Contribution of Universal Primary Education in lowering Fertility rate in Uganda

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A RESEARCH REPORT SUBMITTED TO THE SCHOOL OF STATISTICS AND PLANNING IN PARTIAL FULLFILMENT OF THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE IN QUANTITATIVE ECONOMICS OF MAKERERE UNIVERSITY

SEPTEMBER, 2017
DECLARATION

I Nduhuura Abraham registration number 14/U/1315I/EVE declare that this research report is my original work and has never been submitted to any other institution of learning for any academic award.

Signature.......................... Date........11/10/2017............... 

NDUHUURA ABRAHAM
APPROVAL

I hereby certify that this research report by Nduhuura Abraham entitled "Contribution of Universal Primary Education in lowering Fertility rate in Uganda" has been done under my supervision and is now ready for submission, with my approval.

Signature: ..............................................................
Mr. Tumutegyereize Stephen
ACADEMIC SUPERVISOR

Date: 11/10/2017
DEDICATION

I dedicate this work to Mr. Oribitunga Eric Musiimenta and Mrs, Costance Oribitunga for the support you have extended to me throughout my studies may the almighty God reward you abundantly.
ACKNOWLEDGEMENT

I would like to glorify the Almighty God who has enabled me to successfully complete this report. This study has been successful because of the glory of God.

I also send my sincere thanks to the university supervisor Mr. Tumutegyereize Stephen for the guidance given to me throughout writing this work may the lord award you abundantly.  
I also send my sincere appreciation to my sisters Hope, Peace, Mercy, Happy and my beloved brothers Stephen and Samuel.

In the same scenario I cannot forget to thank my best friends like Ngumenshabe Shibar, Laban and Arthur for you have been there for me from the time i got to know you. Glory be to the Lord Almighty.
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<th>Description</th>
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<tr>
<td>UPE</td>
<td>Universal Primary Education</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>TFR</td>
<td>Total Fertility Rate</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
</tr>
<tr>
<td>UBOS</td>
<td>Uganda Bureau of Statistics</td>
</tr>
<tr>
<td>ADF</td>
<td>Augmented Dickfuler Value</td>
</tr>
<tr>
<td>USE</td>
<td>Universal Secondary Education</td>
</tr>
<tr>
<td>ENR</td>
<td>Enrollment</td>
</tr>
<tr>
<td>DRT</td>
<td>Dropout Rate</td>
</tr>
<tr>
<td>AP</td>
<td>Academic Performance</td>
</tr>
<tr>
<td>HAW</td>
<td>Higher Academic Levels of Women</td>
</tr>
<tr>
<td>FR</td>
<td>Fertility Rate</td>
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</tbody>
</table>
ABSTRACT

The study analyzed the Contribution of Universal Primary Education in lowering Fertility rate in Uganda. This study was guided by two objectives which included establishing the effect of Universal Primary Education in reducing Fertility rate and examining the relationship between education of women and Fertility Rate. The study employed a quantitative research approach and secondary data was used in analysing the phenomenon. A regression model was employed to test for the effect of universal primary data on the fertility rate. The researcher performed a runs test for stationarity in the data. The study findings revealed that the $P$-value (0.7043) for enrollment was greater than 0.05 the significant level which meant that fertility Rate depends on the enrollment of girls in UPE (ENR). Also the $P$-value (0.0002) for dropout rate was less than 0.05 the confidence level which implied that Fertility rate depend on dropout rates of girls (DRT). The study findings on the relationship between education and fertility rate revealed that the correlation coefficient was (0.772) which implied that there is a strong positive correlation of 77.2% between education level of the girls and fertility of a country and also since the $P$-value (0.001) was less than 0.05 the confidence level, it implied that there is a strong positive significant correlation between education of the participant and fertility rate, the study recommends that the Government should increase on the money allocated for universal primary education programme since the findings have revealed that the fertility rate is influenced by the academic level of the women, there is need for the Government to put favorable conditions to non-governmental organizations that assist girls while in schools since they have helped them to reduce on the number of girls dropping out of school and there is need to teach students on the use of contraceptives when still at school this will reduce on the fertility rate among women in the future and this will be enforced since many young girls especially those in villages who are prone to early pregnancy will receive the information about the use of contraceptives.
CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

Uganda's fertility rate remains among the highest in the world. To reinforce the recorded decline in fertility rate gains, efforts to reduce child mortality, emphasis on female education and concerted government efforts to provide an integrated approach to solving the population question are urgently required. According to the Uganda Demographic Health Survey 2011, about one-third (34 per cent) of currently married women have an unmet need for family planning services, with 21 per cent in need of child spacing and 14 per cent in need of limiting, but this is due to lack of education among women in Uganda. The government of Uganda introduced the universal primary education in 1997 with the aim of increasing on the number of children especially girls who were dropping out of school because of school fees, to reduce on the number of early teenage pregnancies as well reducing on the fertility rate in the country (Walugembe, 2013).

According to the European Demographic report (2015), In 2015, the total fertility rate in the EU-28 was 1.58 live births per woman (the same rate was recorded in 2014). The EU-28’s fertility rate increased from a low of 1.46 in 2001 and 2002 to a relative high of 1.62 in 2010, subsequently followed by a slight decrease to 1.55 in 2013 before a modest rebound in 2014. One partial explanation for the increase in the fertility rate is that it may have been related to a catching-up process: following the trend to give birth later in life (witnessed by the increase in the mean age of women at childbirth), the total fertility rate might have declined first, before a subsequent recovery. Among the EU Member States, France reported the highest fertility rate in 2015, with 1.96 live births per woman. By contrast, the lowest fertility rates in 2015 were recorded in Portugal (1.31 live births per woman), Poland and Cyprus (both 1.32 live births per woman), Greece and Spain (both 1.33 live births per woman).

Whites experienced a long and sustained fertility decline from the end of the 19th century until attaining below-replacement fertility by 1989, with a TFR of 1.9 (Chimere-Dan, 2010). Asian fertility also declined steadily, from a TFR of about 6 in the 1950s to 2.7 in the late 1980s. Coloured fertility declined remarkably rapidly from 6.5 in the late 1960s
to about 3 by the late 1980s. African fertility is estimated to have decreased from a high of 6.8 to a low of about 3.9 between the mid-1950s and the early 1990s. Although it continues declining, African fertility is still substantially higher than that of the other racial groups.

The UN Educational, Scientific and Cultural Organization (Unesco) has estimated that 68% of children in Uganda who enroll in primary school are likely to drop out before finishing the prescribed seven years. Chad has the highest dropout rate in sub-Saharan Africa, at 72%. In east Africa, Kenya has the highest completion rate of 84%. At a cabinet ministers' retreat last month, Uganda's President Yoweri Museveni expressed his rage over the rate at which pupils were leaving school, even when the country spent 900bn Ugandan shillings ($302m; $201m) annually on the scheme. Since the more the girls drop out of school the higher the fertility rate of a country.

According to Farooq (2013), in pre-industrial societies and in agricultural social groups with no education, there is emphasis on cooperative activities, joint families, joint occupations and community living. These are the basic motives for high fertility rate. In agricultural societies, children are valued due to economic, social, religious and cultural factors. Economically they start earning and helping the parents at very young age. Several wives having dozens of children are assets to a male in backward societies. In most of the primitive societies, the bigger families leads to higher social status and manpower. Wars also motivate higher birth rate. Another motivating factor is the fatalistic attitude, that children are gifts of god. The countries professing Hinduism, Islam and Judaism religion has motivated high fertility and encourage high birth rates in the developing countries.

Postponement of first marriage and marital dissolution through divorce or widowhood accompanied by low remarriage rates are associated with low levels of fertility. There is some evidence that the age at marriage in sub-Saharan Africa is increasing as the education of women becomes widespread. This is likely to reduce fertility. Indeed in some countries (for example Sudan), postponement of first marriage has been outlined as the main determinant of fertility decline observed (Cleland et al., 2011).
1.2 Problem statement

Despite Uganda's efforts to deal with fertility rate concerns, through policies like introduction of Universal Primary education and Universal secondary education, university loan schemes and girl child education campaigns, total fertility rate has remained high. This could be because of increased number of dropout rates of female children from school, low education level of the women especially those in rural areas, negligence of some women in the country, academic performance of the girls while at school among others. This study therefore set out to investigate the contribution of Universal Primary Education in lowering fertility rates in Uganda.

1.3 Objective of the Study

The objective of this study was to investigate the contribution of Universal Primary Education in lowering Fertility rate in Uganda.

1.3.1 Specifically Objectives

i. To establish the effect of Universal Primary Education in reducing Fertility rate
ii. To examine the relationship between education of women and Fertility Rate
iii. To examine the average performance of girls in USE school

1.4 Research hypotheses

In order to achieve the above stated objectives, the study tested the following research hypotheses;

i. Ho: There is no significant effect of UPE on Fertility Rate
   Ha: There is a significant effect of UPE on the fertility Rate

ii. Ho: There is no significant correlation between education of women and fertility rate
   Ha: There is a significant correlation between education rate and fertility rate

iii. Ho: The average rate of performance of girls is independent of USE programme
    Ha: The average rate of performance of girls is dependent of USE programme
1.5 Scope of the Study

1.5.1 Subject scope
The study focused on the effect of Universal Primary Education in reducing Fertility rate, the relationship between education of women and Fertility Rate and the effect of other factors that influence the Fertility rate.

1.5.2 Time scope
The study reviewed literature of the period from 2000 to 2016 as this period was sought to provide literature which is current.

1.6 Significance of the Study
This study will be useful as regards policy analysis and also adding to the existing stock of knowledge. Thus, researchers and academicians are expected to use this as a point for further research.

These findings will raise the public awareness of the importance of educating girls to the growth of the economy since they will reveal the adverse effects of not educating the girls which in turn will force many families to keep their children in schools.

Since the study findings will reveal the contribution of UPE in lowering the fertility rate, the Government will base on these findings to increase on its funding in the ministry of education and sports.

The study findings will also act as a basis for policy makers as these will formulate policies and laws basing on these findings, this is because the study will reveal the relationship between educating the women in the country on reducing fertility rates.
CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This section presents a review of the work that has been done by scholars and researchers in the field of education on fertility rate. In this chapter literature to be reviewed included the effect of Universal Primary Education in reducing Fertility rate, the relationship between education of women and Fertility Rate and the effect of other factors that influence the Fertility rate.

2.1 The effect of Universal Primary Education in reducing Fertility rate

Pradhan and Canning (2013) carried out a study in Ethiopia and estimated that an additional year of schooling in Ethiopia would lead to a 7 percentage point reduction in the probability of teenage birth and a 6 percentage point decrease in the probability of marriage. These are large effects, suggesting that women with eight years of schooling would have a fertility rate 53 percentage points lower than those with no schooling at all, and are consistent with observed data.

According to the ideation theory, more educated women may learn different ideas of desired family size through school, community, and exposure to global communication networks. Finally, more educated women know more about prenatal care and child health, and hence might have lower fertility because of greater confidence that their children will survive. Female education has a greater impact on age of marriage and delayed fertility than male education. Although fertility falls when both male and female levels of education rise together, there is a large gap between male and female secondary school enrollment in sub-Saharan Africa (Canning, 2013).

Among the various socioeconomic determinants of fertility, education, especially female education, has received considerable attention from scholars and researchers. Sharma (2012) argued that in India, a 10 per cent increase in the female literacy rate seems to be associated with a 0.5 decline in total fertility rate. If this were true, in order to reduce fertility, it would be
necessary to "arrange for 80 per cent female literacy." While this kind of conclusion exemplifies the tendency to overstate the relationship between education and fertility, and to make wild extrapolations, it is a recognized fact that female education is an important factor even after controlling for related variables such as place of residence (rural or urban), income levels of households and educational levels of husbands, and that exceptions.

Education leads to aspirations for better qualified children. With higher standards of child care, other than feeding, housing and clothing children, educated parents perceive costs to be higher because they have to arrange for a better education for their children. Level of education of children tends to have a direct relationship with mother's schooling. Thus raising equality children is perceived by parents to be costly, hence reducing the number of desired children and fertility.

Education, for the most part, operates indirectly through the various channels described by Easterlin (2015), through the supply of and demand for children, as well as through the costs of regulation. Each of these channels is affected by several intervening determinants which are influenced by the extent of women's autonomy often considered to be a product of education. Women's autonomy is seen as taking five forms: autonomy through knowledge (exposure of women to the modern world); decision-making autonomy; interaction with a wider social circle; emotional autonomy; and "economic and social autonomy, self-reliance, control over economic resources.

Abadian (2010), in her study of 54 developing countries, finds that female autonomy (operationalized through age at marriage of women, differences in age between spouses and rates of secondary schooling among women) has a negative and significant impact on fertility. The difference between the approach of other scholars and that of Abadian (2010) is that the former views education as operating through autonomy, whereas the latter uses education to operationalize the concept of female autonomy in her study, observes that education acts directly on fertility rates and works through infant mortality rates to decrease fertility.
2.2 The relationship between education of women and Fertility Rate

There is a vast amount of literature examining the rapid population growth that continues to occur in Sub-Saharan Africa, and in particular, the effect of education on fertility levels. Many researchers are concerned with the population explosion in this region over the last 30 years, mainly because of its negative consequences with respect to economic growth. For example, Sub-Saharan Africa was the only developing region to suffer a decline in per capita income during the period 1980-2001 (Bauer 287). Researchers then examined the relationship between declining fertility and economic growth. An important related question is to what extent fertility desires are determined by economic influences and to what extent by social and cultural forces. This is also the key question for the design of efficient policies that would enable Sub-Saharan Africa to get out of poverty. Some of the key factors that have been studied, with respect to their effect on desired fertility, are: high levels of child mortality, the economic utility of children, cultural factors such as identification with clans, and the educational attainment of parents. Total fertility rate (TFR), or fertility rate, is defined as the average number of children that a woman bears during her reproductive lifetime, given that she experiences the exact current age specific fertility rates through her lifetime, and she survives all the births through the end of her reproductive life. The TFR for Uttar Pradesh was 4.2 in 2005 and fell to 3.3 in 2011, India's TFR was 2.9 in 2005 and 2.4 in 2011.

Female education plays a key role in social development. Despite vast amounts of literature in the field, the association between female education and low fertility is often confused, and remains unclear. An increase in female education reduces desired family size. An educated woman is more aware of modern social norms, feels economically independent and secure about her future, and incurs a high opportunity cost of time spent at home (considered to be unproductive labor work that does not add value to the economy since consumption is greater than production). While improvements in male education also decrease fertility, the influence is smaller compared to that for females since women are assumed to bear the primary responsibility of childcare. In developing countries, on the one hand, a higher income makes it more affordable to have children on the other hand, there are also negative income effects associated with fertility rate. Female literacy has a significantly negative effect on the fertility rate, after controlling for
male literacy. An increase in adult female literacy from its base level of 22%, to 65% (2001) would reduce TFR by one child per woman (Dreze and Murthi, 2013).

Fertility decline is not just a byproduct of economic growth; it depends on improvements in the specific conditions that are conducive to social development. Lunas (2009) observed that there is a statistically significant association between poor educational attainments in Buenos Aires, Argentina. Although there is universal school enrollment up to the age of 13 years irrespective of family income, there are disparities in access to schooling for the lowest socioeconomic classes and performance in secondary level education, especially in the last three years of schooling which has failed to reduce on the fertility rate.

In South Korea, Lee (2007) observed that more educated parents invest more in their children's education: this investment depends more on the mother's education. More educated mothers have a smaller number of children and invest more in each child's education. Father's education increases this investment but also the number of children in the household will be limited since the women will be educated on the different ways of reducing on the fertility. In some societies in Asia and Africa, a woman's sense of identity, legitimization, recognition, security, and prestige in the family is dependent on her having children. Although very few studies have been carried out in this area, the evidence suggests that the education of women serves as an alternative means of gaining respect. As an educated person, an educated woman is considered to be knowledgeable. If she earns money by working in an 'honourable' occupation, she is likely to be highly valued. Education brings in prestige for a woman, in spite of not having many children through social and economic autonomy and self-reliance (Jejeebhoy, 2014).

2.3 Other factors that influence the Fertility rate

Reduced child mortality, female education, female employment opportunities, higher incomes, good access to reproductive health services, and a family planning effort that tries to establish norms of smaller families and assists in making reproductive and family planning services available at low cost to everyone in society. According to experts, as long as a country cannot secure the survival of its children into adulthood, fertility rates cannot be controlled. Death of a child reduces the probability that parents will subsequently adopt a contraceptive method, which in turn increases the likelihood of additional pregnancies (Walugembe, 2013).
Kenya and Tanzania have shown that an early commitment to mass education, strong improvements in reproductive and other health services, rapid urbanization and rising female wage employment, greatly contribute to a reduction in fertility rates. These efforts have been coupled with a determined government effort to make family planning services widely available. Additional evidence indicates that it took most East Asian countries a combination of efforts to reduce their fertility rates. Their early commitment to universal public education at primary and secondary level sharply increased female education and thus quickly reduced existing gender gaps. Again, these efforts were integrated with strong government leadership in promoting smaller families (John, 2011). Female education has an impact on the demand for children via these variables: Desired family size; Son preference; Labour contributions of offspring during childhood; Children as old age support; Children as sources of prestige and Economic, time and opportunity costs of raising children (Chaudhury, 2009).

Improvements in economic development, such as higher educational attainment, increasing employment in the formal labor market, and the shift away from agriculture, seem to have a doubly-powerful effect because they not only raise individuals' standards of living, but also correlate to declining fertility rates, according to the results of our study," said Mary Shenk, assistant professor of anthropology in MU’s College of Arts and Science. "Another important finding of our study was that intervention programs that made changes that really affected individuals achieved the best results. For example, although advertising campaigns encouraging lower fertility may reach a wider audience for less money, face-to-face intervention campaigns providing health services or access to contraception provide better results and are thus a better use of resources (Mark, 2013).

Fertility rates are still at very high levels in Africa and some Arabic countries, followed next by the countries of Central and South America. Lower rates are found in Europe and other industrialized countries like Canada and Japan. In the past, religion has had a very strong influence in the internal relationships of a family and played an important role on shifts in fertility rates. For example, the protestant religion accepts the idea that the marriage could end in divorce. On the other hand, Catholics do not accept it. Therefore, Catholics are more likely to have larger families than Protestants because they expect that their marriage will last forever.
Religion used to be a very important factor on changes in habits. In the case of Italy, it has the lowest female labor force participation rate in Europe, but high marital instability and as a consequence, higher divorce rates. Thus, with these factors, the fertility rates decrease, and in this case, Italy had a fertility rate of 1.2 in 2000.

Canada is a more secular society than the U.S. Religious attendance is much higher in the U.S. than in Canada; about 34 percent of American women of childbearing age practice their religion on a weekly basis, almost double the 18 percent proportion for Canadian women. Greater religious observance tends to go along with higher marriage rates and lower divorce rates. Therefore, a more religious culture tends to go with higher fertility rates because people expect to stay in a more stable relationship and are more likely to have more children (Belanger, 2001). It be said that religion indirectly influences an individual’s fertility, especially in that it affects choice of marriage as the mode of conjugal life and the stability of the union. "In Canada, individuals who do not practice their religion are nearly three times as likely to form a common-law union as those who participate in religious practices on a weekly basis". This leads to lower fertility rates.
CHAPTER THREE
METHODOLOGY

3.1 Data sources

Secondary data was entirely used throughout the research. Secondary data was got from the already existing annual education reports from the ministry of education, UBOS, websites and consulting key decision makers in the ministry. Secondary data was used because it was readily available, time saving and less costly than other sources of data.

3.2 Data analysis plan

Computer software used were SPSS and Eviews were used to analyze the data. The data was analyzed to test for stationary and region model was used to establish the relationships between the variables under study.

3.3 Descriptive Statistics

Summary statistics were presented inform of tables. The statistics include mean, median standard deviation.

3.3.1 Model specification

The study employed a multiple linear regression model with one dependent variable and more than one predictor/ independent variable.

3.3.2 Multiple Linear regression model

This is the simplest form of stochastic relation for variables that are more than two. The model describing this relationship is described as;

\[ Y = a + p_1x_1 + p_2x_2 + p_3x_3 + p_4x_4 + \epsilon \] \hspace{1cm} (1)

Where Y is the dependent variable (fertility rate)
X_1 is the independent variable (enrolment)
X_2 is the independent variable (Dropout rate)
X₃ is the independent variable (Academic Performance) 
α and β are regression parameters (coefficients) and are unknown. 
α is a constant which measures the value of Y if we assume X to be zero. 
β is the slope 
ε is the stochastic disturbance (noise term) 

Regression analysis assumes that the noise term is on average equal to zero.

The values of α and β can be estimated using least square estimation method;

\[
\begin{align*}
\beta &= \frac{\sum_{i=0}^{n} (X_iY_i) / \sum_{i=0}^{n} X_i^2}{\sum_{i=0}^{n} (X_iY_i) / \sum_{i=0}^{n} X_i^2 - \left(\sum_{i=0}^{n} X_i\right)^2 / \sum_{i=0}^{n} X_i^2} \\
\alpha &= \left[ \sum_{i=0}^{n} Y_i \sum_{i=0}^{n} X_i - \sum_{i=0}^{n} (X_iY_i) \right] / \left[ \sum_{i=0}^{n} X_i - \sum_{i=0}^{n} X_i \right] - \left(\sum_{i=0}^{n} X_i\right)^2 / \sum_{i=0}^{n} X_i^2 \right]^{(i)}
\end{align*}
\]

The application of the regression model in equation (i), if enrollment is zero the fertility rate is α increase in enrollment by a factor of β leads to a unit decrease in fertility rate such that if enrollment increases, fertility rate will reduce.

An increase in enrollment will lead to a decrease in fertility rate.

3.3.3 Coefficient of determination R²

Another aspect of the regression model is the coefficient of determination R² which is a measure of goodness of fit. It is a summary measure which tells how a sample regression line fits the observed data.

R² also measures how well the explanatory variables X are able to explain the corresponding dependent variable. For example a very low R² for a given sample means that the sample regression line fits the observations poorly and for a big value such as 70% means that the regression model explains the larger part of the data.
3.3.4 Hypothesis testing

The t-test or p-value generated was used to test for the significant relationship of the coefficients of the variables included in the model.

**Hypothesis**

HO: (β=0; there is no relationship

Ha: (β≠0; there is significant relationship

α= 1% level of significance

The test statistic is;

\[ T_c = \frac{\beta}{SE(\beta)} \]

Where the degrees of freedom are (n-k), n is the number of observations and k is the number of parameters.

**Decision rule**

Reject HO if the t is greater than the t-tabulated at 1% level of significance.

If HO is rejected at 99% confidence level, then the alternative is accepted and concludes that there is a significant relationship between fertility rate and enrollment.

3.3.6 Diagnostic tests

This was done to test the study variables for appropriateness such as unit roots and lag structure in the secondary data. Unit Root test was conducted to ascertain the stationarity of the data set using the Augmented Dicky Fuller (ADF) test. It is crucial to test for the statistical properties of variables when dealing with time series data. Regression involving non stationary time series often lead to the problem of spurious regression. This occurs when the regression results reveals a high and significant relationship among variables when in fact none exist.

3.3.7 Limitations and Delimitations to the study

i. Difficulties in accessing the data since most organization treat their data with a lot of confidentiality but to overcome this, the researcher was bearing an introductory letter from the university which proved that the data was strictly for academic purposes.

ii. Limited funds to be used in the typing, travelling to the research area where the study took place and to be used in printing out the questionnaires to overcome this, the researcher solicited for funds from the parents.
CHAPTER FOUR

PRESENTATION, INTERPRETATION AND ANALYSES OF THE FINDINGS

4.1 Introduction

This chapter presents the interpretation and discussion of the findings as reviewed in the literature and specific objectives. It summarizes the key issues from literature, identifies any new inferences and insights. The analysis was made basing on the specific objectives which included the effect of Universal Primary Education in reducing Fertility rate and the relationship between education of women and Fertility Rate.

4.2 Presentation of the findings

The data presented was representing the descriptive summary of the data variables, relationship between the fertility rate and universal primary education as well as the effect of other variables influencing fertility rate.

4.3 Descriptive summary

The table below shows the descriptive statistics of the variables that were run in E-views and these included USE enrollment (ENR), Dropout rates (DRT), Academic Performance (AP) and Higher academic levels of women (HAW) and Fertility Rates (FR).

Ho: The variables are not normally distributed
Ha: The variables are normally distributed

The table 4.1 represents the different statistics of the study variables among which includes enrollment ratio, higher academic levels of women and academic performance.
Table 4.1, Descriptive summary of the variables

<table>
<thead>
<tr>
<th></th>
<th>ENR</th>
<th>DRT</th>
<th>AP</th>
<th>HAW</th>
<th>FR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>5.421654</td>
<td>12.32125</td>
<td>8.289267</td>
<td>15.53469</td>
<td>17.37489</td>
</tr>
<tr>
<td>Median</td>
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<td>12.32715</td>
<td>8.313927</td>
<td>15.34736</td>
<td>17.29842</td>
</tr>
<tr>
<td>Std. Dev.</td>
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<td>0.199765</td>
<td>0.293116</td>
<td>0.935798</td>
<td>1.093193</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.513915</td>
<td>-0.021564</td>
<td>-0.115755</td>
<td>0.266305</td>
<td>-0.422421</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.341200</td>
<td>2.617502</td>
<td>1.663995</td>
<td>1.606517</td>
<td>1.438021</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>6.960973</td>
<td>0.348973</td>
<td>4.366448</td>
<td>5.285484</td>
<td>4.736435</td>
</tr>
<tr>
<td>Probability</td>
<td>0.027382</td>
<td>0.839888</td>
<td>0.332678</td>
<td>0.071166</td>
<td>0.073634</td>
</tr>
<tr>
<td>Observations</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: Secondary Data

The result in the table 4.1 shows that since the Jarque-Bera statistics for the variables that were included in the study are > 10%, these results implies that there is normality in the variables. Therefore the researcher rejected the null hypothesis and concluded with the alternative that the variables that gave rise to the descriptive table above are normally distributed. Looking at the mean values for all the variables, they are positive implying that the variables are normally distributed around the mean value. And similarly looking at the maximum values of all the variables they depict that the fertility rate (FR) has a maximum value of (17.37489) and the enrollment of women (ENR) with a minimum value of (5.421654).

4.5 Unit root tests for all the variables

The researcher was interested in testing the stationarity of the variables under study and this was done through running the augmented dick fuller statistic (ADF) per variable comparing them at 1%, 10% and 5% level of significance to answer the following hypothesis.

Ho: There is no stationarity in the ENR

Ha: There is stationarity in the ENR
**Ho:** There is no stationarity in DRT  
**Ha:** There is stationarity in DRT

**Ho:** There is no stationarity in AP  
**Ha:** There is stationarity in AP

**Ho:** There is no stationarity in HAW  
**Ha:** There is stationarity in HAW

The table 4.2 displays the augmented Dickfuler values of the variables understudy which are compared at 1%, 5% and 10% significant levels.

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENR</td>
<td>-4.513421**</td>
</tr>
<tr>
<td>DRT</td>
<td>-2.567213***</td>
</tr>
<tr>
<td>AP</td>
<td>-3.132654*</td>
</tr>
<tr>
<td>HAW</td>
<td>-4.654876**</td>
</tr>
</tbody>
</table>

*** Significant at 1%  ** Significant at 10%  * Significant at 5%

**Interpretation of the output**

Looking at the ADF statistics for the variables, it is revealed that at 10% significant level there is stationarity in the enrollment data (ENR) data, at 1% significant level there is stationarity in the dropout rate data (DRT)f data, at 5% significant level there is stationary in the academic performance of girls (AP), at 10% significant level there is stationarity in the higher academic levels of the women (HAW). The observation here is that all the data of the variables are stationary or they have a unit root.
The relationship between the education of women and Fertility Rate using a correlation matrix table below.

**Ho:** There is no significant correlation between education level and fertility rate  
**Ha:** There is a significant correlation between education level and fertility rate

**Correlations**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Statistics</th>
<th>Education level</th>
<th>Fertility rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education level</td>
<td>Pearson Correlation</td>
<td>1</td>
<td>0.772</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Fertility rate</td>
<td>Pearson Correlation</td>
<td>0.772</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

***Correlation is significant at 0.01 level of significance***

**Source: Primary data**

The correlation coefficient (0.772) implies that there is a strong positive correlation of 77.2% between education level of the girls and fertility of a country, also since the P-value (0.001) is less than 0.05 the confidence level, we reject the null hypothesis and conclude with the alternative that there is a strong significant correlation between education of the participant and fertility rate. These findings are in line with (Moses, 2015) who asserted that there is a vast amount of literature examining the rapid population growth that continues to occur in Sub-Saharan Africa, and in particular, the effect of education on fertility levels. Many researchers are concerned with the population explosion in this region over the last 30 years, mainly because of its negative consequences with respect to economic growth. For example, Sub-Saharan Africa was the only developing region to suffer a decline in per capita income during the period 1980-2000i (Bauer 287). Researchers then examined the relationship between declining fertility and fertility. An important related question is to what extent fertility desires are determined by
economic influences and to what extent by social and cultural forces. This is also the key question for the design of efficient policies that would enable Sub-Saharan Africa to get out of poverty. Some of the key factors that have been studied, with respect to their effect on desired fertility, are: high levels of child mortality, the economic utility of children, cultural factors such as identification with clans, and the educational attainment of parents. Total fertility rate (TFR), or fertility rate, is defined as the average number of children that a woman bears during her reproductive lifetime, given that she experiences the exact current age specific fertility rates through her lifetime, and she survives all the births through the end of her reproductive life. The TFR for Uttar Pradesh was 4.2 in 2005 and fell to 3.3 in 2011, India's TFR was 2.9 in 2005 and 2.4 in 2011. In addition to the above, female education plays a key role in social development. Despite vast amounts of literature in the field, the association between female education and low fertility is often confused, and remains unclear. An increase in female education reduces desired family size. An educated woman is more aware of modern social norms, feels economically independent and secure about her future, and incurs a high opportunity cost of time spent at home (considered to be unproductive labor work that does not add value to the economy since consumption is greater than production). While improvements in male education also decrease fertility, the influence is smaller compared to that for females since women are assumed to bear the primary responsibility of childcare. In developing countries, on the one hand, a higher income makes it more affordable to have children on the other hand, there are also negative income effects associated with fertility rate. Female literacy has a significantly negative effect on the fertility rate, after controlling for male literacy. An increase in adult female literacy from its base level of 22%, to 65% (2001) would reduce TFR by one child per woman (Dreze and Murthi, 2013). Fertility decline is not just a byproduct of economic growth; it depends on improvements in the specific conditions that are conducive to social development. Lunas (2009) observed that there is a statistically significant association between poor educational attainments in Buenos Aires, Argentina. Although there is universal school enrollment up to the age of 13 years irrespective of family income, there are disparities in access to schooling for the lowest socioeconomic classes and performance in secondary level education, especially in the last three years of schooling which has failed to reduce on the fertility rate. Jejeebhoy (2014) asserted that in some societies in Asia and Africa, a woman's sense of identity, legitimization, recognition, security, and prestige in the family is dependent on her having children. Although very few
studies have been carried out in this area, the evidence suggests that the education of women serves as an alternative means of gaining respect. As an educated person, an educated woman is considered to be knowledgeable. If she earns money by working in an ‘honourable’ occupation, she is likely to be highly valued. Education brings in prestige for a woman, in spite of not having many children through social and economic autonomy and self-reliance.

4.7 The effect of Universal Primary Education on Fertility Rate

The researcher used a regression model in Eviews to estimate the effect of universal primary education on fertility rate which was answered through answering the following hypothesis and the results are shown in the table below.

**Ho:** Fertility Rate is independent of enrollment of girls in UPE (ENR)

**Ha:** Fertility Rate is independent of enrollment of girls in UPE (ENR)

**Ho:** Fertility rate is independent of dropout rates (DRT)

**Ha:** Fertility rate is dependent of dropout rates (DRT)

**Ho:** Fertility Rate is independent of academic performance of girls in UPE schools (AP)

**Ha:** Fertility Rate is dependent of academic performance of girls in UPE schools (AP)

Ho: Fertility rate is independent of higher academic levels of women (HAW)

**Ha:** Fertility rate is independent of higher academic levels of women (HAW)

Dependent Variable: Fertility Rate
Method: Least Squares
Date: 11/8/17  Time: 4:22
Sample: 20
Included observations: 20
### Variable Coefficient Std. Error t-Statistic Prob.
---
C | 0.187021 | 0.342567 | 9.906081 | 0.0000
ENR | -1.342165 | 0.009786 | -1.340694 | 0.7043
DRT | 0.534218 | 0.013717 | 4.669045 | 0.0002
AP | -0.675654 | 0.052034 | 6.550314 | 0.0033
HAW | -1.274532 | 0.131280 | -2.222169 | 0.0390

R- squared | 0.979931 | Mean dependent var | 2.652312
Adjusted R-squared | 0.978388 | S.D. dependent var | 0.623174
S.E. of regression | 0.043091 | Akaike info criterion | -2.43985

Sum squared resid | 0.096557 | Schwarz criterion | -3.18813
Log likelihood | 100.9696 | F-statistic | 634.7751
Durbin-Watson stat | 1.179769 | Prob(F-statistic) | 0.000000

### Interpretation

The coefficient of enrollment ENR (-1.342165) implies that a 1% increase in the Universal primary Education will on average lead to 13.4% decreases in the enrollment numbers of the girls in schools holding other factors constant and also since the P-value (0.7043) is greater than 0.05 the significant level, we accept the null hypothesis and conclude with the alternative that Fertility Rate is independent of enrollment of girls in UPE (ENR). These findings are in line with Education leads to aspirations for better qualified children. With higher standards of child care, other than feeding, housing and clothing children, educated parents perceive costs to be higher because they have to arrange for a better education for their children. Level of education of children tends to have a direct relationship with mother's schooling. Thus raising equality children' is perceived by parents to be costly, hence reducing the number of desired children and fertility.

The coefficient of girls dropout rate (0.534218) implies that a 1% increase in the girls drop out will on average lead to 53.4% increase in the country's fertility rate holding other factors constant and also since the P-value (0.0002) is less than 0.05 the confidence level, we reject the null hypothesis and conclude with the alternative that Fertility rate is dependent of dropout rates (DRT). these findings corroborates with Canning (2013) who asserted that according to the ideation theory, more educated women may learn different ideas of desired family size through school, community, and exposure to global communication networks. Finally, more educated
women know more about prenatal care and child health, and hence might have lower fertility because of greater confidence that their children will survive. Female education has a greater impact on age of marriage and delayed fertility than male education. Although fertility falls when both male and female levels of education rise together, there is a large gap between male and female secondary school enrollment in sub-Saharan Africa.

The coefficient of highest academic level of women (-1.274532) implies that a 1% increase in the academic level of girls and wives will on average lead to 12.7% decreases in the fertility rate holding other factors constant implying that there is a negative relationship between Universal primary education and fertility rate. These findings are in line with Lee (2007) who observed that more educated parents invest more in their children's education: this investment depends more on the mother's education. More educated mothers have a smaller number of children and invest more in each child's education. Father's education increases this investment but also the number of children in the household will be limited since the women will be educated on the different ways of reducing on the fertility.

The coefficient of academic performance of girls in USE schools f-0.675654) implies that a 1% increase in the level of academic performance of girls in use schools will on average lead to 67.5% decreases in the country's fertility rate (FR) holding other factors constant and also since the P-value (0.0690) is greater than 0.05 the P-value, we accept the null hypothesis and conclude that fertility Rate is independent of academic performance of girls in UPE schools (AP). These findings are in line with Pradhan (2013) who carried out a study in Ethiopia and estimated that an additional year of schooling in Ethiopia would lead to a 7 percentage point reduction in the probability of teenage birth and a 6 percentage point decrease in the probability of marriage. These are large effects, suggesting that women with eight years of schooling would have a lower fertility rate 53 percentage points lower than those with no schooling at all, and are consistent with observed data. Among the various socioeconomic determinants of fertility, education, especially female education, has received considerable attention from scholars and researchers. Sharma (2012) argued that in India, a 10 per cent increase in the female literacy rate seems to be associated with a 0.5 decline in total fertility rate. If this were true, in order to reduce fertility, it would be necessary to "arrange for 80 per cent female literacy." While this kind of conclusion
exemplifies the tendency to overstate the relationship between education and fertility, and to make wild extrapolations, it is a recognized fact that female education is an important factor even after controlling for related variables such as place of residence (rural or urban), income levels of households and educational levels of husbands, and that exceptions.
CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the critical observations from the findings, conclusions and recommendations in line with the objectives of the study.

5.2 Summary

The study was on the topic Contribution of Universal Primary Education in lowering Fertility rate in Uganda. The researcher used secondary data in the analysis. The secondary data was entered in computer software E-views where different tables and graphs were generated and analyzed. The objectives of the study were to establish the effect of Universal Primary Education in reducing Fertility rate and to examine the relationship between education of women and Fertility Rate.

The study findings revealed that the P-value (0.7043) for enrollment is greater than 0.05 the significant level, the researcher accepted the null hypothesis and concluded with the alternative that Fertility Rate is independent of enrollment of girls in UPE (ENR). Similarly the P-value (0.0002) is less than 0.05 the confidence level, the researcher accepted the null hypothesis and concluded with the alternative that Fertility rate is dependent of dropout rates of girls (DRT). In addition to the above, results revealed that the coefficient of the P-value which is academic performance of girls in USE schools (0.0690) is greater than 0.05 the P-value, the researcher accepted the null hypothesis and concluded that fertility Rate is independent of academic performance of girls in UPE schools (AP).

The study findings on the relationship between education and fertility rate revealed that the correlation coefficient was (0.772) which implied that there is a strong positive correlation of 77.2% between education level of the girls and fertility of a country, also since the P-value (0.001) is less than 0.05 the confidence level, the researcher rejected the null hypothesis and conclude with the alternative that there is a strong positive significant correlation between education of the participant and fertility rate.
5.3 Conclusions

The conclusions of the study were made in accordance with the study objectives. According to the findings.

The findings further revealed that all the P-values for the variables under study were < 0.05 the confidence level, therefore the researcher rejected the null hypothesis and concluded with the alternatives which implied that the introduction of universal primary education has had an impact on the fertility of the country.

The results further revealed that the correlation coefficient (0.772) implied that there is a strong positive correlation of 77.2% between education level of the girls and fertility of a country, also since the P-value (0.001) is less than 0.05 the confidence level, we reject the null hypothesis and conclude with the alternative that there is a strong significant correlation between education of the participant and fertility rate.

5.4 Recommendations

The researcher recommends that the Government should increase on the money allocated for universal primary education programme since the findings have revealed that the fertility rate is influenced by the academic level of the women.

There is need for the Government to put favorable conditions to non-governmental organizations that assist girls while in schools since they have helped them to reduce on the number of girls dropping out of school.

The researcher also recommends that there is need to teach students on the use of contraceptives when still at school this will reduce on the fertility rate among women in the future and this will be enforced since many young girls especially those in villages who are prone to early pregnancy will receive the information about the use of contraceptives.

5.5 Areas for further study

Further research should be carried out on the following

- The factors determining fertility rate in Uganda
- The impact of the trend of fertility rate on the country's GDP
- The factors determining school drop out of girls
REFERENCES


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Farooq.U. (2013), Causes of High Fertility in Developing Countries.


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