullied (2011) evaluated the ratio of food supplies and requirement of the school from 2005-2010, identified the extent to which the supplied food is optimally used to relate the SFP with pupils access to education in primary schools and to seek views of the respondents on possible interventions to enhance access and retention in schools in Kenya. The study was based on Human Capital theory. The study found that the supply channeled to school was enough to sustain the targeted population based on World Food Program's policy. The majority of the pupils tended to come to school due to the provision of food although the

distance from home to school was a major setback. This entails that there are other factors that contribute to enrolment rather than hunger. The study concluded that the main cause of low enrolment was lack of knowledge on the value of education while others included lack of food and teachers in the schools. It was found in the study that there is a relationship between the SFP with pupils access to education in primary schools.

Osei-Ofosu (2011) studied the impact of the capitation grant and the school feeding programme on enrollment, attendance and retention in schools in Ghana. The study investigated the impact of capitation grant and school feeding programme on school enrollment, attendance and retention using the difference in difference method. The study compared the change in enrollment, attendance and retention between before and after and between beneficiary schools (treatment) and non-beneficiary schools (controlled). The study run an Ordinary Least Squares (OLS) regression to find the impact of the programme on enrollment, attendance and retention. Regression results showed that the capitation grant had positive results but no significant impact on enrollment. However the study argues that capitation grant caused an instantaneous increase in enrollment. This is because it brought a one-time sharp increase and found that the SFP had positive and significant impact on school enrolment, attendance and retention. The study also found out the positive impact of the program was affected by the fees levied by the Parent-Teacher Association (PTA). The empirical model of the study was based on the assumption that capitation grant has positive impact on school enrollment, attendance and retention.

Munukayumbwa (2011) determined the levels of enrollment before and after the commencement of the programme and investigated the effects of school attendance and identified factors responsible for the attendance of pupils in Zambia. The study was based on

the Basic Needs theory of Maslow to explain the impact of the school enrolment, attendance and performance. The findings indicated increased enrolment in primary schools after the commencement of the program than before the implementation. The study also identified other factors that determine enrolment which include Free Education, external support, and parental encouragement, availability of water, sanitation facilities and long distances.

Jacoby *et al.*, (2012) did the impact of school feeding programs on education outcomes in Chile. The study compared outcomes of schools and students in treated school and untreated schools. The study found out that SFP are popular with parents, educators and politicians but there is insufficient evidence on whether they affect education outcomes especially for mature, government-run programs in developed countries. To explain the absence of effects, especially on learning it would be useful to know the actual impact of school meals on enrolment and retention.

Wamaru (2012) sought to reconcile the conflicting research finding by assessing whether SFP enhanced participation of children in education by establishing how school Feeding Program were being implemented in public schools, investigated the extent to which SFP has affected enrolment trends, assessed the effects of SFP on retention and investigated the extent to which school feeding has affected performance of pupils in public schools. The study was based on the Classical Liberal Theory of Equal Opportunity. The study established that SFP played a big role in improving academic performance of pupils and improved participation of children in primary education. There were improvements in access, retention and participation of learners in class.

Abotsi (2013) investigated the impact of school feeding programme on school enrolment, attendance and retention among others. The study revealed that enrollment per thousand population increased from 34.98 one year to 35.34 in another academic year. After the implementation of SFP, enrolment rate kept on rising depicting the positive relationship of the program on school enrolment and school academic performance but less remarkable impact on attendance over an extended period of 3 years. To establish the positive effect of SFP data from schools without SFP were compared with the implementing schools. The study used Descriptive statistic method and Multivariate analysis of variance was performed using SPSS.

Kariuki *et al.*, (2013) looked at school feeding programme and its impact on academic achievement in early childhood and development (ECDE) in Roret Division, Bureti District, Kenya. The study established the relationship between type (private or public) of school and success of school feeding program and determined the relationship between school feeding programme and academic achievement among ECDE. Using the Chi square statistics, the study showed that there was a significant relationship between school feeding programme and enrolment. The current study borrowed the method of analysis by the use of the Chi square to test the independence of difference between the observed results and expected results of schools implementing School Feeding Program and those schools that are not implementing School Feeding Program.

Kaguongo (2014) did a study on the effects of Non-Governmental Organizations' school feeding programs on access to primary education in drought-stricken Kakuzi Division, Kiambu County. The study established the effects of school feeding program on primary enrolment, assessed the effects of school feeding program on pupils attendance in schools and

determined the effects of school feeding program on active involvement of pupils in classroom learning and to establish the effects of SFP on the retention of pupils in the division. The study employed the use of Descriptive Survey. It established that SFP influenced enrolment, attendance and increased involvement of pupils in the class.

2.4 Overview of Literature

The literature reviewed suggests that School Feeding Program has positive effect on enrolments and retention in primary schools. The theories in general postulate that school children must be provided with favorable environments in order to increase school enrolment and retention. School children from disadvantaged background should be provided with opportunities for them to be able to achieve higher levels of needs. Education systems should be designed with a view of removing barriers of any nature that hinders children from lower economic backgrounds from taking advantages of inborn talents that would help them uplift their social statuses. Therefore SFP motivates individuals to enroll in school, satisfy their basic needs such as food as well as increasing food security at household level.

In the same vein, the empirical literature justifies the role played by SFP in increasing school enrolment and retention in different countries that have implemented the program. The studies have mixed methodologies as Wamaru (2012) adopted the classical liberal theory of equal opportunity, Gullied (2011) employed Human capital theory and Munukayumbwa (2011) based the study on Maslow's theory of basic needs. The studies in general showed that schools with SFP experienced higher enrolment rates, attendance and retention compared to non-assisted schools.

However in all these studies, none of them investigated the effects of school feeding programme on enrolment and retention while incorporating other policy reforms and school specific characteristics in the education system as the increase in enrolment is not wholly contributed by SFP. It is from this basis that the study sought to compare the average means of enrolment and retention for schools with SFP and schools without SFP by borrowing methodologies from the reviewed studies with the use of panel data obtained from the Ministry of Education in Malawi.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter presents the research design, the conceptual framework and the model. Also, the chapter discusses the data type and source as well as research instruments, and collection, target population and data analysis.

3.2 Research Design

The study adopted a descriptive, non-experimental research design. Non-experimental research design was used since the researcher had no control over the variables. The study analyzed the effect of school feeding programme on enrolment and retention in primary schools in Lilongwe Rural West of Malawi. The study compared enrolment and retention between schools which are implementing SFP and schools not implementing SFP. The study identified the effects of school feeding on enrolment and retention using time series and cross-sectional data. Secondary data from government reports and records from the period 2005 to 2013 have been used.

3.3 Theoretical Framework

The study adopted the Need Theory of Motivation by Maslow (1943). The theory is based on the assumption that school feeding has positive effects on school enrollment and retention. The explanation is that SFP provides the lower needs that an individual requires to attain higher levels of needs. SFP releases the burden on parents, reduces short-time hunger on children and increases enrolment. The program would motivate pupils to stay in school by reducing truancy and improve retention. The theory attempts to identify internal factors that motivate individuals' behavior and it is based on the premise that people are motivated by

unfulfilled needs. School Feeding Programs in Lilongwe Rural West is implemented in areas that are food insecure and experience low enrolments and high dropout rates. According to the theory children would be motivated to attend school as they have the unfulfilled need of food. The theory assumes that as the children strive to achieve the lower need of food, they will be able to enroll in school. This would lead to increased enrollment, retention as well as performance in primary schools.

Other policy interventions in Malawi to increase enrolment include the increase in expenditure in primary education system, increase in teaching staff, infrastructure development, and elimination of the requirements for school uniform and the introduction of Free Primary Education (FPE). There are other factors that may affect enrolment and retention in a given school but are not generally due to government policy interventions. These factors include type of infrastructure, number of teachers, type of facilities, distance covered by pupils and performance of the schools (Chikuni, 2010 and Monukayumbwa, 2011). Enrolment in primary schools in Malawi therefore, is conceptualized as dependent on public interventions in terms of the School Feeding Programme, the introduction of Free Primary Education, increase in expenditure in primary education, increase in teaching staff and infrastructure development as well as school specific characteristics such as availability of sanitary facilities, distance covered by children to school and the performance of the school (Chikuni, 2010).

3.4 Empirical Model

This study used the following models:

Enrolment = F (SFP, Teachers, Mean score, Sanitary facilities)

Retention = F (SFP, Teachers, Mean score, Sanitary facilities)

Where enrollment is the number of pupils registered in school in a year; SFP is the implementation of school feeding programme; Teachers is the number of teachers at each school; Mean score is the academic achievements in each school and sanitary facilities is the availability of sanitary facilities in each school.

3.5 Hypotheses

The study tested the following hypotheses:

Ho₁: There is no difference in enrolment in schools with school feeding programs and schools without school feeding program in Lilongwe Rural West.

Ha₁: There is difference in enrolment between schools with SFP and schools without SFP.

Ho₂: There is no difference in retention between schools with SFP and schools without SFP in Lilongwe Rural West.

Ha₂: There is difference in retention between schools with SFP and schools without SFP in Lilongwe Rural West.

Ho₃: School feeding program has no effect on enrolment in Lilongwe Rural West.

Ha₃: School feeding program has an effect on enrolment in Lilongwe Rural West.

3.6 Definition and Measurement of Variables

The study used the following variables to achieve its objectives. The dependent variables are enrolment and retention while independent variables are implementation of SFP in schools, number of teachers, number of sanitation facilities and performance in examinations.

The variables, their definitions and how they have been measured in the study are as follows:

Enrolment: This is the number of pupils in the school registered during the year. It was measured by summing up from standard one to standard eight enrolment registers of each school.

Retention: This refers to the percentage of standard one to standard eight pupils who remain in school at the end of an academic year. It was measured by dividing the number of pupils remaining at the end of an academic year by the number of pupils registered during the academic year.

School Feeding Programme: This refers to the provision of food to school children. This was presented as a dummy: 1 for schools implementing SFP otherwise will be 0.

Number of teachers in a school: The total number of teachers in each school. This was measured by summing up from staff retires of each school.

Type of building in a school: This is the permanent or temporary school blocks. This was presented by a dummy 1 for schools with temporary buildings, dummy 2 for schools with permanent school blocks and 3 if the school had mixed buildings.

Availability of sanitary facilities in a school: This refers to toilet-pupil ratio in each school. It was measured by dividing the total number of toilets by total population in the school.

Average Distance: This is the average distance covered by pupils to school in kilometers. This was measured by average number of kilometers covered by majority in schools.

School Performance: This is the individual academic achievements of the school. The variable was measured by overall performance (mean scores).

3.7 Target Population

The target population for the study was the primary schools in Lilongwe Rural West in Malawi. This population was composed of 10 schools in which five schools were

implementing SFP and five schools were not implementing the programme. Lilongwe is found in the central region of Malawi with an urban population of 15.7 percent in 2011 (National Statistical Office, 2011). The rural population of the district depends on agriculture and the productivity in this sector is determined by the availability of rainfall. The primary education in the district is provided by government and private institutions. Lilongwe Rural West has 223 primary schools (Republic of Malawi, 2005). Some of the schools are supported by SFP while some are not.

3.8 Sampling Procedure and Sample Size

Lilongwe Rural west is divided into 11 zones in total. Five zones were implementing the programme while the other six were not implementing school feeding programme. Each zone incorporated five to six schools. One school was randomly selected from each zone for the schools that implement SFP. For the schools not implementing SFP five zones were randomly selected from the six zones. One school was randomly selected from each zone. All the schools sampled were 10 in total in which five school are implementing SFP while five were not implementing SFP. The five schools implementing SFP were Kapinga primary school from Kabudula zone, Mphambano primary school from Kabuthu zone, Magada primary school from Kamadzi zone, Mphandula primary school from Kalolo Zone and Maweru primary school from Mzombwe Zone. The five schools without school feeding programme were Yepa primary school from Dzenza Zone, Chiwoko primary school from Kalonga Zone, Mwankhundi primary school from Buwa Zone, Ndumila primary from Malingunde Zone and Nzama primary school from Nyanja Zone.

3.9 Data type and Sources

The data collected through the study were both primary and secondary data. Class registers were used to gather secondary data on enrolment and retention and staff retains were used to capture data on type of building, number of teachers found at a school each year and distance covered by pupils. In case where staff retains were not showing, primary data were gathered from the Head teacher and teachers who have overstayed in the school. The overall data on enrolment from Lilongwe Rural West was gathered from the District Education Office. Information on SFP was obtained from government policy documents on education. Data on the number of teachers at each school and type of facilities was gathered from the staff retains found at the school and Lilongwe District office where the staff retains were absent. The study gathered data on the number of facilities through physical counting and observation in the sampled schools. Data from schools was collected for the period of 2005-2013.

3.10 Data Analysis

Data collected were analyzed using basic statistics that incorporated line graphs and cross tabulation of the data to respond to each objective. The analysis of the data was, thus, organized according to the objective of the study.

To respond to the first objective of the study on the effect of school feeding on primary school enrolment between schools implementing School Feeding Programme and schools without School Feeding Programme the researcher computed the average enrolment for school implementing SFP and schools not implementing SFP. The computed average enrolments were compared using trend graphs. The average enrolments were also put in a bivariate table in order to compute the Chi Square and test independence of the differences

between the expected results and the observed by comparing enrolments from implementing schools and schools not implementing school feeding programme.

To respond to the second objective which was to determine the difference on retention in schools implementing SFP and schools without SFP, computations on the average retention were conducted. The computed figures were put into a bivariate table and trend graphs were plotted to show the difference between the two type of schools. In order to ascertain significance of the difference in retention between the two type of schools, Chi Square was computed.

To respond to the third objective of the study, that is analyzing the relative effect of school feeding on enrolment and retention in primary schools in Lilongwe Rural West, the models on enrolment and retention were regressed using linear regression to investigate the relationship between the dependent variables (enrolment and retention) on the independent variables (implementation of SFP, number of teachers, average number of sanitary facilities and mean score). The results of the two models were interpreted based on the level of significance and size of the coefficient.

CHAPTER FOUR

EMPIRICAL FINDINGS

4.1 Introduction

This chapter presents the findings of the study. The results for descriptive statistics of the data for schools implementing SFP and Schools not implementing SFP are presented in section 4.2. Section 4.3 presents the empirical results on the effects of school feeding in relation to the objectives of the study.

4.2 Descriptive Analysis of data on variables

Basic statistics were conducted on each variable to know how good the data was. The mean, range and standard deviation of the data provided the researcher a good idea of the data understudy. To assess data on enrolment, retention and type of building the study used bivariate tables and presented the variables using charts and trend graphs.

4.2.1: Descriptive Statistics

To understand average values and deviations in data on the variables of the study the mean, range and standard deviations were computed and presented in Table 4.1 in the study variables.

Table 4.1 Descriptive Statistics

	Maximum	Minimum	Mean	Standard deviation
No of teachers	43	4	13.52	5.23
Sanitary Facilities	18	2	10.18	2.85
Average distance	3	1	2.03	0.0881
Mean score	60	38	46.76	3.65
Enrolment	2800	357	951	457.29996
Retention	2789	352	912.82	443.26446

From the results presented in Table 4.1, the maximum range for the number of teachers over the study period was 43 and the minimum range was 4. The mean for the number of teachers for the period of study was 13.52. The standard deviation for the number of teachers was 5.23. This implies that there is some variation in the data therefore a regression analysis could be conducted using the number of teachers. The maximum range for sanitary was 18 with the lowest as 2. The mean for sanitary facilities was 10.18 while the standard deviation was 2.85. The average distance ranged from 3 and the minimum range was 1. The mean for the average distance was 2.03 with the Standard deviation of 0.08881. The mean score ranged from the maximum of 60 and the minimum as 38. The mean for the performance in examinations was 46.76 with a standard deviation of 3.65.

The maximum range for enrolment in the sampled schools was 2800 and the minimum was 357. The mean for enrolment was 951 while the standard deviation was 457.29996. Also the range for retention had a maximum of 2789 while the minimum was 352. The mean retention was 922.82. The standard deviation for retention was 443.264446. There was variation in all the variables as shown in Table 4.1 therefore a regression analysis could be conducted using all the variables.

4.2.2 Trends in enrolment and retention in schools

The study analyzed the trends on enrolment and retention in schools implementing SFP and schools not implementing SFP. Figure 4.1 shows the trend on enrolment and retention of the Mphandula primary school.

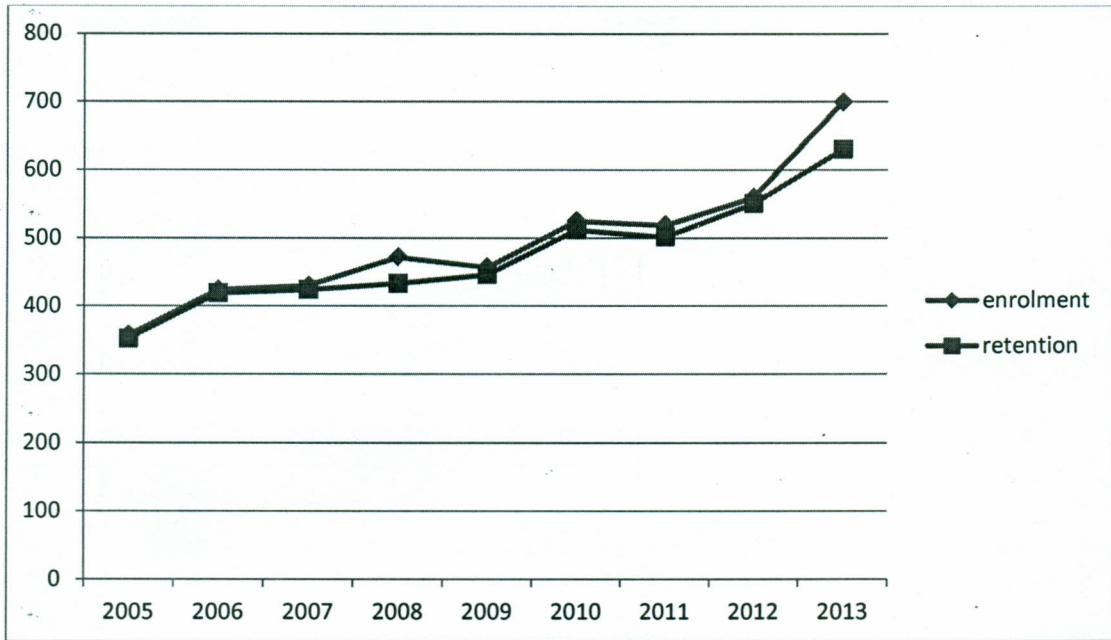


Figure 4.1 trends on enrolment and retention for Mphandula primary school

Figure 4.1 showed that the trends on enrolment and retention for Mphandula primary school was upwardly distributed depicting an increase in both enrolment and retention from the year 2005 to 2013. From the year 2007 enrolment of pupils is higher than pupils retained in the school. Meaning that not all the number of pupils enrolled were retained in the school.

Figure 4.3 shows an upward trend from the year 2005 to 2008. The trends decreased in the year 2009, 2011 and 2013. The line graphs for enrolment and retention are almost on the same line implying that pupils enrolled in the school were retained.

Figure 4.4 presents the trends on enrolment and retention for Kapinga School

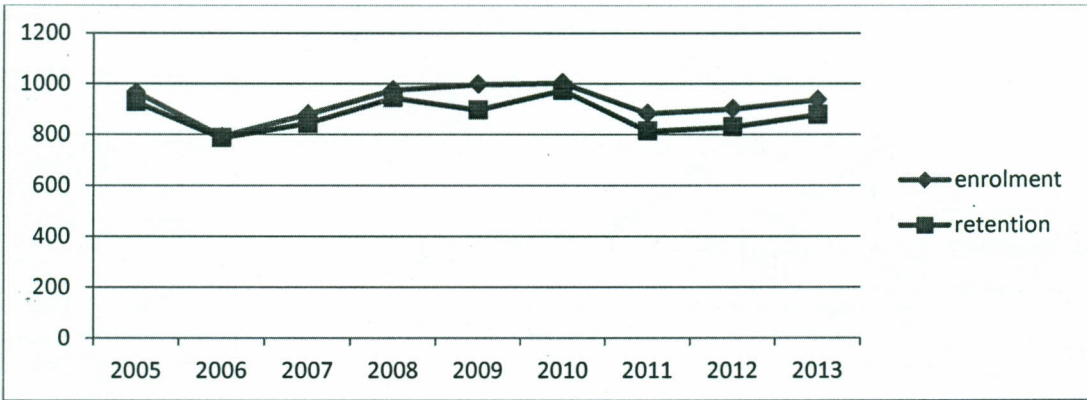


Figure 4.4 Trends on enrolment and retention for Kapinga primary school

The trends in Figure 4.4 show a downward distribution in 2005 and had an upward trend between 2006 and 2010. The figure shows that the number of pupils retained was less compared to enrolment.

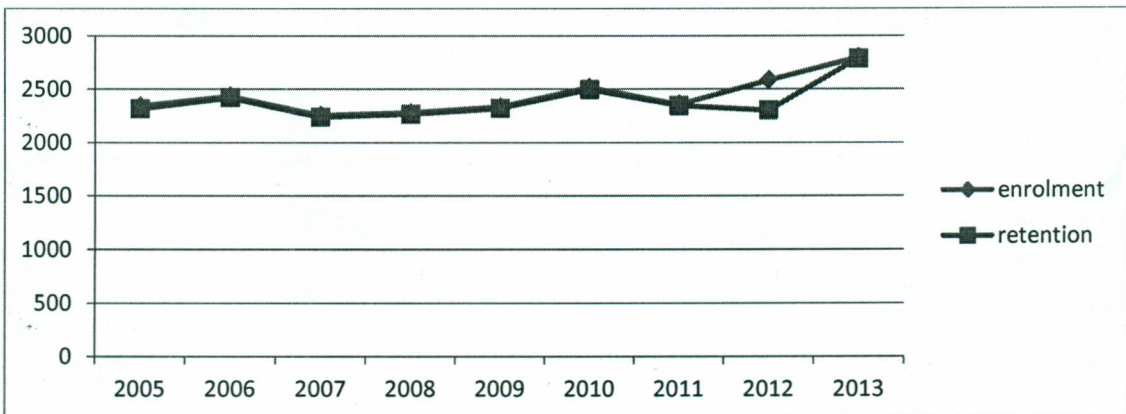


Figure 4.5 Trends on enrolment and retention for Mphambano primary school

The trends in the Figure 4.5 show an upward trend from 2005 to 2006 and the trend decreased from 2007 to 2008. From 2012 to 2013 the school had an upward trend for both retention and enrolments. The trend on enrolment and retention are almost the same from 2005 to 2010 except for the year from 2012 and 2013. All pupils enrolled were retained except 2012 and 2013.

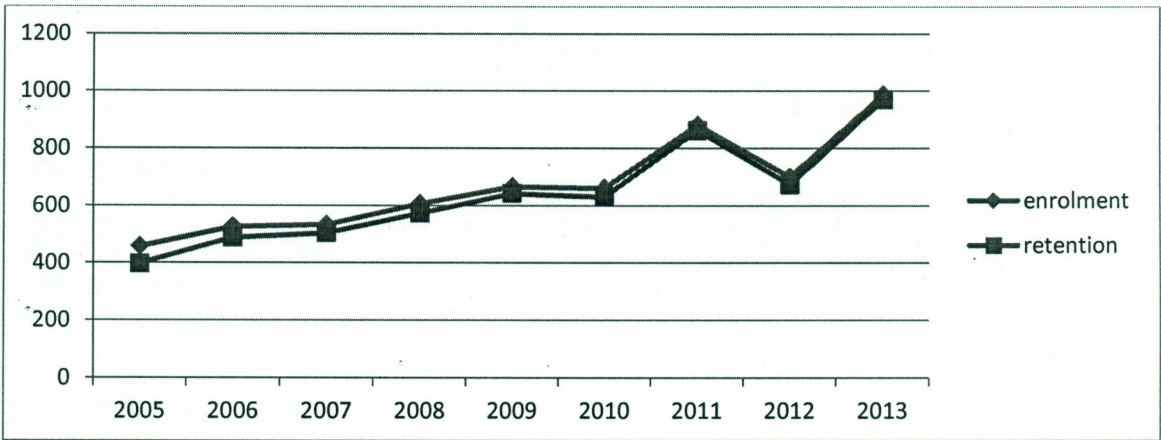
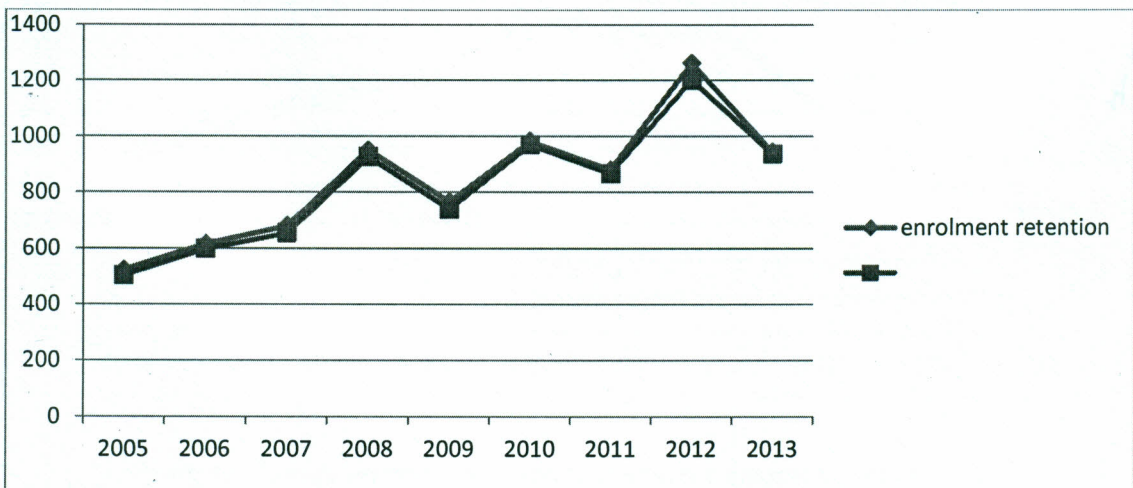


Figure 4.6 Trends on enrolment and retention for Yepa primary school

The trend in Figure 4.6 shows an upward distribution from 2005 to 2011. The trend dropped in 2012 and maintained the upward distribution in the year 2013. The figure shows that pupils enrolled were retained in the school.



The school has an upward trend from 2005 to 2009 and experienced a decreasing trend from the year 2010 towards 2013. The trends show that most of the pupils enrolled were retained at Ndumila primary school.

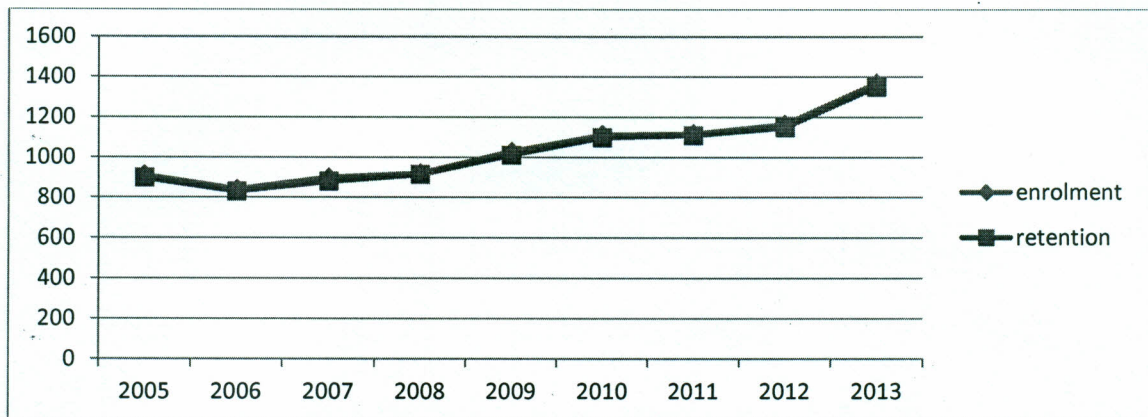


Figure 4.10 Trends on enrolment and retention for Nzama primary school

Nzama primary school had experienced an upward trend from the year 2006 to 2013. The trends show that pupils enrolled at Nzama primary school were retained as the line graphs are on the same line over the period of study.

4.2.3: Type of building in sampled schools

The study found that in the sampled schools there were permanent and temporary buildings. Figure 4.10 present the percentage of permanent, temporary and mixed buildings in the sampled schools.

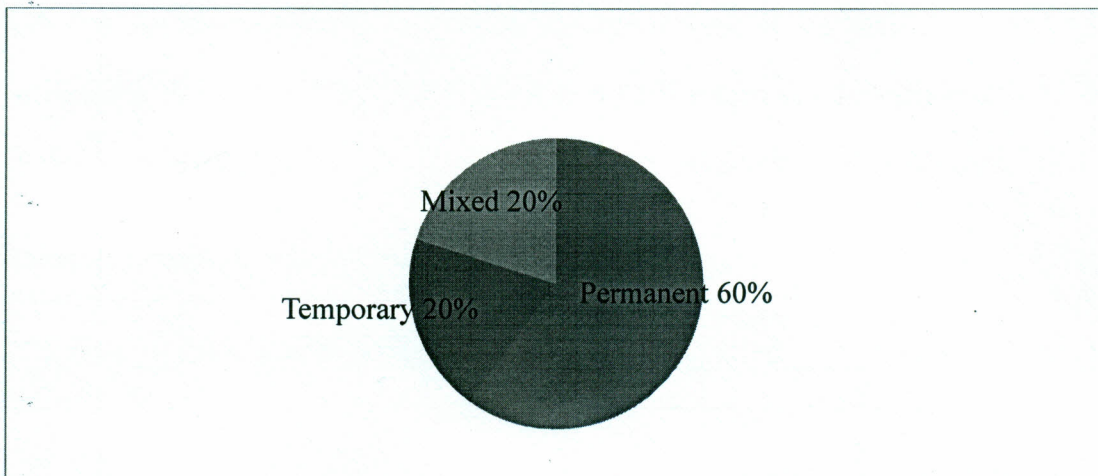


Figure 4.11 Percentage of permanent building, temporary and mixed buildings

The percentage for permanent buildings in 2005 to 2013 was 60 percent. Thus more than a half of the sampled schools had permanent buildings. The temporary buildings remained constant at 20 percent from the year 2005 to 2013. Temporary buildings were exceptional because the buildings existed from 2005 to 2008 on the sampled schools. The percentage for mixed buildings (temporary and permanent buildings) also remained the same over the period of study at 20 percent.

4.2.4 Correlation between variables

Multicollinearity between regressors leads to inaccurate estimates (Gujarati 2004). To avoid having inaccurate estimates, the study tested for correlation between regressors through checking the correlation coefficients of the correlation matrix of variables. The correlation coefficients measure the strength and direction of a linear relationship between variables. If the correlation coefficient is negative the relationship is considered negative otherwise positive (Pearson, 1895). If the coefficient is 1 regardless of the sign, the relationship is considered perfect otherwise not (Pearson, 1895). A correlation coefficient of less than 0.5

number of teachers and sanitation. It was therefore important to avoid Multicollinearity in the models estimated on the effect of School Feeding on enrolment and retention to consider only the variables that did not affect the t-values nor the adjusted R-squared values.

4.3 Empirical Results

The study was aimed at achieving three objectives. The first objective was to determine the difference between enrolment of primary schools with SFP and schools without SFP in Lilongwe Rural West in Malawi while the second objective was to determine the difference between retention in primary schools with SFP and schools without SFP in Lilongwe Rural West. The last objective of the study was to analyze the effects of school feeding programme on primary school enrolment and retention in Lilongwe Rural West in Malawi.

4.3.1: The difference in enrolment between primary schools with SFP and schools without SFP in Lilongwe

To determine the difference in enrollment rate of pupils between primary schools implementing SFP and those not implementing SFP the average enrolment rates over the years in both type of schools were compared. The average enrolments in the two types of schools are as in Table 4.3.

Table 4.3: Average enrolments between schools implementing SFP and schools without SFP

Type of School	2005	2006	2007	2008	2009	2010	2011	2012	2013
SFP	966	992.6	995.2	1072.8	1057.2	1188.4	1084.8	1192.4	1193.6
No SFP	598.2	632.4	721	810	876.8	916.2	955.2	917.2	950.4

The average enrolment rates in the two types of schools were then plotted using line graphs as shown in Figure 4.12.

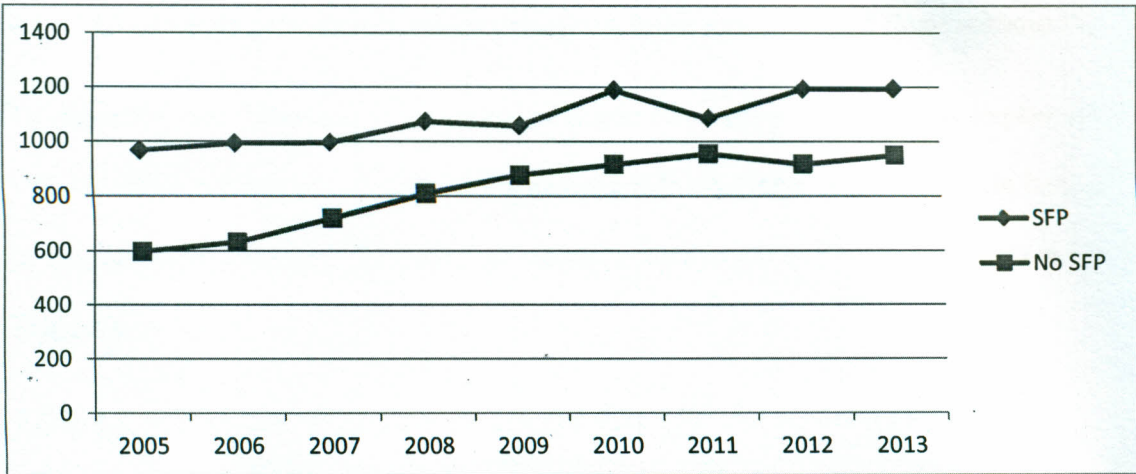


Figure 4.12: Average enrolments between schools with SFP and no SFP schools

Figure 4.12 indicates that the average enrolment for schools with SFP is higher than the average enrolment in schools without SFP. This is because the graph for average enrolment in schools with SFP lies above that for average enrolment in schools without SFP. The gap between the two graphs indicates the difference.

In order to ascertain significance of the difference, Chi Square analysis on the averages was done. The computed Chi square was 45.1997. This was then compared with the critical value of 15.507 at 5 percent level of significance with eight (8) degrees of freedom. Since the computed Chi Square value exceeds the critical value, the null hypothesis of no difference in enrolment rates between the two types of schools was rejected. It was therefore concluded that implementation of School feeding programme has increased enrolments in schools in Lilongwe district of Malawi. This confirms the studies of Cheung and Perrotta (2009), Chikuni (2009), Gullied (2011), Kariuki *et al* (2013), and Kaguongo (2014) that the school feeding has a positive and significant effect on enrolment. The results are different from Jacoby *et al* (2012) in Chile who found out that school feeding has no significant effect on

enrolment in schools but found out that the programme was popular to educators and politicians.

4.3.2 Difference in retention between primary schools with SFP and those without SFP

To determine the difference in retention of pupils between primary schools implementing SFP and those not implementing SFP the average retention rates over the years in both type of schools were compared. The average retention rates in the two types of schools are as in Table 4.4.

Table 4.4 Average retention between schools with SFP and school without SFP

Type of School	2005	2006	2007	2008	2009	2010	2011	2012	2013
SFP	934.6	978.4	975	1051	1018.4	1164.6	1059.4	821	1153.4
No. SFP	569.6	601.8	700	791	855.6	896.6	944	855.6	933.2

The average retention rates between the two types of schools were then plotted using line graphs as shown in Figure 4.13.

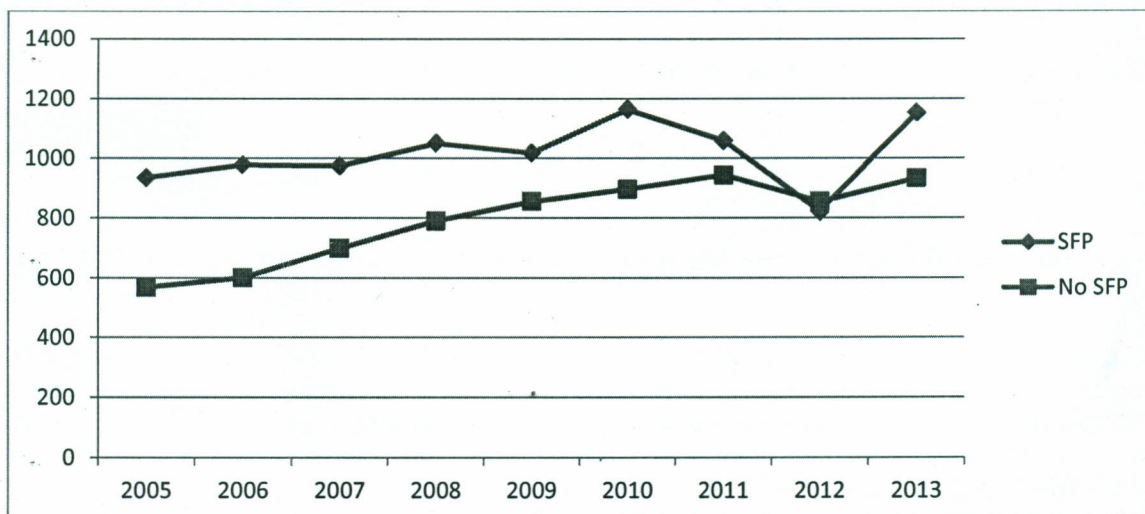


Figure 4.13: Average retention between primary schools with SFP and schools without SFP

Figure 4.13 indicates that the average retention for schools with SFP is higher than the average retention in schools without SFP over the years except for year 2012 when the retention rate in schools without SFP was slightly above that for schools with SFP. This is because the graph for average retention in schools with SFP lies above that for average retention in schools without SFP for the remaining years. In order to ascertain significance of the difference in retention between the two types of schools, Chi Square analysis on the averages was done. The computed Chi square was 93.7915. This was compared with the critical value of 15.507 at 5 percent level of significance with eight (8) degrees of freedom. The computed Chi Square value exceeded the critical value hence the null hypothesis of no difference in retention rates between the two types of schools was rejected. It was therefore concluded that implementation of School feeding programme has increased retention in primary schools in Lilongwe district of Malawi. The results are similar with Wamaru (2012) and Munukayumbwa (2011) that School feeding programme improved retention in primary education. The results are different from Alderman *et al* (2010) and Jacoby *et al* that the School feeding programme had no effect on retention of pupils in primary school.

4.3.3 Effects of school feeding on enrolment and retention in Lilongwe Rural West

The third objective of the study was to analyze the effects of school feeding programme on primary school enrolment and retention in Lilongwe Rural West in Malawi. The conventional idea behind the investigation was to compare the effect of school feeding programme alongside other factors on enrolment and retention of pupils in primary schools of Lilongwe Rural West using regression analysis.

4.3.3.1 Effects of school feeding on primary school enrolment in Lilongwe Rural West

To find out the effect of school feeding on primary school enrolment in the rural areas of Lilongwe the study regressed enrolment on implementation of school feeding programme, alongside other variables believed to affect enrolment in schools such as number of teachers, mean score and level of sanitation.

Table 4.5: Effect of school feeding on enrolment

Dependent Variable: Enrolment			
Independent Variables	Coefficient	t – value	p- value
School feeding	133.7249**	2.10	0.039
No. of Teachers	59.69047***	21.89	0.000
Prob> F = 0.0000			
Adj R-squared = 0.9187			

** implies coefficient is significant at 5% level of significance

*** implies coefficient is significant at 1% level of significance

Source: Own computations from study data

The results indicate that 91 percent of variation is explained by the model and the probability F-statics is 0.000. The remaining nine percent are explained by other variables that are not included in the model. The table shows that School Feeding programme is significant at 5 percent and the number of teachers is significant at 1 percent. The coefficient for School Feeding Program is 133.7249 and the coefficient of number of teachers is 59.69047. This depicts a positive effect of school feeding on enrolment in Lilongwe district. The coefficient of school feeding implies that on average enrolment in schools with School Feeding is higher by 133. The coefficient of number of teachers means that when a school gets an increase in the number of teachers by 1 the average enrolment increases by 59. This suggests that School feeding and number of teachers are important variables which are considered when pupils are

enrolling in schools in Lilongwe. The findings are similar to Munukayumbwa (2010) and Abotsi (2013) studies who found out that the programme showed increased enrolments in public schools after the commencement of school feeding. Wamaru (2012) found out that performance of pupils in public schools improved after the introduction of School Feeding Programme in Kakuzi Division in Kenya.

4.3.3.2: Effects of school feeding on primary school retention in Lilongwe Rural West.

The study conducted a linear regression to investigate the effects of school feeding programme on primary school retention. Table 4.6 present the regression analysis on the effects of the programme on primary school retention.

Table 4.6 Effects of School feeding on retention

Dependent Variable: Retention			
Independent variable	Coefficient	t - value	p- value
School feeding	-91.40993	-1.38	0.171
No. of Teachers	42.53573***	10.42	0.000
Mean score	6.388528***	3.12	0.02
Sanitary facility	8.786381	0.94	0.349
Prob> F = 0.0000			
Adj R-squared = 0.9320			

***implies the coefficient is significant at 1% level of significance

Source: Own computations from study data

The results indicate that 93 percent of the variations are explained by the model and the remaining 7 percent is explained by variables that are not included in the model. The F-statistic result is (0.000). Also, from the regression results it was observed that the coefficients of School Feeding Programme and sanitary facilities are insignificant implying that school feeding and sanitary facility does not have any effect on retention of pupils in

primary schools. However number of teachers and mean score are significant at 1 percent. The coefficient of number of teachers is 42.53573. This means that on average when a school gets an increase by 1 on the number of teachers, average retention is 42. The coefficient of mean score is 6.38852. This suggests that on average when a school improves its mean score by 1 the average retention is 6. This indicated that pupils were concerned with performance on examinations and the number of teachers in order for them to be retained in primary schools in Lilongwe District. The findings seem to confirm Jacoby *et al.* (2012) studies that there is insufficient evidence on the effect of school feeding on retention in schools under experiment. Therefore as recommended by other studies (Alderman *et al* (2011), Gullied (2011), Osei-Ofusu (2011), Munukayumbwa (2011), that the lack of teachers in many schools is a setback to school going pupils and therefore an increase in the number of teachers is a requirement for the government to intervene in schools that experience shortage of teachers.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND POLICY IMPLICATION

5.1 Introduction

This chapter presents the summary, conclusions and policy implications of the study's findings with the last section of chapter five presenting areas for further research.

5.2 Summary

The study was conducted to analyze the effect of school feeding on primary school enrolment and retention in Lilongwe Rural West of Malawi. Specifically, this study was conducted to determine the difference in enrolment between primary school with SFP and schools without SFP in Lilongwe Rural West in Malawi, determine the difference in retention between primary schools with SFP and schools that are not implementing SFP in Lilongwe Rural West and to analyze the effects of school feeding on primary school enrolment and retention in Lilongwe Rural West in Malawi. The motivation for conducting the study was the fact that the government of Malawi over time pursued a number of policy measures to increase enrolment and retention in primary schools. Among the policy measures, SFP is one of the measures the government had put in place to increase enrolment and retention in Malawi.

The study used cross-sectional data on all the variables for the period of 2005 to 2013. Two models were estimated corresponding to the study objectives using linear regression. To know how best the data were, each variable was subjected to basic statistics.

The study found out that there were significant differences between enrolment of primary schools with SFP and schools without SFP. The findings showed that SFP had a positive

was 45.1997. This was then compared with the critical value of 15.507 at 5 percent of level of significance. Since the computed value exceeded the critical, the null hypothesis of no difference was rejected.

The study also concluded that there was difference in retention between schools with SFP and schools without SFP. The study tested the significance of differences using Chi Square. The computed Chi Square which was 93.7915 was compared to the critical of 15.507. The computed Chi square exceeded the critical hence the null of no difference in retention was rejected.

The study also concluded that SFP had a positive effect on enrolment in Lilongwe. This was because the coefficients of SFP and number of teachers were significant. On average the enrolment in schools with school feeding is higher by 133. The coefficient for number of teachers suggested that an increase by 1 in the number of teachers, the average enrollment increased by 59. The significance of the two variables showed the positive effect on enrolment of pupils in schools.

The findings on the effect of SFP on retention showed that there was no effect of SFP on retention of pupils in Lilongwe. This is because the regression results showed that the coefficient of SFP was insignificant hence no effect on enrolment. The results showed that mean score and number of teachers were significant at 1 percent. Therefore retention in Lilongwe is influenced by the number of teachers and performance on examinations.

5.4 Policy Implications

The government should recruit more teachers to attract enrolment and retention in the government schools. This is because as the number of teachers increase enrolment and retention increases. Policies such as the Malawi Integrated In- services Teacher Education

Project (MITTEP) and Policy Investment Framework plan (PIF) are in the right direction for the government of Malawi as the policies are aimed at increasing the number of teachers.

The government of Malawi should expand the implementation of school feeding programme to other schools. This is because the regression analysis on the effect of school feeding on enrolment showed that schools with SFP on average, enrolment is higher by 133 compared to schools without SFP. Also the coefficient of SFP was significant implying the positive effect of school feeding on enrolment.

Lastly the school managers should find ways on how to improve performance in various schools. This is because the regression analysis on the effect of school feeding on retention, mean score proved to be significant. This suggested the positive relationship between mean score and retention of pupils in primary schools.

5.5 Areas for further research

Further studies should be conducted in other rural areas of Malawi as this would enable a cross country comparison of the observations on the effects of school feeding programme. It would be interesting to find out if average distance and type of building have any positive effect on the enrolment and retention in rural areas.

Research can also be conducted on the challenges that the government is facing in implementing the program as the results for correlation analysis depicts that only 24 percent and 21 percent of pupils are as a result of SFP on enrolment and retention respectively. These challenges include the maintenance of the programme in rural areas and also

transportation of the food to the intended schools especially during rainy season as the schools are far from the tar marked roads.

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APPENDIX A1: DATA USED IN THE STUDY

Table A1: Data from sampled schools

Year	School	SFP	Sanitary Facility	No. teachers	Type of building	Average distance	Total enrolment	Total retention	Mean scores
2005	Mphandula	1	6	8	P	1 km	357	352	45
	Maweru	1	15	7	P	2 km	409	382	40
	Magada	1	8	10	P	3 km	704	676	60
	Kapinga	1	8	8	P	2 km	966	927	40
	Mphambano	1	18	39	P	1 km	2345	2320	60
	Yepa	0	6	2	T	1 km	458	398	38
	Chiwoko	0	12	9	P	2.5 km	523	503	40
	Mwankhundi	0	8	8	P	1.5 km	617	599	45
	Ndumila	0	2	4	T	1.5 km	481	450	40
	Nzama	0	13	13	P&T	2.5 km	912	898	42
2006	Mphandula	1	6	8	P	1 km	424	419	40
	Maweru	1	15	7	P	2 km	466	392	45
	Magada	1	8	9	P	3 km	844	771	60
	Kapinga	1	8	10	P	2 km	792	787	40
	Mphambano	1	18	35	P	1 km	2437	2423	65
	Yepa	0	2	16	T	1 km	527	489	38
	Chiwoko	0	12	8	P	2.5 km	617	599	42
	Mwankhundi	0	8	12	P	1.5 km	567	511	45
	Ndumila	0	2	4	T	1.5 km	602	580	40
	Nzama	0	10	10	P&T	2.5 km	842	830	40
2007	Mphandula	1	4	6	P	1 km	430	424	45
	Maweru	1	15	8	P	2 km	488	452	50
	Magada	1	8	9	P	3 km	922	902	60
	Kapinga	1	8	10	P	2 km	879	843	45
	Mphambano	1	18	40	P	1 km	2257	2240	70
	Yepa	0	6	13	P	1 km	534	505	38
	Chiwoko	0	12	7	P	2.5 km	681	655	42
	Mwankhundi	0	10	14	T	2 km	850	832	40
	Ndumila	0	2	4	T	1.5 km	640	626	40
	Nzama	0	10	10	P&T	2.5 km	900	880	40
2008	Mphandula	1	8	8	P	1 km	472	433	50
	Maweru	1	15	10	P	2 km	506	467	50
	Magada	1	8	15	P	3 km	1128	1103	60
	Kapinga	1	10	12	P	2 km	975	944	45
	Mphambano	1	18	35	P	1 km	2283	2269	64
	Yepa	0	6	15	P	1 km	607	574	40
	Chiwoko	0	12	7	P	2.5 km	950	927	40
	Mwankhundi	0	12	15	T	2 km	869	851	45
	Ndumila	0	2	4	T	1.5 km	702	688	40
	Nzama	0	10	9	P&T	2.5 km	922	915	40
2009	Mphandula	1	8	8	P	2 km	457	446	50
	Maweru	1	15	8	P	2 km	611	547	50
	Magada	1	8	13	P	3 km	885	880	60
	Kapinga	1	10	10	P	2 km	996	897	40
	Mphambano	1	18	38	P	1 km	2336	2323	65
	Yepa	0	6	15	p	1 km	667	643	38
	Chiwoko	0	12	9	T	2.5 km	766	740	40
	Mwankhundi	0	12	10	P	2 km	1064	1042	40
	Ndumila	0	2	4	P&T	1.5 km	856	841	40
	Nzama	0	10	8	P	2.5 km	1031	1012	40

2010	Mphandula	1	8	6	P	2 km	525	512	50
	Maweru	1	15	10	P	2 km	616	568	50
	Magada	1	8	15	P	3 km	1280	1272	60
	Kapinga	1	10	10	P	2.5 km	1003	974	40
	Mphambano	1	18	40	P	1 km	2518	2497	80
	Yepa	0	6	20	P	1 km	661	631	40
	Chiwoko	0	12	8	T	2.5 km	763	730	40
	Mwankhundi	0	12	12	P	2 km	982	970	40
	Ndumila	0	2	4	P&T	1.5 km	842	812	42
	Nzama	0	10	12	P	2.5 km	1114	1100	35
2011	Mphandula	1	8	9	P	2 km	519	502	50
	Maweru	1	15	7	P	2 km	498	442	50
	Magada	1	8	12	P	3 km	1165	1154	60
	Kapinga	1	10	10	P	2.25 km	882	813	40
	Mphambano	1	18	42	P	1 km	2360	2348	75
	Yepa	0	6	23	P	1 km	581	563	40
	Chiwoko	0	12	8	T	2.5 km	880	867	40
	Mwankhundi	0	12	12	P	2 km	823	817	40
	Ndumila	0	2	4	P&T	1.5 km	828	819	42
	Nzama	0	10	12	P	2.5 km	1120	1110	40
2012	Mphandula	1	8	11	P	2 km	560	551	55
	Maweru	1	15	9	P	2 km	641	602	50
	Magada	1	8	12	P	3 km	1314	1301	40
	Kapinga	1	12	14	P	2.25 km	900	830	40
	Mphambano	1	18	43	P	1 km	2304	2587	65
	Yepa	0	8	20	P	1 km	700	674	40
	Chiwoko	0	12	9	T	2.5 km	1261	1200	40
	Mwankhundi	0	12	12	P	2 km	1067	1021	40
	Ndumila	0	2	11	P&T	1.5 km	630	612	40
	Nzama	0	10	12	P	2.5 km	1165	1150	35
2013	Mphandula	1	8	13	P	2 km	699	630	56
	Maweru	1	15	10	P	2 km	595	554	50
	Magada	1	8	14	P	3 km	1392	1379	60
	Kapinga	1	12	14	P	2.75 km	937	878	40
	Mphambano	1	18	43	P	1 km	2800	2789	67
	Yepa	0	14	23	P	1 km	986	970	35
	Chiwoko	0	12	10	T	2.5 km	943	937	40
	Mwankhundi	0	12	12	P	2 km	630	592	40
	Ndumila	0	12	12	P	1.5 km	684	670	40
	Nzama	0	10	13	P	2.5 km	1379	1350	35

APPENDIX A2: COMPUTATION OF CHI SQUARE STATISTIC

Table A2

Type of School	2005	2006	2007	2008	2009	2010	2011	2012	2013	TOTAL
SFP	966	992.6	995.2	1072.8	1057.2	1188.4	1084.8	1192.4	1193.6	965.0889
No SFP	598.2	632.4	721	810	876.8	916.2	955.2	917.2	950.4	722.2889
TOTAL	782.1	812.5	858.1	941.4	967	1052.3	1020	1054.8		843.6889

Table A3

F_o	row total	total column	F_e	$F_o - f_e$	$(F_o - f_e)^2$	$(F_o - f_e)^2 / f_e$
966	965.0889	782.1	894.637846	71.3621542	5092.55706	5.69231123
598.2	722.2889	782.1	669.562134	-71.3621336	5092.55412	7.60579767
992.6	965.0889	812.5	929.412159	63.1878408	3992.70323	4.29594469
632.4	722.2889	812.5	695.587819	-63.1878194	3992.70052	5.74003801
995.2	965.0889	858.1	981.573629	13.6263707	185.677979	0.18916358
721	722.2889	858.1	734.626348	-13.6263481	185.677363	0.25275075
1072.8	965.0889	941.4	1076.85982	-4.05982357	16.4821674	0.01530577
810	722.2889	941.4	805.940152	4.05984836	16.4823687	0.02045111
1057.2	965.0889	967	1106.14346	-48.9434559	2395.46188	2.16559784
876.8	722.2889	967	827.856519	48.9434814	2395.46437	2.89357433
1188.4	965.0889	1052.3	1203.71743	-15.317434	234.623783	0.194916
916.2	722.2889	1052.3	900.882538	15.3174617	234.624633	0.26043865
1084.8	965.0889	1020	1166.76973	-81.969726	6719.03598	5.75866499
955.2	722.2889	1020	873.230247	81.9697528	6719.04038	7.69446593
1192.4	965.0889	1054.8	1206.57716	-14.1771637	200.99197	0.16658029
917.2	722.2889	1054.8	903.022809	14.1771915	200.992758	0.22257772
1193.6	965.0889	1072	1226.2521	-32.6521042	1066.15991	0.86944593
950.4	722.2889	1072	917.747868	32.6521324	1066.16175	1.16171531
TOTAL Chi Square = 45.1997						

Critical Chi square at 5% level of significance = 15.507

Critical Chi square at 1% level of significance = 20.090

Table A4:

	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
SFP	934.6	978.4	975	1051	1018.4	1164.6	1059.4	821	1153.4	1017.3
No SFP	569.6	601.8	700	791	855.6	896.6	944	855.6	933.2	794.11
Total	752.1	790.1	837.5	921	937	1030.6	1001.7	838.3	1043.3	905.705

Table A5

<i>F_o</i>	<i>row total</i>	<i>total column</i>	<i>F_e</i>	<i>F_o-f_e</i>	<i>(F_o-f_e)²</i>	<i>(F_o-f_e)²/f_e</i>
934.6	1017.3	752.1	844.768804	89.8311956	8069.6437	9.5524878
569.6	794.11	752.1	659.431196	-89.8311956	8069.6437	12.2372793
978.4	1017.3	790.1	887.450914	90.9490861	8271.73626	9.32078172
601.8	794.11	790.1	692.749086	-90.9490861	8271.73626	11.9404506
975	1017.3	837.5	940.691229	34.3087705	1177.09173	1.2513051
700	794.11	837.5	734.308771	-34.3087705	1177.09173	1.60299288
1051	1017.3	921	1034.47955	16.5204509	272.925299	0.26382861
791	794.11	921	807.520451	-16.5204509	272.925299	0.33797943
1018	1017.3	937	1052.45096	-34.4509636	1186.86889	1.12771895
855.6	794.11	937	821.549036	34.0509636	1159.46812	1.41131944
1164.6	1017.3	1030.6	1157.58374	7.01626137	49.2279235	0.04252645
896.6	794.11	1030.6	903.616261	-7.01626137	49.2279235	0.05447879
1059.4	1017.3	1001.7	1125.12287	-65.7228711	4319.49579	3.83913251
944	794.11	1001.7	878.277129	65.7228711	4319.49579	4.91814673
821	1017.3	838.3	941.5898	-120.5898	14541.8999	15.4439862
855.6	794.11	838.3	735.0102	120.5898	14541.8999	19.7846233
1153.4	1017.3	1043.3	1171.84855	-18.4485489	340.348957	0.29043767
933.2	794.11	1043.3	914.751451	18.4485489	340.348957	0.37206714
TOTAL Chi Square = 93.7915						

Critical Chi square at 5% level of significance = 15.507

Critical Chi square at 1% level of significance = 20.090