

**DETERMINANTS OF POVERTY AMONG CROP FARMERS IN NIGERIA: A CASE OF OGO2
OLUWA LOCAL GOVERNMENT, OYO STATE**

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ABSTRACT

This study analyzed the determinants of poverty among crops farmers in Ogo-oluwa Local Government, Oyo State, Nigeria. Primary data were collected with the aid of well-structured questionnaire and a total of 80 respondents were chosen through a multistage random sampling technique. The data collected were analysed using descriptive statistic, poverty indices and Regression (OLS) model. The result revealed that, respondents have mean pooled income of N39, 521.00 while the estimated mean total expenditure was N 21,673.46; this is incomparable with that of the national average. Also, the head count ratio P0 was 7.2%, the poverty gap P1 was 4.6% while that of the severity indices P2 was 2.8%; total spending deficit was N12041.04 and the spending deficit ratio was 39.2%. It can be inferred from these indices that poverty is a serious problem among crop farmers which has to be given utmost attention. The OLS estimate revealed a coefficient of determination of 71.9%; it also shows that, years spent in school, secondary occupation and farm size are statistically significant at 5 and 10 percent respectively and positively related to income. However, household size is significant statistically at 1% and negatively income of the respondents. The study concludes that the level of literacy has a significant impact on increased income among the crop farmers, which translate to the level of poverty reduction. Also, increase in household size brings about an increase in poverty level. Hence, there is need to have birth control, sound education level and income diversification to lift the farmer above the poverty line.

Keywords: Poverty, Crop farmers, Poverty indices, OLS, Nigeria.

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INTRODUCTION

Despite its huge natural resources, poverty is widespread in Nigeria. Poverty statistics showed that poverty level was increase from 46.3% in 1985 to 65.6% in 1996. In absolute terms, the number of poor people in Nigeria was increased four-folds between 1980 and 1996 (FOS, 1999). The poverty situation in Nigeria worsened since the late 1990s and the country is classified among the 20 poorest countries in the world (IFAD, 2001). On the human development index (HDI), Nigeria with an index of 0.391 was ranked 142 out of the 174 countries surveyed in 1998.

In 2000, the HDI score was 0.433 and the country ranked 151. Nigeria increase it human develop index score to 0.453 in 2003 but ranked 158 among 175 countries survey (United Nation, 2005b) the human development index however, fell again marginally to 0.448 in 2004 and the country ranked 159 out of 177 countries (United Nation, 2006). Recent poverty assessment survey has shown that over 70% of the population are living on less than a dollar per day over, 50% living below the national poverty line (FAO, 2006) the survey also revealed that poverty is especially higher in rural areas where majority of the people are resident and deriving livelihood from agriculture (NBS, 2006). Poverty and income inequality are closely related and it has been argued that income inequality is a manifestation as well as a strong cause of poverty (UNU/WIDER, 2000).

Many different factors have been cited to explain why poverty occurs. However, no single explanation has gained universal acceptance. Poverty is caused by factors, which are many and varied, some causes of poverty in Sub-Saharan African have been identified by the World Bank (1996) and those include inadequate access to employment opportunities, physical asset (land and capital) and minimal access, and lack of credit to the rural people. Poverty is also caused by the failure of government to draw the poor into the esign of governmental program while destruction of natural resources leading to environmental degradation and reduce productivity cannot overlooked others. According to (Oduola, 1997), include inadequate social service, high population growth, low-income growth as well as social and political instability. In Nigeria, poverty stated to decline leading to rural urban migration. This was follow by downward trend in oil price, continued reduction of subsidies on agricultural inputs, high level of unemployment, and low capital for investment as well as low share of public expenditure on economic and social service (Olowomoni, 1997). Those living in poverty and lacking across to essential health services, suffering from hunger or even starvation; experience mental and physical health problems which make it harder for them to improve their situation. According to World Health Organization (2003), one third of deaths in some 18million people a year or 50,000 per day as a result of poverty related causes in total 270million people most of them women and children, have died as a result of poverty suffer

lower life expectancy. Every year nearly 11million children living in poverty die before their fifth birthday. Those living in poverty often suffer from hunger. 800million peoples go to bed hunger every night. Poverty increases the risk of homelessness as there are over 100million street children worldwide. The cause of poverty is multi-dimensional and interwoven; Okunmadewa (1999) pointed out that poverty is a multidimensional phenomenon; it could be caused by any of these; lack of sufficient assets, illiteracy,

unemployment, location, poor health, natural disasters like flood, earthquake, crop failure and also accident, death of household bread winner. Poverty is caused by low productivity which will lead to low savings and eventually translate to low investment and then to capital deficiency then the vicious

Comment [u1]: This sentence has a major structural problem. Thus it conveys a different meaning from its original intention. Rewrite?

Comment [u2]: increased

Comment [u3]: Too old a reference in 2012

Comment [u4]: Too old for contemporary Nigeria society

Comment [u5]: Too old.

Comment [u6]: increased

Comment [u7]: The

cycle continues on and on except come intervention comes to alter it. World Bank (1996) highlighted the major causes of poverty; these are:

- ❑❑Inadequate physical assets such as land and capital and small minimal access by the poor to credit even on small scale.
- ❑❑Inadequate access to means for supporting rural development 78 in poor regions.
- ❑❑Inadequate participation of the poor in the design and development in poor regions.
- ❑❑Lack of basic amenities such as health centres, water supplies school and other
- ❑❑Low endowment of human capital
- ❑❑Destruction of natural resources leading to degradation and reduced productivity.

Comment [u8]: Expunge, as it simply restates the obvious factors that cause poverty world, nothing new and it is rather repetitive.

A standard concept on poverty remains elusive because of its multidimensional and nature and also its dynamic nature or property (Ajakaye, 1998). But what ever perspective poverty is viewed, it is obvious that it is a condition of life not desirable and a state of deprivation experienced by human being (Omonona, 2000). The poverty situation in rural areas where food crop production activities are carried out as a livelihood means of obtaining food and making income is quite disturbing and this makes it necessary to further investigate rural poverty among food crop farmers. The Human Development Report (UNDP, 1999) reveals that Nigeria is one of the poorest among the poor countries of the world. The World Bank in one of its findings of 1997 study found out that poverty especially among rural people is worse with Gini coefficient of 45.6 compared with 39.9 for urban. According to Okunmadewa (1999), various effort and deliberate policy measures taken by the international organizations in general and the Nigerian government shows that the number of rural poor is roughly twice that of urban poverty (World Bank, 1996); hence, the need for this study. The overall objective of this study is to analyse the determinants of poverty in Ogo-oluwa Local Government Area of Oyo State, Nigeria. And, the specific objectives are to:

- determine the socio-economic characteristics of crop farmers in the study area
- categorize the farmers into categorise of poverty based on the poverty line estimate.
- determine the factors that influence poverty among the respondents.

Comment [u9]: Ther is nothing new in theses objectives; other than generation of same old familiar data

Comment [u10]: Reference

Comment [u11]: Reference

Poverty is increasingly being recognized as both a policy and economic problem in Nigeria. This is stressed by the Interim Poverty Reduction Strategy Paper in Nigeria as well as the Poverty and Vulnerability Assessment of the country(). Although the documents provide trends and profile of poverty is critical for policy analysis and these design of effective poverty reduction strategies. One important consensus in the literature on poverty is that, poverty is a rural phenomenon (World Bank, 1990; Fields, 2000). By this it is acknowledged that rural communities are worst hit by poverty. The poverty situation in Nigeria is disturbing, both the quantitative and qualitative measurement attests to the growing incidence and depth of poverty in the country.

The importance of this study can also be anchored on the need to assess whether there is causal effects and relationship between farmers' specific socio-economic characteristics and poverty status since the over arching policy goal in Nigeria is poverty reduction as indicated in the Millenium Development Goal (MDG)and the New Partnership for African Development (NEPAD); thus, this study will help to provide an empirical basis for sound policy formulation, livelihood diversification and development of social connectivity as a means of improving the well-being of Nigerians at large.

Comment [u12]: Irrelevant in the context of this paper.

World Bank's definition of poverty encompasses not only material deprivation (lack of an appropriate level of income or consumption) but also deprivation of government services such as education and health. This notion of poverty also includes vulnerability and exposure to risk and lack of a voice in decision-making, hence powerlessness. According to this broadened approach of the World Bank, income and health vulnerability is the risk that a person or a household will be subjected to in income or health poverty over time.

Comment [u13]: Do you mean "Social".

But vulnerability also includes probability of being exposed to some additional risks such as violence, crime, and natural disasters. Moreover, recently, in measurement of poverty it is stressed that achievement in resources and in public and semi-public goods and services and notions of autonomy, self-respect, and honour should be taken into account (Aktan, 2002). Consequently, the notion of poverty in terms of human development came into prominence. According to the definition of UNDP poverty 121 in terms of human development is the deprivation of the right to "lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self respect and the respect of others." (UNDP, 1997). Additionally, there are also some other types of poverties such as rural poverty and urban poverty.

The most severe poverty is in the developing country. There is an evidence of poverty in every region in the developing countries, this condition results in wandering homeless people and poor suburbs ghettos. To avoid stigma, this notions are usually called developing nations (World Bank, 2010). When measured, poverty may be absolute or relative. Absolute poverty is a set standard which is consistent over time and between countries. An example of absolute measurement will be percentage of the population eating less food than required to sustain the Human body (An approximate of 200-2500 calories per day), while relative poverty in contrast view poverty as socially defined and dependent on social context or a situation in which some households are not absolutely poor but they are less rich compare to others in terms of income, properties and resources. One relative measurement will be to compare the total wealth of the poorest one third of the population with the total wealth of richest of the population, in this case, the number of people counted as a poor could increase while their income rises (World Bank, 2010). Those living in poverty and lacking access to essential health services, suffering from hunger or even starvation; experience mental and physical health problems which make it harder for them to improve their situation.

World Health Organization (2003) opined that, one third of deaths in some 18million people a year or 50,000 per day as a result of poverty related causes in total 270million people most of them women and children, have died as a result of poverty suffer lower life expectancy. Every year nearly 11million children living in poverty die before their fifth birthday. Those living in poverty often suffer from hunger. 800million peoples go to bed hunger every night. Poverty increases the risk of homelessness. There are over 100million street children worldwide.

Comment [u14]: Repetition

The eradication of hunger and poverty is probably the most basic target out of the eight UN millennium Development Goals (MDGs). Nigeria has lost this and also failed the midterm MDGs assessment. Nigeria however moved her goal post from 2015 to 2020. According to World Bank (2000), about 40million are unemployed, this problem have been ever analysed to the point of paralysis and there is certainly no dearth of knowledge on what needs to be done. Attempt to eradicate poverty are not to view legislation and community effort, but to assist the poor are reported to at least as far back

as biblical times. Poverty reduction lies at the heart of the development discourse and practice (Jackson, 1997). Jibowo (1992) stressed that, Nigeria has a National Programme for Food Security (NPFS) and also organizational programmes on food availability to alleviate poverty, such organizational programmes includes: OFN (Operation Feed the Nation of 1976), Directorate of Food, Road and Rural infrastructure (DFRRI of 1986) and BLP (Better Life Programmes of 1986); yet people are not food secured and widespread of poverty continue to be on the increase.

Comment [u15]: No relevance; besides both Jibowo(1992) and programmes cited are all outdated.

2. MATERIALS AND METHODS

The study was carried out in Ogo-Oluwa Local Government Area of Oyo state with the local government headquarters at Ajaawa. Ogo-Oluwa local government area is approximately located between the longitude of 3°51.18' and 3°58.9' East of Greenwich meridian and the Latitude 7°30.3' and 7°40.2' North of the equator with rainfall between 1500 and 2000mm and temperature between 23°C and 27°C Isotherms in January. It is situated at 233.2meters above sea level and the general elevation is between 178m and 220m above sea level (OYSADEP, 2001). The vegetation of the zone is derived savannah. The climatic and soil conditions of the study area favour the extensive production of food crops like cassava, yam, maize, pepper and tomatoes, to mention few. Ogo -Oluwa local government area is an extension block of the Oyo State Agricultural 163 Development Programme (OYSADEP). The block is made up of eight cells from which the sample for this study was taken. A multistage random sampling technique was used in selecting the respondents for this study. Four cells were randomly selected from the block. From each selected cell, two villages were then randomly chosen. Thereafter, ten registered crop farmers were randomly selected from the chosen villages to arrive at a total sample of 80 respondents. A structured questionnaire was developed based on the objectives of the study to collect information from the selected respondents through one on one interview approach. Analytical techniques used include: descriptive statistics, poverty indices approach and Ordinary Least Square (OLS) estimation technique.

Comment [u16]: Wrong choice of word

Comment [u17]: Not explained

2.1 Poverty indices

Poverty indices are the measurement of head count ratio (P0), depth of poverty (P1) and Severity of poverty (P2). The measures related to the different dimension of the incidence of poverty. The three (3) measures are based on a single formular but each index put different weight on the degree to which household or individuals falls below poverty line. This approach is based on the mathematical formular which explain poverty indices anchored upon the existence of households classification according to income or consumption expenditure. To determine poverty profile indices, it becomes necessary to use the so called P-alpha measured analyzing poverty; its mathematical formulation is derived thus:

Comment [u18]: Three parameters not enough and not strongly indicative of poverty situation in a complex rural community

Comment [u19]: Not explained and no reference article(s) or authors for cross checking

Comment [u20]: Not verifiable

$$P_x = \frac{1}{N} \sum_{i=1}^N \frac{Z_i}{Z}$$

$\sum_{i=1}^N$
 Z_i
 N
 Z
 i

Where N = the total population in the group of interest

Z = Poverty line

N = Number of individual below the poverty line

x = the degree of concern for the depth of poverty, it takes on the value of 0, 1 and 2, for poverty incidence, poverty gap and poverty severity respectively.

THE ANSWERS ARE NOW LISTED AS FOLLOWS:

??-?(2)

 n
$$P_1 = (3)$$

1

—[?]-[?]-[?]-[?]-[?]-[?]-[?]-[?]-[?]-[?]-[?]-[?]-[?]-[?]-

?

ZZ

 $z y$ N
$$a_j$$
$$P_2 = (4)$$
 $1 ()_2$

1

1

1

[?]

22Z

Z V

N

$$a_i$$

To determine the factors responsible for expenditure of household basic needs, the following model was specified as: $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + e_i$

Comment [u21]: Gender not estimated in years

Comment [u22]: Makes no meaning in the present form

Comment [u23]: Househol size not measured in Adult equivalents.

national average; this could be associated with the believe on the need for family labour to work on the farm. Many (66.25%) take to farming as their primary occupation and embrace livelihood diversification through involvement in nonfarm livelihood activities. 53.75% and 46.25% of the respondents practiced mono and mixed cropping system

209 respectively; connoting that majority take to mono-cropping due to capital constraint. The estimated average farm size of approximately 2ha is in line with the national average. Mean incomes from primary and secondary occupation were N 34,536.28 and N 14,281.72 respectively while the mean pooled income was N39, 521.00. The estimated mean total expenditure was N 21,673.46; this is incomparable with that of the national average and these findings agree with the work of Babatunde *et al.*, (2008).

Table 1: Selected socio-economic variables of the respondents

Variable	Frequency	Variable	Frequency
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Age

21 – 30

31 – 40

41 – 50

51 – 60

> 60

Mean age (41.7 years)

Gender

Male

Female

Marital status

Single

Married

Widowed/Divorced

Household size

1 – 5

6 – 10

Above 10

Mean household size (7.29)

Years spent in school

None

1 - 6

7 - 12

6 (7.5)

12 (15.0)

47 (58.75)

11 (13.75)

4 (5.0)

48 (60.0)

32 (40.0)

7 (8.75)

Comment [u24]: Besides largely inconsistent data and incomparable estimates of pooled income, for example, theses finding agreed with the findings of a non-existent reference authors –Babatunde et al 2008. Babatunde et al are not in the references.

53 (66.25)
 20 (25.0)
 17 (21.25)
 54 (67.5)
 9 (11.25)
 20 (25.0)
 32 (40.0)
 19 (23.75)
 Types of toilet used
 Water closet
 Pit latrine
 Bush
 Means of transportation
 Personal car
 Public car/buses
 Motorcycle
 Bicycle
 Trecking
 Health care
 Modern hospital
 Community dispensary
 Spiritualist
 Self medication
 Source of finance
 Personal savings
 Social group
 Banks
 Income from primary occupation (N)
 < 20,000
 20,001 – 30,000
 30,001 – 40,000
 2 (2.5)
 24 (30.0)
 54 (67.5)
 2 (2.5)
 20 (25.0)
 46 (57.5)
 10 (12.5)
 2 (2.5)
 5 (6.25)
 22 (27.5)
 36 (45.0)
 17 (21.25)
 53 (66.25)

25 (31.25)
2 (2.5)
8 (10.0)
13 (16.25)
45 (56.25)
Above 12
Primary occupation
Farming
Others
Secondary occupation
Farming
Civil service
Trading
Artisanship
Cropping system
Mono-cropping
Mixed cropping
Farm size (ha)
Less than 2
2 – 4
Above 4
Mean (2.36)
House occupied ownership
Personal
Family
Rented
Type of house occupied
Face to face
Bungalow
Flat
Total
9 (11.25)
53 (66.25)
27 (33.75)
27 (33.75)
18 (22.5)
11 (13.75)
24 (30.0)
43 (53.75)
37 (46.25)
47 (58.75)
26 (32.5)
7 (8.75)
45 (56.25)
26 (32.5)
9 (11.25)
75 (93.75)
3 (3.75)

2 (2.5)
80 (100.0)
 40,001 – 50,000
 Above 50,000
 Mean (N 34,536.28)
 Income from secondary occupation(N)
 < 20,000
 20,001 – 30,000
 30,001 – 40,000
 40,001 – 50,000
 Above 50,000
 Mean (N 14,281.72)
 Pooled (Total) Income (N)
 < 40,000
 40,001 – 60,000
 60,001 – 80,000
 80,001 – 100,000
 Above 100,000
 Mean pooled income (N 39,521.00)
 Total expenditure(N)
 < 10,000
 10,001 – 20,000
 20,001 – 30,000
 30,001 – 40,000
 Above 40,000
 Mean total expenditure (N 21,673.46)
Total
 9 (11.25)
 4 (5.0)
 27 (33.75)
 38 (47.5)
 10 (12.5)
 3 (3.75)
 2 (2.5)
 14 (17.5)
 19 (23.75)
 37 (46.25)
 6 (7.5)
 4 (5.0)
 4 (5.0)
 19 (23.75)
 44 (55.0)
 12 (15.0)
 1 (1.25)
80 (100.0)

Source: Field survey, 2011 Figures in parentheses are 216 percentage values.

3.1 Estimation of the poverty line

Household income was obtained by dividing the total per capita income by the total number of

respondents being sampled; this calculation eventually gave a mean per capita household income of N 5305.76 which can also be referred to as the poverty line per month. The classification of the sampled respondents was based on the moderate poverty line which is two third (2 /3) of the poverty line per month while the core poverty line is one-third (1 /3) of the poverty line per month. The moderate poverty line was estimated to be N3537.17 while the core poverty line was N 1768.58. The implication of this is that any farmer spending less than N3537.17 per month is moderately poor while farmers spending less than N 1768.58 are regarded as being poor and spending exactly the estimated amount or higher than the moderate poverty line per month connotes that the farmer is non-poor. Hence, the result shows that 28.75% of household sampled are core poor, 61.25% of the household are moderately poor while 10.0% of the household are non-poor; which implies that, majority of the household sampled are moderately poor.

Comment [u25]: Expunge

Table 2: Distribution of respondents based on Poverty lines

Poverty class Frequency

Core poor

Moderately poor

Non-poor

Total

23 (28.75)

49 (61.25)

8 (10.0)

80 (100.0)

Source: Field survey, 2011 Figures in parentheses are percentage values.

3.2 Analysis of household poverty

34 As shown in table 3, poverty head count ratio P0 shows that the number of people (Food crop farmers) living below the poverty line is 7.2%, which is low in the study area at a moderate poverty line of N3537.17; the SDR (spending deficit ratio) measures the ratio of the difference between the average spending of the poor and the poverty line; according to the poverty line, it was 39.2% while the total spending deficit which is the total amount of increase in spending by all the poor people necessary to lift them up to the poverty line was N12041.04. The poverty gap P1 which measures the depth of poverty was 4.6% while that of the severity indices P2 was 2.8%. It can be inferred from these indices that poverty is a serious problem among crop farmers which has to be urgently addressed.

Table 3: Prevalence, Depth and Severity of poverty of the respondents

Respondents Poverty line P0(%) P1(%) P2(%) TSD SDR%

Crop

Farmers

2/3 of poverty line

= N3537.17

7.2 4.6 2.8 12041.04 39.2

Source: Field survey, 2011

3.3 Determination of factors influencing poverty level among the respondents

The OLS regression analysis as presented in table 4 revealed a coefficient of determination of 0.719 indicating 71.9% of the total variation in the dependent variable (per capita expenditure – being a proxy for income and a measure of well-being) is explained by the independent variables; this further means that the model has a good fit. The result shows that per capital expenditure is negatively related to gender, indicating that females are poorer than the males. Marital status is also negatively related to per capita expenditure, meaning that poverty is more pronounced among married people because of the expected responsibilities bestowed on them. The negative relationship of household size with per capita expenditure shows that

poverty increases with increase in household size, all things being equal. As expected, years spent in school which connotes the educational status is positively related to income, meaning that farmers with less education is poorer than those with more education because education exposes individuals to better and alternative means of livelihood. Farmers who participate in alternative livelihood activities (secondary education) are better-off than their colleagues who do not because it has a positive impact on individual welfare as additional income will be generated. The positive relationship of farm size with income shows that poverty decreases with increase in farm size which could be translated into increased 259 output and more

income. Then, cropping system is positively related to income as farmers who adopt mixed cropping system are better-off as poverty decreases with increase in adoption of mixed cropping system; this is in line with of Babatunde *et al.*, (2008).

Table 4: Regression Analysis Result

Variables Co-efficient t-value

Constant

Gender

Marital status

Household size

Years spent in school

Secondary occupation

Farm size

Cropping system

1.431

- 2.172

- 0.657

-1.220

0.694

0.326

0.217

0.463

2.324

-1.637

- 1.426

-3.029***

2.267**

1.658*

1.950*

1.089

Dependent variable is Per capita expenditure

n = 100, R² = 0.719, Adjusted R² = 0.698, F-value = 5.27

***, **, * - indicate significance at 1%, 5%, and 10% probability levels respectively.

Source: Computer print-out, 2011.

4. CONCLUSION

This study analysed the determinants of poverty in Ogo-oluwa Local Government Area of Oyo State, Nigeria. Primary data were collected with the aid of structured questionnaires and a total of 80 respondents were chosen through multistage random sampling technique. The data collected were analysed using descriptive statistic, poverty indices and Regression (OLS) model. The result revealed that, respondents have mean pooled income of N39, 521.00 while the estimated mean total expenditure was N 21,673.46; this is incomparable with that of the national average. Also, the head count ratio P0 which shows the number of crop farmers living below the poverty line was 7.2%, the poverty gap P1 which measures the depth of poverty was

4.6% while that of the severity indices P2 was 2.8%; total spending deficit was N12041.04 and the spending deficit ratio was 39.2%. It can be inferred from these indices that poverty is a serious problem among crop farmers which has to be given utmost attention. The OLS estimate revealed a coefficient of determination of 71.9%; it also shows that, years spent in school, secondary occupation and farm size are statistically significant at 5 and 10 percent respectively and positively related to income. However, household size is significant statistically at 1% and negatively related to income of the respondents. Hence, the study concludes that the level of literacy has a significant impact on increased income among the crop farmers, which translate to the level of poverty reduction. Also, increase in household size brings about an increase in poverty level considering the meagre income in the study area.

Based on the findings of this study, it is recommended that crop farmers in the study area should be encouraged through mass enlightenment campaign on the need to have a sound and qualitative education for proper adoption of modern farming techniques and innovations. There is also a need for massive campaign against uncontrolled birth rate because increased in household aggravates poverty. And, the need for livelihood diversification can not be underestimated because this means more income source which is capable of lifting them above the poverty line. All in all, increase in farm size is of importance as more output will be produced leading to more income.

AUTHORS CONTRIBUTIONS

The Corresponding Author designed the study, managed the literature searches, performed the statistical analysis and wrote the first draft of the manuscript. The second Author also managed and reviewed the literature searches, proof read the manuscript and the analyses of the study; then, make the necessary and appropriate suggestions and corrections; hence, all authors read and approved the final manuscript.

Comment [u26]: Repetition of Methodology

Comment [u27]: Quality of education was not estimated and indeed not needed as basis for conclusions

Comment [u28]: Birth rate was not estimated in the entire study; no justification for

Comment [u29]: Contradictory conclusions

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